

Astrologie und Forschung II

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Alan Leo's tests of astrology

Proof of its truth?

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Abstract -- During 1906-1914 a series of twenty prize competitions were published in Alan Leo's *Modern Astrology*. Readers had to delineate an anonymous chart for rating by the subject. In each competition a selection of delineations (usually a dozen), chosen by the sub-editor Alfred Barley, were rated. The subject's comments, and the top two or three delineations, were then published. The competitions were the first of their kind and unlike such competitions today they quickly became popular and stayed popular. Readers were keen to participate, subjects were impressed by the apparent accuracy of the delineations, and Leo saw the results as proving the truth of astrology. Today we know that perceived accuracy and truth are actually useless as a measure of genuine accuracy and truth. Nevertheless the results are of interest as examples of chart readings involving now-outmoded classical concerns such as appearance, short journeys, and legacies, and the subjects' reactions to them. They also illustrate why chart delineations are so persuasive to the unwary. Article includes a full description of the competitions, a complete delineation with the subject's comments, many excerpts from other subjects' comments, and many examples of errors, disagreements, opinions and testimonials.

During 1906-1914 a series of twenty prize competitions were published in Alan Leo's *Modern Astrology*, whose sub-title was *A Journal Devoted to the Search for Truth Concerning Astrology*. In each competition the planetary positions (which did not include Pluto discovered in 1930), house cusps, sex, and marital status was given for an anonymous person, always someone of achievement such as an artist, composer, editor, or writer, often with a brief indication of their fame such as "well known to every reader", "very well known", or "has recently come before the public". As a precaution the person's identity was known only to the sub-editor Alfred Barley.

Delineations had to be typed or clearly written on no more than four one-sided foolscap pages, with wide margins showing signifiers, and had to be identified only by a pseudonym. Once the entries were in, a selection (usually about a dozen) was sent to the subject, who ranked them in order of merit. The selection was made by the sub-editor "on a very broad basis, only the hopelessly unfit being excluded". In due course the subject's comments and the best delineations were published, of which the best two won an Alan Leo textbook worth 10s 6d, then about one-third of the average weekly wage. To encourage entries no entrant was allowed to win more than two competitions.

Please read the instructions

The competitions quickly became popular. By the fourth, Leo said "It is quite clear, then, that we have amongst our readers some very capable delineators, of sound judgement and clear reasoning power, and we do not doubt that there are far more than we know of" (*MA* 1907, 4, 65). Nevertheless by the eighth, Leo had to remind entrants to "please read the 'instructions to competitors' before sending in. It is very regrettable that delineations should have to be rejected on account of not complying with the very simple conditions imposed. One gentleman sent in eleven closely written pages of foolscap (!), others omitted to give reasons for judgement, etc., while comparatively few seem to bestow a thought to lightening the labours of the poor adjudicator" (*MA* 1908, 5, 317).

And by the twelfth competition, Leo offered "a word of wholesome advice to future competitors. Try to be *more* definite in your thought, and *less* definite (more general) in your words [ie avoid jargon and write for the reader]. Do not overload your delineation with marginal notes. And don't attempt descriptions of personal appearance, unless you ... feel sure of your judgement." Among examples of what Leo saw as sheer carelessness was telling a native of 71 that he would "eventually marry a woman older than himself" (*MA* 1909, 6, 456), on which the unbelieving subject had commented "This

will be very creditable to her, considering her age, especially as [he was also told] 'she will probably be of delicate health'" (pp.454-455).

Six competitions later, Leo added "It is greatly to be desired that competitors would realise more fully the intention of these Competitions, namely, to demonstrate the relation between the horoscope and the *character, temperament, and ideals* of the native. Then there would not so frequently be occasion for the Adjudicator to administer a deserved rebuke of ill-considered attempts to be impressive. [For example] no one, likely to enter these Competitions, is entitled to consider himself competent to predict the nature or the time of death" (MA 1911, 8, 370).

Popularity

The publication of delineations with the subject's comments was well received by readers. One reader living in the USA praised this "new departure in Competitive Horoscopy ... I can't wait until I get the next copy of the Magazine" (MA 1909, 6, 220). Another (a prize winner) said "I consider these competitions a most excellent means of: first, helping to prove to the sceptic and others the Truth and Utility of Astrology, and second of helping to expand and improve one's own judgement and knowledge of this sublime subject" (MA 1911, 8, 112). Such popularity, maintained over nine years, is not in evidence today, for example see *Astro sleuthing contests* on this website under Doing Scientific Research.

Outcomes

After the twentieth competition, the outcomes were reviewed by Leo under the heading "The Case for Astrology" (MA 1914, 11, 378-383). He begins:

"The late Dr. Richard Garnett in the year 1880 contributed to the University Magazine an article under the pseudonym of A.G.Trent (anagram on Garnett), entitled "The Soul and the Stars." In this article, since reprinted, he claimed that the evidence submitted constituted a prima facie case for Astrology. It dealt with certain simple astrological generalisations and cited instances from famous people not then living. [The article gives numerous examples of the match between chart and person.] Such an article however reasonably written always leaves a loophole for the suspicion that the writer may have either wilfully or unconsciously selected his instances so as to exhibit all the pros and none of the cons. For that reason it seems to the present writer that the series of "Prize Competitions" published in *Modern Astrology* during the years 1906 to 1912, furnishes an even better prima facie case."

Leo stresses how the subjects were unknown to the delineators (and also to himself), and how the best delineations were chosen by the subject "usually with the aid of one or two personal friends to assist in the task of adjudication. The delineations were thus subjected to the test of *consonance with fact*, and not merely technical proficiency."

Leo then notes how the subjects found judgement "exceedingly difficult by reason of the striking general correctness of some three or four delineations. It would seem impossible for a sceptic to read these adjudications seriatim [ie one after another] without coming to the conclusion that Astrology was grounded on truth." After three pages of further comments he adds: "So far as the writer is aware, no series of Prize Competitions of this kind has ever before taken place in connection with astrological delineations. ... Another point of evidential value is the fact that the prize-winners were different people. For it excludes even the rather forced explanation that might have been brought forward had the delineations all been the work of one man: namely, that the man in question had

some peculiar divinatory gift, and that his ability to exercise this gift was in itself no proof of Astrology, since there was no necessary connection between the two. Whatever one might think of such a hypothesis in the case supposed, it is inadmissible here."

20,000 testimonials

Alan Leo seemingly had every reason to believe in the Truth of Astrology. His production-line horoscopes, launched in 1901 but discontinued in 1910 due to rip-off imitations, consisted of a pre-printed sheet for each chart factor. His ads offered a refund if the horoscope was not true, and in the first three years more than 20,000 were sent out with no reported requests for refunds. By 1914 he had received about 20,000 testimonials to the accuracy of his horoscopes, whose existence was cited as a defence in his 1914 prosecution on a charge of fortune telling (which was dismissed because Leo had been overseas at the time). After the court case, forty of these testimonials were reprinted in a six-page *Personal Testimonies* supplement to *MA* 1914, 11(8), under the heading "The Truth in Astrology". Dated between 1902 and 1910, they say things like:

has fully shown me my possibilities and dangers ... each thing is true or throws a light upon what I could not understand ... very remarkable and very true ... undoubtedly true ... without them I would be groping in the dark ... strangely true ... exceptionally good ... very true ... surprised at its accuracy ... quite correct ... accurate in all its parts ... singularly true ... sad that such a great truth needs defending ... very true ... your writings are my only comfort ... so curiously true that I should have written for a guinea horoscope but had not one to spare ... perfectly true especially faults of character ... simply marvellous ... surprisingly accurate ... wonderfully correct ... not one error to be found ... I have great faith in Astrology ... very correct and a marvellous bit of work at the price ... very accurate delineation ... very truthful ... very correct ... extremely satisfactory ... impossible to avoid the conclusion that Astrology is not the useless and exploded science that so many people believe it to be.

Subjects' comments

Almost as glowing were the sentiments expressed by the subjects of the prize competitions. Of their delineations they said things like:

hit me off remarkably well ... a wonderful proof of the truth of Astrology ... first three are so correct ... they are all good ... amazed at their general truth ... genuine and striking results ... inaccuracies not particularly noticeable ... certain are very correct ... first four are remarkably true ... all wonderfully correct in the main ... remarkable correctness of most ... nearly all are extremely good ... none can be unreservedly praised for general accuracy ... show the practical value of Astrology to humanity.

In the following issue Leo stressed how astrology was a scientific undertaking and did not require any sort of psychic ability: "Now while I am in sympathy with the practice of the "occult arts," by those who are genuine practitioners, I must separate Astrology from Palmistry, and psychic methods of divination. Astrology does not depend upon any psychic powers of divination, but upon pure intellect and the *judgment* of nativities, and therefore stands alone at present as a practical study based upon mathematics, dealing with the influences *outside* the human being as well as his response within. Astrologers are not working on psychic lines, and they therefore stand apart from divination and all those methods which at present are not considered scientific" (*MA* 1914, 11, 387-388).

Proof of astrology?

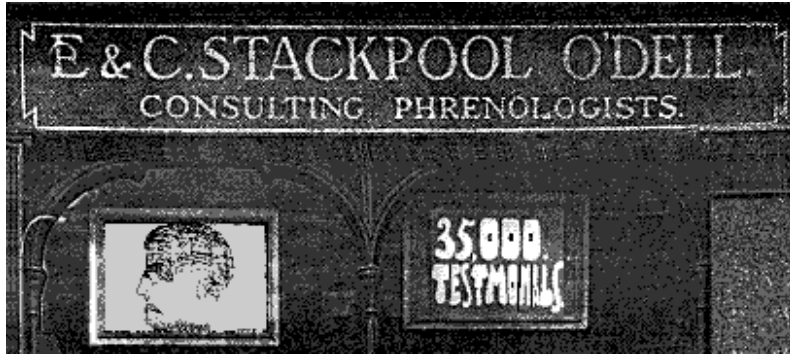
On the face of it, therefore, astrology required no special gifts save the ability to calculate a chart, and its indications received rave acceptance even when scrutinised in depth as in the prize competitions. To Alan Leo this was irrefutable proof of its truth. But as we now know, precisely the same rave acceptance occurs when people are given identical Barnum statements disguised as their horoscope (see *What tests are easy?*), or the horoscope of a mass murderer disguised as their own (see *Murder and Effect sizes*), or a personal readings based on a deliberately reversed chart (see *Phillipson interview of researchers*), to say nothing of the ready acceptance of readings that are later found to

be based on the wrong chart (see *Astrology my passion* and *Basic statements about astrology*).

Gauquelin's ad in the magazine *Ici Paris* for 16 April 1968 offering a free horoscope in return for date and place of birth. It attracted over 500 respondents, to each of which Gauquelin sent a copy of a 10-page interpretation of the mass murderer Dr Petiot's birth chart pretending it was their own. The interpretation had been generated by an IBM computer programmed by France's leading astrologer Andre Barbault, and said things like "instinctive warmth ... adaptable ... organised ... bathed in a sea of sensitivity ... total devotion to others ... altruistic sacrifices". Gauquelin enclosed an SAE and asked for comments. Of the first 150 replies, 94% found it to powerfully and accurately fit their character, personal problems, and life events. 90% found the accuracy to be confirmed by their family and friends. The respondents were generally delighted and impressed by the interpretation. They said things like "marvellous ... extraordinary ... astonishingly accurate ... certainly me." (Repeated from *Effect sizes* on this website under Doing Scientific Research.)

The waters are further muddied by the non-blind pre-selection of delineations, and by many of the subjects being interested in astrology (some were even students of astrology), so their assessments could have been biased by knowing what their chart was supposed to mean. In at least one case of the latter (Competition 3) the subject discredited any interpretation that disagreed with his own, for example Venus in 12th did not mean unfortunate love affairs but "control of the passions by the higher faculties".

In other words the perceived accuracy and truth, although seemingly irrefutable proof to Alan Leo, are actually useless as a measure of genuine accuracy and truth. The same applies to the 20,000 testimonials, just as it applies to the 35,000 testimonials in favour of phrenology shown in the picture below. The same also applies to similar exercises that appear from time to time in astrological journals, and in books such as Zipporah Dobyns & William Wrobel's *Seven Paths to Understanding*, ACS 1985 (seven subjects vs astrology, palmistry, numerology and graphology), and Rafael Nasser's *Under One Sky*, Seven Rays Press 2004 (twelve interpretations of the same chart vs the subject's self-description). To properly assess the accuracy and truth of astrology requires controlled matching tests of the kind described on this website in *Artifacts in data* and *Case for and against astrology*, which tests did not become established in astrology until half a century after Leo's death.



This photo taken around 1920 in Brompton Road, London, shows part of the window of the famous phrenological consulting rooms and Phrenological Institute of Mr and Mrs Stackpool O'Dell. On the left is a picture of the head divided into phrenological faculties. On the right is a sign announcing 35,000 testimonials for phrenology, whose claims are now known to be completely false. Could 35,000 people be wrong? Could their testimonials be largely meaningless? Yes to both.

Example of a winning delineation

Although the delineations are of little value in assessing the truth of astrology, they are of interest as examples of chart readings involving now-outmoded classical concerns such as appearance, short journeys, and legacies, and the subjects' reactions to them.

The following example delineation was winner of the first competition and has the advantage of being briefer than most. Leo comments that the "delineation, though brief, is succinct and telling, and is said by the native himself to be recognised as a good description by those who know him well. ... Suffice to say that the prize-winner had no possible means of discovering his tastes or character except such as the horoscope afforded, and that even now she is quite ignorant of his name. This delineation therefore forms in itself a remarkable vindication of the claims of Astrology as regards the study of character and temperament."

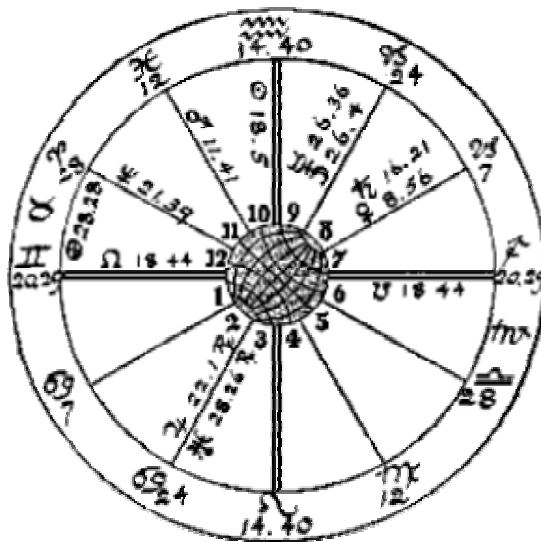


Chart for Alan Leo's first Prize Competition

The winning delineation starts by noting how Uranus in 3rd house is opposite the mental rulers in 9th house, which factor then dominates the delineation, especially the first two paragraphs. The parts that the native and his friends rated as inaccurate are *shown in italics*.

"I should judge that while the native is essentially a thinker, *his views are eccentric, unpractical, visionary, his convictions will undergo some sudden change and his mind is subject to fret and worry*. Originality, versatility, *genius* are conferred by this position of Uranus, to which the native has added a vivid imagination, *but he will be unlucky in the expression of his opinions, his views will not bc popular and he will suffer much opposition on the score of his religious views*.

"He will have a more or less public career and attain to a certain degree of fame, and social success, *but there is danger of a downfall, and his friends will not prove loyal to him*. Many means of success are open to him, literature, music, science, politics, but he will not confine himself to one occupation. It seems probable that literature will play a prominent part in his life, and as there are indications of his deep interest in occult or psychological matters his pen may be employed on such subjects.

[The native says he is a pharmaceutical chemist, a bachelor of music, has composed a symphony, has written stories, poetry, and a small book on a semi-occult and philosophical subject, but "politics, so far, I have left severely alone. I make these confessions in order to show how correct the above delineation is in this matter."]

"Neptune will also influence his mind -- not altogether for good. His is not a lucky horoscope, there are many bad aspects and the lord of his ascendant [Mercury] is much afflicted [square Neptune and opposite Jupiter and Uranus]. He will suffer and live more in the mind than the emotions."

[The native did not comment on the last paragraph except to confirm that he did live more in the mind than in the senses. The native was also a student of astrology, which may explain why, despite the glaring errors, he concluded "At any rate, there's no denying that as a whole the description is remarkably true."]

Leo added "In the face of these admissions, we think our readers will agree with us that the result of the Prize Competition No 1 has been eminently satisfactory. By way of encouragement to the diffident among our readers, we may mention that the prize-winner sent in her delineation with many apologies for venturing the attempt, being 'only a beginner'!" (MA 1906, 3, 251-253). Nevertheless, despite her modesty, the winner (Mrs Beatrice Avery of Warrington near Liverpool) was also a prize-winner in the third competition, so for the present purpose her skills can hardly be doubted.

Examples of errors and disagreements

Beginning with the ninth competition, Leo had the subjects insert a symbol (°, ', ", ""') after each statement in a delineation to denote it as either *remarkably true, quite right, incorrect, or doubtful*. "These symbols are unobtrusive and will not interfere with the reading, while they will supply that detailed comment which is ordinarily out of the question, but which the earnest student so eagerly desires" (MA 1909, 6, 59). Here are three examples from the ninth competition:

a great love of peace and harmony° (Sun in Libra)

he is ambitious and desirous of excellence' (Moon in Capricorn, Virgo rising, Saturn in 1st)

rather lacking in charity" (Venus conjunct Saturn in Virgo)

The total number of inserted symbols was generally between 20 and 100. But only the winning delineations were published, they were rarely organised under any sort of headings such as *mentality* or *career*, and they are still too wordy to be easily compared, even though their length (typically 700-1200 words) is not excessive by today's standards.

Furthermore, on inspection *remarkably true* tends to be applied to statements that anyone could make given that the subject was a person of achievement, for example "engaged in some artistic or literary occupation" or "an uncommon mind" or "a refined taste". Or they tend to be applied to statements that are decidedly Barnum, for example "mind experiences conflict between mystical order and physical limitations" or "fortunate and unfortunate elements mingle in questions of marriage" or "practical where money is concerned except when swayed by feelings".

A much better feeling for what is happening is given by those cases where the subjects themselves have surveyed the errors and disagreements of all entries, as in the following examples. Where needed the excerpts have been slightly abridged to maintain the thread and improve readability:

Competition 2. Marion Holmes, author and founder of Woman's Suffrage Association: "The marriage is not as indicated in the horoscope and has been practically without a cloud. No competitor mentioned my love for little children -- it is really one of the strongest features of my character -- nor that my life from 32 to last year [age 38] was crammed full of sorrow." The sorrow was due to poverty, sickness, anxiety, loneliness, and death of parents. Here Leo adds a footnote pointing out that during this period, progressed Sun was opposite progressed Saturn.

Competition 3. Anonymous author of occult works: "One competitor sends a very detailed delineation, with quite definite statements, the only fault of which is that they are almost wholly incorrect! This competitor also gives me several children, and a materialistic turn of mind. Nature has not."

Competition 7. Thomas Maybank, *Punch* artist: "My marriage seems to be a very unfortunate affair in the opinion of nearly every competitor. My wife is stated to be proud, overbearing and quarrelsome, and altogether I have a very unhappy time of it." But he had never been married and had no thoughts of marrying. One delineation also saw him as markedly deficient in humour.

Competition 8. Allen Upward, author: "the delineations are most divergent from each other, and from the truth, [when] dealing with the physical appearance and constitution of the native, producing the effect of bad guesswork. When they approach the questions of character and temperament they tend to agree with each other, and with the facts. Most of the competitors have exaggerated my interest in the occult. The statement that I have suffered from lawsuits and loans has no foundation in fact."

Competition 9. Arthur Mee, astronomer, age 48, also a keen student of astrology. A year earlier his letter in the magazine *English Mechanic*, noting that conflicting opinions about astrology demanded "an investigation -- a test ... Mere argument is wholly beside the point", had led to the debate with astronomers as summarised on this website in *Evolution of claimed evidence for astrology*. "I have not had frequent breakdown in health, nor suffered from rheumatism, nor from coma; am not tall or big-boned; do not make a profession or business of anything occult; did not go in for art; have no

mathematical ability, no business ability, no leanings to speculation, no government post, no connection with theatres, no surprising instances of luck, no ability for controlling others, no mesmeric or healing powers that I know of, no love of sport or sports, no monetary flow from a mysterious source, no power of mental concentration (my memory is a terror). I hate taking medicine, have a strong sense of humour, and not the remotest intention of becoming a recluse.

"As a student of Astrology I note that competitors are not always consistent in their view of the planetary positions and aspects. For instance, some give Saturn in first house, others Venus in twelfth house, though her longitude is greater than Saturn's. Some give Uranus in the ninth, others in the tenth. Jupiter is usually given as eleventh house, though he has some claim to the twelfth. Other points might be named; and I should like some competent opinion on this vexed question of orbs. I note with interest that one or two competitors hardly use the houses at all in aiming at their judgments."

Competition 10. Frederick James, age 50, composer and music teacher: "How can there exist a reliable method of arriving at results when one competitor states that my early life was spent in congenial surroundings, and another asserts quite the opposite? Again, some competitors see my married partner as a paragon of virtues, while at least one other sees the opposite. Farther, several competitors allude to my fondness for travel, to my great business capacities, to stomach troubles, to an innate love of the drama, and to a connection with the occult sciences. Charming though the above characteristics may be, they have never belonged to me.

"Nor do I possess: a calm exterior, a commanding presence, brown hair, a leaning to anarchy, a partner in business, a love of tragedy in preference to comedy, great frugality, and a daily occupation connected in some way with liquids. The allusions in several instances to great wealth which I shall accumulate, and also to legacies which are due to me, are very cheering. But I have not suffered much from those ailments."

Mr James also refers to phrenology: "Regarding travel, several phrenologists of acknowledged ability have told me that of all the occupations which nature has designed me for, that of a navigator or explorer is foremost. However, I am too nervous to trust myself on a steamer, even to the Isle of Man!"

Competition 12. The subject was Joseph Levy, age 71, economist, editor of *The Individualist*, and not a believer in astrology. Nevertheless his comments have what Leo calls "astonishing aptness and delightful wit", so they are given at some length. His pithy response to a prediction about marriage was cited earlier. The *names in italics* are the pseudonyms of the competitors:

Physical characteristics: *Rufus* tells me that I am "tall with plentiful hair, light while young, getting darker as age advances." *Libranos* says I am "a somewhat tall person, fair complexion, light brown hair," and *Uranus* says much the same. Being a materialist, I have been in the habit of trusting to a foot-rule in measurements of my height, which low Western method has resulted in my conviction that I am only 5ft 3in in stature. My hair, too, judged by the same coarse method, was very dark in my youth and early manhood, but is now liberally tinged with white; but in an occult sense it may have been fair and may now be getting progressively darker.

Rufus also tells me that I am "liable to severe chills and lung complaints." This is no doubt true from the astrological point of view; but one of my oldest and most intimate

friends is lost in astonishment at my imperviousness to changes in temperature. The ablest physician whom I ever consulted told me: "You have the strong lungs of your race"; and I have never had any chest complaint. *Rufus* adds that I "dominate the thoughts and doings of a large body". I am glad to hear this.

Noctiluca says my father probably died in my childhood. He died exactly twenty nine years after my birth and in the same room. *Noctiluca* also tells me there may be an impediment in my speech. I am quite sure that many people wish there were.

Of marriage, *Noctiluca* judges that my wife was older than myself, and that she was perhaps sarcastic. She was seventeen years younger than I, and sarcasm was quite foreign to her nature. *Libranos* says "there is a likelihood of twins." *Rufus* says that my offspring are numerous, and that I have "no doubt become the father of twins". *Uranus* says I "will have a fairly large family, chiefly sons," while *Pandora* gives me no children at all. I have two (daughters) only, separated in age by three years. My wife had congenital heart disease and died fifteen years ago.

Libranos says I "will have losses by inferiors or servants who would prove treacherous"; and other horoscopists say the same. Now this is utterly at variance with what I should myself say. No person could have been better served by employees. I have great contempt for people who are constantly complaining of their servants; and I hold that generally they have the servants they deserve. *Libranos* also says I am "pronouncedly occult and idealistic," and that "the cultivated occultism of the Orient will appeal" to me. It may appeal but it will get no response.

Bonaspes tells me that I have "business or trade with sharp implements connected with agriculture." This is correct in that I once bought a spade and a rake for use in my garden. He also says I made a long journey between 20 and 30 years of age. So far as I can remember I did not leave England in those ten years.

Sunrise learns from the stars that I am proud, inclined to extravagance, too much centred in my family, and "possibly of strong conservative tendencies." I can regard this only as a stellar joke, and a very poor one. *Rufus* thinks that a suspicion of untruthfulness, and deception generally, attaches to me even among my friends. This is another joke, or something worse. *De te fabula* attributes to me a jealous tendency, of which there is not the slightest trace. The paper which approximates nearest to the truth is that of *Apollo*. But (as I have no belief in Astrology, and have difficulty in understanding how any sane person can give credence to it) I regard this as a mere fluke.

Competition 15. Walburga Lady Paget, wife of the late Sir Augustus Paget, former ambassador in Rome and Vienna, now living near Florence: "nearly every competitor says I am musical and very much so. Now, I am not in the least musical, though I like music when I am well disposed for it. Neither do I sing, as so many have thought, but my friends like my speaking voice. There is a frequent mention of depression, to which I am not liable, but I am very apprehensive -- a bad habit which has overshadowed a great part of my life. I never was ambitious, nor am I fond of show or luxury. Cautious I am not, but I have a certain instinctive prudence which holds me back from trusting people quickly.

"The allusions to my financial talent amuse me. Money affairs have been absolutely extraneous to my life. I know and understand nothing about it. However, I think I spend

well, carefully and with judgment. I hate waste, and I consider it undignified to be in debt. Nearly all the competitors give me dark hair and eyes. My hair was auburn, my eyes a bluish green."

Competition 16. Mr Francis Cox, Secretary of the Equine Defence League, and not a believer in astrology: "I question whether my fellow man could not deduce a truer insight into me from my literary style and personal mentality than could possibly be gained from Astrology or any kindred cult, and, if I were not fully aware of the sincerity of the Editor and his colleagues in their faith, I should be inclined to think that the free latitude granted in these pages was granted in order that the native might unconsciously portray the character in agreement or otherwise with the Delineation. Candidly, I have no faith in Astrology. On no grounds, physiological, psychical or scientific, can I see the least justification for giving it credence." Nevertheless the top two delineations were "a triumph for Astrology", and "even those that are wisest of the mark contain some remarkably true deductions and statements of fact".

Competition 18. Felix White, composer: "All the delineations sent in miss the one thing that is central to my existence, namely music. None of the delineations can be unreservedly praised for general accuracy, even after allowing for the omission of music."

Competition 20. Miss Irene Warner, astronomer, lists "the only points really incorrect in each delineation", which after much rearrangement can be summarised as follows: "My early life and financial affairs have not caused any special worry, my friends are not principally women, I have not had weak lungs, or a number of short but disagreeable journeys, or no sea travel (I have been to many overseas countries). Nor have I had an unwilling scepticism in religions matters, or a good deal of trouble over my unorthodoxy in religion (these points are decidedly incorrect -- I have always been unorthodox in views though holding the main tenets of Christianity firmly).

"I am not an extreme militant in the Female Suffrage campaign, a hard worker (except under important circumstances), a vegetarian, carried away by enthusiasm, engaged in chemical research work, good at mathematics (palmists also say this but it was my weakest subject), one of a large family (I am an only child), particularly diplomatic, sensuous, somewhat conceited (I admit to being proud but not conceited), unafraid of being lonely, or very practical (alas).

"I do not have a large circle of friends (I have many acquaintances but few friends whom I trust), an interest in diet or diet reform matters or socialism or temperance work or being an actress, a height that is below average (it is 5ft 9in), a preference for working unseen (I do not like obscurity), brothers or sisters, dark eyes and hair (they are blue-grey and mid-brown respectively), much patience (my friends say it is conspicuous by its absence), quick recuperation after any illness, socialistic tendencies (I am an Imperialist Royalist), or trouble in my occupation (writing and reading, which I like very much)."

A major disagreement between professionals

After the twentieth prize competition, Leo invited readers to delineate a "horoscope which has been productive of many confusing statements". Its owner had gone from one professional astrologer to another, whereupon "each interpreted a series of adverse aspects in a different way, one saying the native would be *shot*, another that he would *lose his wife*, a third that he would be *ruined in business*, a fourth that he would suffer a

severe illness, a fifth that he would soon meet with an accident, and a sixth that he would elope!!!" (MA 1914, 11, 157-159).

The owner, then aged 45, was so upset by these interpretations that he made a personal visit to Alan Leo, who "was fortunately able to convince the native that erroneous judgements had been given, although I must confess it was a painful task to show the superficiality of the work turned out by those who would by the length of their practice have been capable of giving better judgments". Leo was at the time holidaying on the French Riviera, and to visit him the owner had to make a thousand-mile return journey from the Birmingham area where he lived.

The rectified birth details given by Leo are 18 December 1869 11:52:04 pm 52n31 1w51. The dominant chart factor is an exact Sun-Moon opposition, traditionally interpreted as some kind of internal conflict, beefed up by close proximity to the MC axis. There is also a T-Square between Mars, Neptune, and Uranus, all within 5-degree orbs, also traditionally interpreted as conflict, upsets and change.

Leo concluded that each astrologer had considered a different natal factor such as the above two, with different admixtures of progressions and transits, without considering the chart as a whole, thus ending up with different indications. "That the horoscope ... was a difficult one to judge I am fully aware, but it is just these difficult horoscopes that cause all the mischief. ... [I] can also vouch for the fact that each astrologer to whom it was submitted claims to have many years experience, and in no case were they professionals from whom careless or indifferent work would be expected."

Why the study of astrology should be encouraged

Prize-winning essay from Alan Leo's *Modern Astrology* 1907, 4, 5-7

Abstract -- Gives 33 reasons presented in 1907 why the study of astrology should be encouraged. Some of them (such as showing "whom to admit as equals") might be unacceptable to many astrologers today. The rest reduce to: Because astrology has attracted great minds, is a better source of knowledge than science, reveals our place in the world, prevents many mistakes and misfortunes, is a speedy cure for profanity, gives good guidance on health, marriage, friends, travel, employment, where to live, in fact on all things, will revolutionise the world, and has never been proven false. Seven similar reasons from a 1910 article are included. Most of the reasons are incompatible with modern research findings.

Thirty-three reasons, supplied by E.T.Manderville, to whom a special prize of one guinea has been awarded. See *The Astrologer's Annual* for 1907, p.24. [One guinea was then roughly half the average weekly wage]

BECAUSE

1. It has been studied by some of the keenest intellects of the past, and is still studied by intellectual men in the present.
2. It appeals to the intellectual side of our nature and encourages the active use of mind and thought.
3. It invites and stimulates an honest enquiry into the laws governing the earth and its inhabitants.
4. It enables us to obtain a more correct knowledge of ourselves in our relation to the physical world than any other scientific system of enquiry.
5. It is the main entrance into a fuller and more complete understanding of the new psychology.
6. It clearly demonstrates to the average mind a wise intelligence behind the manifested universe, and reveals a perfect ordering of all things.
7. It denotes the place in evolution of each individual, and indicates the limitations imposed upon him for the purpose of learning the lessons that earth life has to teach.
8. It teaches us whom to respect as true superiors, whom to admit as equals, and those whom we have to help as inferiors.
9. It establishes faith in a Divine Ruler, and soon establishes the conviction that "we suffer from ourselves," thus confirming St Paul's teaching that we shall reap as we have sown.
10. It enables us to accept our environment, as the best for our immediate purpose, in which our energies may be fruitfully expressed.

11. It enables us to discover with whom we may make profitable acquaintance, and how to adapt and adjust ourselves to circumstances.
12. It shows where our affections may be safely placed, and also when and where they will be reciprocated.
13. It rationally explains our sympathies and antipathies, and why we are magnetically drawn toward some individuals and repelled by others.
14. It quickly proves that there is no such thing as chance or accident, and inspires us to see that all is designed for our eventual perfection.
15. It leaves no doubt as to character being destiny, and thus aids us to avoid careless censure of others, but instead produces a better understanding of their actions.
16. It helps us in knowing how to acquire command over our lower nature, and control those sensations and vapourings likely to hinder our higher evolution.
17. It enables us to trace consequences, events and happenings to their legitimate cause, and realise that it is not impossible to read the register of our motives.
18. It enables us to forecast the result of certain feelings, thoughts, and actions, and by the use of forethought to turn them to good account and future welfare.
19. It shows us in which direction to look for genius, how to use the creative faculties and in which direction to exercise our imagination.
20. It is the best means of removing ignorance from our path, and paves the way for much greater enlightenment than we had anticipated.
21. It is of inestimable value in the training, disciplining and educating of children.
22. It is a speedy cure for profanity, corrects irreverence, stops scepticism and cannot fail to encourage a true religious attitude of mind.
23. It brings into active use judgment, perception, discrimination, impartiality, right understanding, careful conclusions and many other mental virtues.
24. It is based upon a perfect symbology, handed on by those wise men who studied before us, in which are preserved universal ideas, illustrated by simple ideographs, metaphors and pictorial hieroglyphs.
25. It enobles all who are sincere and earnest in its study, and when understood its inner meaning broadens both mind and sympathies.
26. It leads to a cultivation of a loyal and faithful obedience to the law of love and harmony.
27. It cannot fail to produce the true spirit of self-reliance; it does away with servility, weakness and inertia and quickly awakens intuition, reason and intelligence.

28. Its universal study would undoubtedly revolutionise the world's thought and attitude, and it is foreseen that when the universal intelligence permeates all beings, that the time will arrive for its general understanding, and therefore human emancipation.

29. It would prevent many misfortunes, and lead to the avoidance of many calamities and enable individuals to act wisely and discreetly.

30. It would prevent many mistakes in marriage, and avoid linking unsuitable partners, thus doing away with separations, divorce and deceptions.

31. It would enable all to select the best legislators, and thus secure a wise administration of worldly affairs, eventually producing a perfect management of national affairs.

32. It would become an abbreviated method of obtaining knowledge of how to treat the body and maintain health, whom to marry, where to travel, the best place to live in, when best to unfold our spiritual nature, when to conserve and economise, in fact of all things, thus saving energy, time and waste of force.

33. It has never been refuted, and no one has succeeded in proving its story to be false, and even after a superficial study it has never failed to command respect and the conviction that it is a possible explanation of the mystery of life in all its various manifestations.

Postscript

An Astrologer's Creed by A.S.Ellerbeck, *Modern Astrology* 1910, 7, 318-321, provides further reasons. Summary: I BELIEVE in Astrology because it invests the entire planetary system with Life and Consciousness, it reduces everything to utter law and predestination, it is wholly complementary to Theosophy, it implies we are not ruled by injustice: it says there is a proper time for everything, there is obvious truth in it, and it has shewed me my own nature, defying all blinking away of defects. [Note the strong influence of Theosophy]

A Chair of Astrology?

Predictions about the Sophia Centre made by academics in 1999

Abstract -- In 1998 an anonymous benefactress bequeathed a million pounds to help establish a Chair of Astrology at a British university. The project was called the Sophia Project after the Greek for wisdom, and its aim was a degree course that would teach astrology in the same way as existing astrology schools did while avoiding their disagreement on content. Unfortunately the disagreement could not be avoided, the mandatory academic rigour did not exist, and in any case the cost was beyond Sophia's means. So in 2002 the Sophia Project had to settle for the Sophia Centre at Bath Spa University, the first British academic centre for studying cultural astronomy and astrology. At the Sophia Centre everything about astrology is fair game but not teaching it, testing it, or questioning its factual validity. In effect astrology is not required to have a real effect in the world, and is worthy of study only because many people believe in it. This subterfuge has swept astrology's problems under the carpet and made it academically respectable. But evidently not respectable enough, for in April 2006 Bath Spa University announced that the Sophia Centre would not be accepting any more students and would be closing. In September 2007 the Sophia Centre moved to the University of Wales at Lampeter, where from January 2008 it would again be accepting students, but only for distance learning. In this article the views in 1999 of two dozen academics and a think-tank of astrologers are summarised and further illustrated by examples from chiropractic, nursing, and parapsychology, and from seven universities (Birkbeck, Edinburgh, Exeter, Hertfordshire, Leicester, Southampton, and York in Canada). The academics predicted that only by abandoning science and the teaching of astrology, and by retreating to the humanities, could astrology be made academically acceptable, and even then only within an existing school. Their predictions turned out to be essentially correct. An appendix gives three media articles on astrology entering academia.

Introduction

In 1998 an anonymous benefactress bequeathed a million pounds to help establish a centre for astrological studies at a British university (complete with a university Chair of Astrology) that would offer degrees in astrology at all levels. A chair is a professor at the top of the academic hierarchy that enables the subject to be taught in its own right. Without a chair the subject can be taught only in some other department as part of something else.

At the suggestion of Charles Harvey, Chairman of Trustees of the Urania Trust, a registered charity under whose auspices the bequest was to be administered, the project was named the Sophia Project after *sofia*, the Greek word for wisdom, knowledge, specifically divine wisdom. (The Urania Trust was founded in 1970 by John Addey, who in 1958 had also co-founded the Astrological Association.) After three years of discussion between interested parties, the outcome was the Sophia Centre at Bath Spa University College. The Sophia Centre was part of the School of Historical and Cultural Studies.

On page 59 of the Nov-Dec 1998 *Astrological Journal*, Charles Harvey had made it clear that the aim was "a university level degree course on real astrology", one that would teach astrology in the same way as existing astrology schools did while avoiding their disagreement on content. Unfortunately the disagreement could not be avoided, the mandatory academic rigour did not exist, and in any case the cost was beyond Sophia's means. So in the end the Sophia Project had to settle for less.

The Sophia Centre opens

Instead of being the hoped-for first British university department for teaching astrology, the Sophia Centre was the first British academic centre for studying cultural astronomy

and astrology. Instead of the hoped-for professor, the Sophia Centre had tutors. It was accredited to award postgraduate degrees and diplomas within Bath Spa's School of Historical and Cultural Studies, and opened in October 2002.

At the Sophia Centre everything about astrology was fair game but not teaching it, testing it, or questioning its factual validity. The degrees and diplomas to be awarded would have no direct connection with what working astrologers did. In effect astrology was not required to have a real effect in the world, and was worthy of study only because many people believed in it. This subterfuge swept astrology's problems under the carpet and made it academically respectable. Nevertheless stable resources, a properly maintained astrology library, and the requirements of academia could only be for the good. Ironically all the Sophia Centre's students to date (roughly a dozen each year) have been astrologers, making good the supposed lack of connection with what working astrologers do.

Similarly at least 6 of the 15 papers presented to the inaugural conference of the Sophia Centre in June 2003 entitled "Astrology and the Academy" proceed as if the scientific study of astrology, or its teaching, was still on the menu. For example Dr Angela Voss looks at better ways of teaching astrology, Professor Jesus Navarro argues that future science might accommodate astrology, Dr Maarit Laurento sees astrology as a "new branch of science", Pat Harris actually tests some astrological claims statistically, Geoffrey Cornelius argues that academia has a duty to "educate verity" (determine the truth) of astrology's claims, and Jean Hinson Lall sees excitement ahead in the testing of claims "in the arena of established scholarship." All six authors are astrologers. Here is a clear hint that the Sophia Centre might be seen by astrologers as implying (wrongly) that astrology-as-usual has achieved academic respectability. The conference papers are reprinted in Campion N, Curry P and York M (eds), *Astrology and the Academy*, Cinnabar Books, Bristol 2004, which contains an excellent summary by Campion of the background to cultural astronomy.

The Sophia Centre closes

In April 2006 Bath Spa University announced that it would not be taking on any new MA students for the Cultural Astronomy and Astrology course. In effect the Sophia Centre would be closing, staying open only until presently enrolled MA students finished their courses in June 2008. The positions of administrator (Alice Ekrek) and lecturer (Patrick Curry) were terminated at the end of June 2006, leaving only the director (Nicholas Campion) in charge. But no hint of the closure appeared on the Sophia Centre website at Bath Spa until December 2006, when it was removed by the university. A year later (December 2007) no hint of the closure appears on the Sophia Project website. The official reason for the closure is that the Sophia Centre was not bringing in enough money.

Update: The Sophia Centre re-opens in Wales

In September 2007 it was announced that the Sophia Centre had moved to the University of Wales at Lampeter, the third oldest university in England and Wales after Oxford and Cambridge. Renamed the Sophia Centre for the Study of Cosmology in Culture, it will be part of the Department of Archaeology and Anthropology. However its MA in Cultural Astronomy and Astrology will no longer be taught on site but only by distance learning, mainly online supported by course packs, online seminars, and tutor contact by phone or email. There will be an optional residential period at Lampeter for a study school. The first intake of students at Lampeter will be in January 2008. According

to the Sophia Centre's new website www.lamp.ac.uk/sophia/ the fee for the whole MA course will be £3240 for students within the European Union, otherwise £8856.

Pre-Sophia predictions by academics

In 1998 Charles Harvey's original announcement invited comments on the idea of a Chair of Astrology. Geoffrey Dean forwarded Harvey's invitation to 7 academics including 3 heads of departments, all well-informed about astrology, and returned their comments to Harvey. The comments then became an initial focus of discussion at a Sophia expenses-paid think-tank weekend on 13-14 March 1999 attended by 22 invited delegates from UK astrology schools and organisations and 3 sympathetic academics. The comments were also emailed to a further 12 astrologers and 25 academics. The end result was three pages of views from the think-tank and a further 12 views mostly from academics.

What follows is a summary of all the above comments and views expressed up to the end of April 1999. It provides a starting point from which to assess the progress of astrology in academia generally. As it turned out, the outcome was more or less as the academics predicted.

Destination academia as at April 1999

Thanks to the inspired founders of the Astrological Association, and *Correlation*, a journal that allows academics to publish research on astrology to academic standards, British astrology in 1999 had the scholarly foundation needed to knock on academic doors. Even so, the academics predicted that problems might arise once the doors are opened, simply because the world beyond could be difficult for astrologers in ways they might not have imagined.

Thus the academic views presented to the think-tank made it clear that Sophia could expect hostility if it tried to enter the scientific arena (as it would if it wanted to teach astrology) because it would entail the teaching of ideas known to be invalid. But there are other arenas such as history and sociology where hostility might be absent. The think-tank of astrologers ignored the first point about teaching, ignored the science connection, dismissed science as irrelevant ("science is not academia"), and agreed with the second point about history and sociology.

The academic views also suggested that the focus should not be on the content of a degree course but on what universities stand for, namely rigour. The think-tank largely ignored this also. Nevertheless a minority felt that "We need to acknowledge our weaknesses in terms of rigour. We need to become self critical." Because the different schools of astrology insist on teaching their own brand of astrology, it was "unanimously agreed that there was no way that the different schools' approaches could be synthesised into a BA in astrology." (Note how the same diversity has never been a problem for a BA in psychology.) Also unanimous was the opposition to any central institute or registry that would oversee standards. The majority felt that BA and MA courses were desirable, provided astrologers had some control over content, but there was no agreement on the actual content.

Ironically the think-tank did not attempt to resolve by horary astrology the many questions up for discussion. Which seems akin to a meeting of bankers refusing to use money. What follows is a summary of the views expressed by various academics up to April 1999 on these various points in turn. Remember that all this is 3-4 years before the Sophia Centre became a reality.

Entering the teaching / scientific arena

Astrologers are generally ignorant of how assailable they are. They think that criticism is limited to what-about-precession arguments, but those days are long gone. They are unaware that academics need only interrogate PsycLIT or Medline databases to find very serious criticisms indeed. Give academics a reason to look, and astrologers expecting only straw men might be unpleasantly surprised. But so far there has been little reason for academics to look, largely because they have limited time and want to use it on things that, based on past evidence, have an impact on the world and therefore deserve funding.

This might change if the teaching of astrology became part of the university system. There would now be a *claimed* relevance to philosophy and science, a claim symbolised by the Chair of Astrology, and this would attract critical scrutiny on a scale never experienced before. PsycLIT and Medline databases would be interrogated, and the hitherto easy life of astrologers would be gone forever, with a humiliating public collapse of the Chair of Astrology being a distinct possibility. Not the sort of thing to interest a reputable university.

Furthermore, astrologers are invariably outraged whenever astrology is criticised, even if the criticism is in obscure journals read by almost nobody of importance. What will they think of Sophia for opening a Pandora's Box of scrutiny by trenchant critics in mainstream journals read by almost everybody of importance?

Nevertheless some newer universities might be tempted, because universities are desperately short of cash (unethically so in some cases), an undergraduate course in astrology would most likely be profitable, and the academic anti-science movement in Britain is definitely around, albeit not as strongly as in the USA. So a chair could be railroaded through by say an anti-science humanities faculty. But that still leaves problems as illustrated next.

Astrology at Southampton University

The think-tank was told that a Chair of Astrology at Southampton University would cost £1.2 million to create and maintain, paid up front. The University (not Sophia) would decide who to appoint and how to spend the money. An alternative that would allow Sophia more control would be a group within the Faculty of Social Sciences with the aim of securing accreditation and a centre for teaching and research. Such a centre might cost £25,000 a year including rent and university fees. The think-tank declined the proposal because astrologers would not have full control over what was taught. (Southampton University, founded in 1919, has 4400 staff, 18,000 students, and in 1997 an annual income of £160 million.)

Who said skeptics need not apply?

A university would not only be unlikely to grant Sophia powers of appointing a chair over faculty, it might also appoint a skeptic, seeing this as perhaps the only way to avoid public ridicule and opposition from existing faculty. This actually happened with the Perrot Warrick parapsychology fund, whose benefits were first granted to skeptic Nicholas Humphrey, then to skeptic Susan Blackmore, then to the Perrot Warrick Research Unit (slogan "bringing scepticism to life") at the University of Hertfordshire. Presumably not what the benefactors had in mind.

Another example: The only UK Chair in Alternative Medicine is at the University of Exeter, and the incumbent is an unceasing public advocate of rigorous placebo-

controlled tests. He co-edits the journal *Focus on Alternative and Complementary Therapies* that critically evaluates published tests, and the result is often their collapse due to methodological flaws. Imagine the consequences for astrology and Sophia if the first UK Chair of Astrology were similarly inclined -- which of course a good academic chair could hardly fail to be, since it is their academic duty to ask "what is the evidence and how good is it?".

The example of York University in Toronto

This is an example of how faculty can oppose what it sees as unrigorous (in this case chiropractic) by calling in the troops. In 1999 the York University administration was thinking of affiliating with a local chiropractic college which would lead to York University (Canada's third largest) offering degrees in chiropractic. If successful York would be the only major university in the world to take this step, which could open the door to other fringe areas such as homoeopathy and naturopathy. So it was opposed by the Faculty of Pure and Applied Science, initially via a petition from the Council for Scientific Medicine signed by two Nobel Laureates in medicine, and subsequently by an appeal via the internet. The response forced the administration to change its mind. Unrigorous chiropractic was out. It seems that an even more unrigorous area such as astrology might be even more out.

Comparison with existing academic courses

Any astrology course would most likely make money. But in academia the teaching of astrology would most likely be acceptable only as a recreational course with no formal award, such as the extra mural courses on pottery for beginners, or psychoanalysis in everyday life. No formal qualification is awarded for such courses. They are run because of popular interest, because they earn money, and because teachers do not have to spend time marking essays and exams.

If a reputable university is to award a qualification, the teaching or practice of astrology would have to be avoided. Thus a suitable course might involve (1) history, such as the ancillary BSc one-year courses in the History of Medicine, or (2) evaluation, such as the MSc courses in Decision Making. For example the astrology literature could be used to provide examples of critical vs uncritical thinking, or good vs faulty design, or how to evaluate evidence, thus providing students with a grounding in rational and open-minded thinking -- presumably not the use of astrology that the Sophia Project had in mind.

There might be scope for research into astrology, but only for an individual project, such as those undertaken as part of a degree in psychology or sociology. An entire course on research would not be justified (much less an entire department as for parapsychology at Edinburgh) unless it came back to evaluation, as in the diploma courses in the Extra Mural Department at Birkbeck. These courses are academic, emphasize evaluation of evidence, and are similar to the first year of a BSc in Psychology. Students who pass the exams can claim credit (eg missing the first year) towards some degrees such as Open University.

Feminist views

A degree course in astrology might well attract a large number of students, predictably mostly young disempowered females (by virtue of their gender) and those on the look out for a soft option to meet their degree credits. But from a sociological perspective it might do the cause of women no good. It adds to the damaging stereotype of women as emotional, irrational, and so on, powerless to effect social change because things are in

some way predetermined. In short, it adds to the neurotic behaviours within modern alienating societies.

Hijacking of assets

Disciplines have a habit of losing territory to other disciplines. For example in psychology alone, much of neuropsychology has been lost to medicine, most of information processing psychology has been lost to computer science, parts of social psychology have been lost to biology as sociobiology, and psycholinguistics is being lost to linguistics. Similarly in parapsychology -- anything interesting and replicable tends to be hijacked by other disciplines, leaving parapsychologists with a steadily shrinking field of enquiry.

The same is true of astrology. Much of what was originally part of astrology (eg astronomy, geophysics, lunacy) has gone elsewhere leaving only the most superficial of ties. New areas such as the human judgement processes that underlie chart readings have immediately gone elsewhere, in this case to cognitive psychology. How many astrologers would consult Wolf numbers or geomagnetic indices or a list of cognitive errors as part of their readings? In short, any parts of astrology that were productive in research would tend to be hijacked by other disciplines, leaving only an unproductive husk.

The example of parapsychology

Universities demand high standards. When the claims are unusual, as in astrology and parapsychology, the standards must be unusually high. When in the early 1980s the Koestler Trust wanted to establish a Chair of Parapsychology, it had considerable difficulty in finding a willing university even though: (1) there was adequate money, (2) it involved research and not teaching (so young minds would not be contaminated), (3) a research tradition in parapsychology already existed elsewhere eg at Duke University in Durham NC, and (4) standards in parapsychology were much higher than those in astrology, for example there were several high-powered research journals.

(The Koestler Trust, which is funded by provisions in Koestler's will, is not related to the Koestler Foundation, which relies mainly on fund raising. The latter was set up in 1978, eight years after the Urania Trust, to promote research in alternative medicine, healing, and parapsychology. For the five years 1985-1989 the Koestler Foundation's budget was £2.2 million.)

The example of nursing

Nursing is a discipline that has entered academia over the last 5 years. To be accepted, it had to examine itself critically and prove to the authorities that it was worthy against a background of hostility, particularly from medicine. Acceptance was won on a demonstrable ability to think critically, and on an allegiance to established university subjects such as psychology, sociology, biology, medicine, pharmacy and law. None of this is true of astrology.

Contentious ideas and practices do enter academia but usually within an established subject. For example psychoanalysis (within psychology) and alternative medicine (within medicine) were accepted only because, as part of the deal (whether proponents liked it or not), they had to be open to criticism from peers, and to the debate so essential to the advancement of knowledge. Again, none of this is true of astrology.

The proper focus

The Sophia think-tank discussed the possible content of a university-level degree course

on astrology and was unable to reach a decision. But content may be the wrong place to start. Instead the focus should be on what a university stands for:

Unlike ordinary schools, universities are at the top of the intellectual ladder. So they set the standards. Standards mean rigour, and rigour means requiring students to be critical. Indeed, an intellectual discipline reserves its highest praise for those who are critical enough to prove their predecessors wrong. By contrast, astrology drums critics out of the corps. The boat must not be rocked. Rigour is clearly not part of astrological tradition, which is hardly a good start.

Or as one academic and experienced teacher of astrology put it: "Astrologers generally have a very inflated idea of the intellectual quality of the body of knowledge they profess to have, they have not the least idea of what constitutes a fallacious argument, and have no concept of what a valid experiment consists of. Not that anybody does any experimentation: the whole of astrology is just a collection of fairy tales, anecdotes and superstitions. In any proper university, the usual arguments in favour of astrology would not stand up for five minutes. Astrology could not take that kind of exposure."

Rigour is given teeth by critical thinking, which is basically about evaluating evidence, judging conclusions, and considering alternatives. Look at psychology, perhaps the single discipline nearest to astrology. In the journal *Teaching of Psychology* 1998, 25, 254-266, a survey of the 37 current introductory psychology texts found that 25 treated critical thinking in some detail, typically 1000-2000 words. This is in addition to the many entire books that exist on critical thinking. By contrast none of the hundreds of introductory astrology texts published over the years give any hint that critical thinking even exists, even though it could hardly be more relevant to what astrologers do.

One think-tank astrologer complained that the academics applied rigour only to astrology as a science, whereas it could also be applied to astrology as say magical thinking or a philosophy, thus expanding the opportunities for entry into academia. But there is no guarantee that the outcomes will be any better than viewing astrology as a science. In fact such areas are effectively covered in university courses on critical thinking. Hardly an entrance here for astrology except as an example of *uncritical* thinking.

Sophia seems to have only one option

At which point the general indication seems clear: If rigour cannot be encouraged then bang goes any sort of university Chair of Astrology, at least at a reputable university. But if rigour can be encouraged, then bang goes astrology, at least as presently practised.

In such a difficult situation it seems that Sophia has no option but to focus on a less assailable area such as the humanities (subjects such as literature, language, history and philosophy). For example astrology could be seen as an example of how some people have interpreted the world. The subject matter would then restrict itself to the history of astrology (how it developed), and the psychology, sociology, and culture of astrology (why and how people do it), and the phenomenology of astrology (how it appears to people). The humanities have the additional advantage that its topics are a matter of fashion, which makes them less vulnerable to attacks based on, say, merit or utility or even clarity.

Academically this would be perfectly acceptable, although rather lightweight. It would perhaps be like a Chair in Shamanism that doesn't claim shamanism has real effects in the world, but insists it is worthy of study because many people believe in it. A bit like Santa Claus.

Which means not a Chair of Astrology but something like a Chair of the History of Astrology. Except that Departments of the History and Philosophy of Science already tend to cover that sort of thing. Given the hostility of most philosophers towards astrology, eg Popper, Kuhn, and Feyerabend (who criticised the 186 scientists but criticised astrology even more), there seems little chance of finding refuge in philosophy departments proper. Which seems to leave only disciplines like sociology, culture, and religion as acceptable umbrellas.

Nevertheless, this may beg the question. That astrology is a fit subject of study for an existing sociology department is not an argument for establishing a Chair of Astrology. Indeed, on what basis would a Department of Astro-Sociology justify teaching astrology (Sophia's original aim) rather than the sociology of astrology? Without doubt there are social areas of astrology that deserve wide study. But the departments and journals in which these areas could be studied already exist, for example the journal *Isis* regularly has articles on ancient or medieval astrology. This is not to say that a study group or journal specialising in astrology's non-teaching areas would be of no value. But where in practical terms does that leave the argument for a separate Chair of Astrology?

Against this could be quoted the example of archaeoastronomy, the study of astronomy in the ancient world, which achieved academic distinction in 2000 when Leicester University appointed the world's first Professor of Archaeoastronomy. But this did not happen in a vacuum. The previous three decades had seen increasing academic interest in archaeoastronomy, which led to international academic conferences and two international societies, each with its own academic journal. The same is hardly true of astrology, although the launch in 1997 of the twice-yearly academic journal *Culture and Cosmos: A Journal of the History of Astrology and Cultural Astronomy*, edited by Nicholas Campion, might set the ball rolling. At which point the academics had one final question.

Why is a Chair of Astrology needed?

The academics wondered why astrology needs to find a place at university. After all, it shows no interest in being linked to fields of science (not to biology, not to psychology, not to statistics, not even to astronomy), or the humanities or the social sciences. As it happens, the think-tank noted that around 1998 the Astrological Association applied for Charity status. In their reply the Charity Commissioners quoted from dictionaries in which astrology was dismissed as nonsense and not to be taken seriously. The think-tank felt that astrology needs to gain academic credentials in order to be taken seriously.

So perhaps it is prestige that attracts astrology to academia. In which case there is a basic problem -- real prestige is *deserved*. It is the result of disciplined work, of critical thought, of willingness to put beliefs to the test, and of following where the chips fall. Astrology presently shows none of this, but it cannot aspire to prestige without striving for the virtues on which it is based.

Appendix

3 examples of media reactions to astrology in academia

Example 1

Astrology, like literature and music, can invest life with meaning

By Alan Smithers

From the *Independent* Wednesday 4 April 2001. Alan Smithers is the Sydney Jones Professor of Education and Director of the Centre for Education and Employment Research at the University of Liverpool. [His researches into astrology have appeared in *Correlation*]

So astrology seems set to become a university subject. The Sophia Trust has £500,000 available to support university teaching and research in astrology. There are, apparently, four takers, including Southampton.

With activities like golf, curry-making and knitting entering degree courses, it looked as though the line would be drawn at astrology and pornography. Pornography, however, has crossed the threshold of a higher education system short of cash and students as a module in media studies, and now it seems that astrology is to be accepted, too.

The continuing hold of astrology on the human psyche is curious. Millions swear by it. Star columns are one of the most popular features of newspapers. Professional astrologers counsel, predict the share market, and offer career and business advice. Whole cultures are imbued with it. It is even said that Ronald Reagan would clear the dates of his summit meetings with an astrologer. But there is no convincing evidence that astrology is literally or scientifically true. Where proof seems to exist, there is usually a more straightforward explanation. The connection between personality and the zodiac, for example, seems to come from enough people knowing the characteristics of their star sign to affect the overall pattern of results on a self-report questionnaire.

We read into the stars, rather than being affected directly by them. Sometimes the consequences can be appalling. The astrological link to prostitution in Nepal seems to arise because some parents there reject daughters who have unfavourable horoscopes.

In the West, while for some astrology is a bit of fun, at most a useful conversation gambit, others are convinced it works. How can this be if it is not true? The star columns in newspapers can appear uncannily accurate on occasions, but this probably comes from the readers supplying the specific meaning to cleverly written general descriptions. It's a bit like the inkblot test where you see what you want to see. Tests have shown that people willingly accept as their own horoscopes drawn up on a random birth date.

At another level, astrology may work if the astrologer is warm and empathetic. If you have a problem and go to a doctor, priest or counsellor, you have to admit some weakness. But if you go to an astrologer, all you need to provide is your date and time of birth, and you can meet on equal terms.

The astrologer casts an impressive-looking chart and is legitimised by it to ask you personal questions and offer advice. If he or she is any good, the astrologer may, in this neutral way, be able to unpack what is troubling you.

She: "A planet in this house suggests money worries."

You: "Yes, my husband is threatening divorce so money could be tight." She: "A planet in this house indicates personal difficulties."

And so on.

A similar approach could help an actor talk over whether to accept a part or a businessman reach a difficult decision. But I look forward to the time when someone sues under the Trades Description Act to see what a court of law would make of it all.

Apparent verifications are part of the story, but I suspect astrology's continuing appeal goes much deeper. The scientific account of human existence is very bleak -- three score and ten on a lump of rock in an infinite universe. How much more comforting to be able to connect with a personalised cosmos.

Astrology apparently had its origins when the planets moving across the heavens were interpreted as the chariots of gods. The ancients created a mythology which survives in modified form to the present day. There are, in fact, strong strands of astrology in the Christian religion. Jesus, for example, was born at the passing of the age of Aries into Pisces, hence the many unlikely biblical allusions to lambs and fishes.

It could be argued, therefore, that it does not matter whether astrology is checkably true. Like literature, art and music, it is capable of investing life with meaning. It is not so different in this respect from Freudian psychology.

So what, then, are the objections to it as a university subject? Well, there are none if it contents itself with examining how a set of beliefs based on an outmoded view of the universe comes to hold such sway in modern times. It would seem an excellent case study for courses in the history of ideas.

But I suspect the Sophia Trust will not be starting from the premise that astrology is mistaken. The teaching and research that the Trust is sponsoring will seek to develop it as a subject. The universities accepting Sophia's support could find themselves presenting astrology as fact: reinforcing a false consciousness.

Example 2

More astrology folly (and why the scorpion has to go)

By Catherine Bennett

From the *Guardian*, Thursday 22 March 2001

Having lamented, now and again, the growing respect accorded to astrology, I have concluded that the greatest difficulty for anyone attempting to convey the idiocy of this branch of occult thinking, is to establish what harm it does.

To some, of course, the banality, arbitrariness and sheer untruthfulness of astrology will be quite enough reason to stop wasting time on it. But its adherents still protest that, even if it does no recognisable good, there is no evidence that astrology actually hurts anyone.

I am indebted, then, to University of Southampton, which has just announced the foundation of a research group for the critical study of astrology, funded by a grant from an astrology-promoting body called the Sophia Trust. Professor Chris Bagley, who leads the group, has professed himself a sceptic. If so, he has a funny way of showing it. One project will look at what the group posits as an "apparent relationship" between the position of Jupiter at the time of birth and subsequent alcoholism and drug dependency. Another, led by a "professional astrologer" whose objectivity we shall have to take on trust, is already "investigating whether the success rates of IVF (In Vitro Fertility *sic*) and other fertility treatments could be improved by coinciding treatment sessions with movements in the star charts of couples hoping to conceive."

It is hard to imagine an endeavour more likely to cause anxiety and distress to some of medicine's most vulnerable patients. In the first place, of course, the experiment is intellectually disreputable. There is no evidence that the stars influence fertility, or, for that matter, any other aspect of human existence, so no phenomenon to investigate. There is on the other hand, abundant evidence that people suffering from infertility may go to almost any lengths for the chance of having a child.

Whatever the outcome of its abject study, the University of Southampton is proposing a possible connection between planetary auspices and individual reproductive systems, thus ensuring that some desperate couples will now start handing over money to astrologers as well as to acupuncturists, healers, herbalists, dieticians, chinese medicine-women and esteemed Harley Street practitioners such as Professor Ian Craft. Some may even decide to defer treatment cycles -- and consequently, their chance of pregnancy -- in the belief that the stars, as well as their hormones, are not propitious.

The only hope that the University of Southampton's pseudoscientific endeavours will be shunned, as they deserve to be, comes from an unexpected quarter: Jonathan Cainer, the tabloids' favourite soothsayer.

In the *Mirror*, which he joined a few days ago, Cainer has apologised to readers for suddenly changing the sign for Scorpio into an eagle, with qualities that are correspondingly eagle-like ("you have this amazing capacity to soar high above any problem") rather than pathetically scorpionish ("a scorpion can only hide in the shadows"). He explained that some people don't care for being "identified with a poisonous insect."

Although Cainer is persuasive, his make-over has caused understandable resentment among readers, who have been told, for years, that the power of star signs depends upon them being marvellously ancient and based on the shapes suggested by the constellations as they appeared to residents of Babylon in 1700BC. Cainer has now offered to switch back to a scorpion "if enough readers request it."

While it remains to be seen -- except, of course, by his fellow astrologers -- whether Cainer will succeed in singlehandedly redrawing the zodiac, couples deemed by the University of Southampton to be at particular risk of one disease or another, might like to sidestep doom by reinventing their star sign.

Leo, my own sign, has always struck me as disagreeably aggressive, so I have decided to switch to the Donkey -- "you have this amazing capacity to bray loudly at all times" -- instead. Since the whole system is made up anyway, there seems no reason why the pick-your-own zodiac should not in future be composed entirely of pleasing animals,

from sweet little seahorses to noble elephants and dauntless hamsters. What puzzles me is, if even Jonathan Cainer knows that, why doesn't Professor Chris Bagley of the University of Southampton?

Example 3

An inauspicious sign of India's new direction

In Foreign Parts: Peter Popham in Delhi

Dateline Saturday 31 March 2001

The initiative came in a circular from the University Grants Commission (UGC) to India's universities: inviting them to set up departments of Vedic Astrology leading to doctoral degrees, starting from the next academic year.

The circular said: "There is urgent need to rejuvenate the science of Vedic Astrology in India, to allow this scientific knowledge to reach the society at large and provide opportunities to get this important science exported to the world."

When India's Hindu nationalists came to power three years ago, crusty looking chaps in late middle age for the most part, swathed in ballooning dhoti, with grey military moustaches and red tilak smeared across their brows, no one quite knew what to expect. A month back they produced a budget full of economic reforms; the other day they found themselves mired in an arms kickback scandal, just like Congress governments before them. So scrub off the caste marks and what was really new? Perhaps, after all, this was just another fair-to-middling Indian government: corrupt, pragmatic, self-serving, too busy feathering the nest to worry about bigger issues.

The circular from the UGS shows this is not the case. The dhoti and the tilak are the uniforms of the stormtroopers of the Vedic Golden Age. Their improbable mission: to transform India into a regional superpower with nuclear deterrent, a network of highways linking all parts of the country and a seat on the Security Council; and to turn the clock back 5000 years, to a time when a race of Sanskrit-speaking Aryans strode the sub-continent, ordering their lives harmoniously according to cosmic law.

In one respect at least the UGC circular is redundant: the "scientific knowledge" of astrology already reaches the "society at large" to an amazing degree.

Observant Hindus, which means most of them, order their lives with diligent attention to the projections of astrologers, soothsayers and palmists. Couples planning to marry must ensure that their horoscopes don't clash, and wed on an auspicious day. Every aspect of business and family life, from the organisation of the rooms in a house to the names you choose for your children (vedicfuture.com, an astrological website, offers 15,000 possibilities) is brooded over and pronounced upon by well-paid "experts."

Sages of this sort have been at the elbow of the powerful ever since Independence. The late prime minister Indira Gandhi was notorious for her reliance on astrologers. Other leaders, too, have had murky "godmen" advising them in the wings. But now these men are in the driving seat: the men in whose fevered vision the alien mosques and churches crumble, the reminders of domination are seared away and the Hindu finally walks tall again -- these are the men making policy and carrying it out. Their plan, as one Indian journalist put it: to turn India into a "modern Hindu version of Saudi Arabia, blessed by multinational corporations ... while the state is free to pursue its own social agenda."

Theirs is a sentimental vision. One of their less controversial ideas is the revival of the study of Sanskrit. But it is not enough to claim what is clearly true, that Sanskrit is at the core of Hindu culture and spirituality. It must also be asserted that it is the "mother of all languages", the most scientifically structured and the most suitable for the modern computer era. They also insist that it was once upon a time the language of the Indian masses whereas in fact it was the exclusive language of Brahmins, and deliberately kept from the lower castes.

But the other India, the India that produced Nehru and the Nobel prize-winner in Economics, Amartya Sen, is not taking this lying down. India has created a vibrant intellectual tradition, and it is not about to be steamrollered by the obscurantists.

Romila Thapar, a distinguished historian, told Delhi University last month in a speech to the 78th annual convocation, that teaching astrology would be a "direct challenge" to established knowledge. Others have put it more bluntly. The author and academic Imtiaz Ahmad writes: "A science has to have a ... framework ... of testable hypotheses. Astrology has no such hypotheses ... Its conclusions that solar and lunar eclipses happen when the Sun and the Moon are engulfed by the demon Rahu ... or that marrying a girl born under the influence of Mars can lead to the husband's death, are mere religious and magical beliefs."

Amulya Ganguli, a columnist, says: "To treat this exercise in hocus-pocus as a science is preposterous." Delhi's most distinguished university, Jawaharlal Nehru University, has already turned the UGC's idea down flat. Dr Kiran Datar, dean of colleges at Delhi University, was more circumspect. "We have received the proposal", she told me. "The proposal is under consideration. A very long process is involved." And if it were accepted, where would the Department of Astrology be located? "In the Sanskrit Faculty, or perhaps in the Faculty of Arts." Not in the Science Department then? "Oh no, not in Science."

[Comments by Indian scientists on the UGC's idea can be found in *Indian scientists on Vedic astrology* on this website under Historical.]

Concerning the vanity of astrology John Flamsteed's 1674 criticism

Abstract -- Unlike modern scientists, most of whom have little knowledge of astrology, John Flamsteed (1646-1719), the first astronomer royal, was well acquainted with astrology, its literature, and astrologers. His criticism was based on several years of personal experience in reading charts and putting astrology to the test, and is thus of some interest. His points (the disagreement on basics, the endless nonfalsifiability, the absence of a mechanism) still apply today. Flamsteed's 1674 writing style is necessarily archaic and wordy, so his criticism has been condensed using a more modern style to just under 25% of its length.

Perhaps the earliest criticism of astrology by a major scientist was written in the 1670s by John Flamsteed (1646-1719), the first English astronomer royal for whom Charles II built an observatory at Greenwich (in 1675) where he worked for 44 years. Flamsteed was well acquainted with astrology, its literature, and astrologers, and his criticism reflected several years of personal experience in reading charts and putting astrology to the test. What follows is based on M.Hunter, *Science and Astrology in Seventeenth Century England: An Unpublished Polemic by John Flamsteed*, in P.Curry (ed), *Astrology Science and Society: Historical Essays*, Boydell Press, 1987, pages 261-300.

In his autobiography Flamsteed tells how in 1665 (when he was 19) he busied himself "calculating the nativities of several of my friends and acquaintance", and how in 1666 he "spent some part of my time in astrological studies" that led to him finding "astrology to give generally strong conjectural hints, not perfect declarations". His criticism of astrology appeared not in his autobiography but in the preface to a draft ephemeris for 1674 that he had compiled as a reaction against the (in his view) debasing of astronomy then being published as part of astrological almanacs.

He explains his view in a letter to a cousin: "I am vexed to see our Ephemeridists spend the pages of their almanacs in astrological whimseys tending only to abuse the people and disturb the public with anxious and jealous predictions, whilst the prediction of celestial appearances which ought to be their only concern is wholly scorned or neglected". But no publisher could be found for such an ephemeris, let alone one containing a criticism of astrology (which in popular form was an essential part of any almanac if it was to sell), and only one copy of the draft manuscript survives.



Flamsteed's manuscript, written in his own hand, is a booklet of 26 leaves roughly A6 in size and somewhat worn. Its short title is *HECKER, His large Ephemeris for the year 1674*, named after Johann Hecker whose highly accurate work of computational astronomy had appeared in 1662. In the last line the author is given as Thomas Feilden, an anagram (with four surplus letters) of Flamsteed. The next page is headed *A Preface to the Readers Concerning the Vanity of Astrology, & the practices of Astrologers*, abridged below.

Flamsteed's preface runs to more than 3700 words. Its 17th century spelling, phrasing, now-obsolete words, and verbose style make it heavy going, so it has been condensed here using a more modern style to just under 25% of its length. Interestingly, the arguments raised by Flamsteed against astrology are much the same as the famous *Disputationes adversus astrologiam* raised by Pico della Mirandola in 1495, and just as interestingly they still apply today, namely the disagreement on basics, the endless nonfalsifiability, and the absence of a mechanism by which astrology could work. Today only the use of statistics and computers has enabled us to significantly better his conclusions.

A preface on the vanity of astrology and astrological practice

Seven years ago I began to study astrology at the urging of a friend well versed in it, for at the time I was much persuaded of its certainty. He lent me several books that encouraged my belief that astrology was useful and worth studying. I quickly learnt the fundamentals and tested my skill on the charts of myself and friends, using the dates of notable accidents to correct the birth time by the method of directions. However, I found that when the chart fitted these particular accidents it would either fail to describe the person or would fail to fit other accidents.

At first I thought the fault might lie in the arcs of direction, which differed according to author (eg Ptolemy, Kepler, Naibod). So I tried them all very carefully on ten charts and found that none of them worked accurately. This made me doubt sometimes the charts, more often my own skill, but rarely the authors or astrology. So I checked again the various books, and found great differences (eg in rulerships) between our astrologers and the Arabian professors. This made me cautious.

I soon found that when astrologers found no direction in a corrected chart to match a notable accident, they referred to other indications such as that year's revolution, seizing on whatever could be made to match the accident despite better arguments to the contrary. And that when they proclaimed the truth of their predictions, they ignored any aspects, directions or transits that failed to show accidents.

Also, if the case could not fairly be proved, they pointed to defects in their ability, or to needing more time to consult their books, rather than acknowledge the least error in astrology. But it is a miracle if the case cannot be proved, because astrologers have so many rules, and so many aspects, transits, directions, revolutions, and progressions to

consider, and so many ways of considering them, that it is impossible not to find something that matches the event even though it is hard to see why the contrary indications should be overpowered. But if even that approach fails, they say that God has overruled the stars.

These failures were one of the reasons that caused me to stop studying astrology and reject it as false. A more important reason was the absence of any way that the planets could influence our actions and thoughts. Thus it was impossible to see how their rays meeting in trine or quartile should be either beneficial or harmful; or how the sun could be more strong in one part of the heavens than another; my experience is that persons with well-placed planets do not attain more than those with ill-placed planets. Also, astrological predictions of the weather are no less ridiculous, for the aspects on which they are based apply as much to Egypt or America as they do to England. Indeed, so small is the verity of astrology that even astrologers do not agree on where it lies. Thus William Ramsey (*Astrologia Restaurata* 1653) says it lies with elections while William Lilly (*Christian Astrology* 1647) says it lies with horary (he makes his living by them), but John Gadbury (*Genethliologia* 1658) laughs at both, thinks that elections are a vanity and horary uncertain, and says it lies with nativities, which I can disprove with one of his own examples of a famous person where, if the name of the person were concealed, the chart would be judged as indicating an idiot rather than a famous person.

Mr Gadbury's cunning in covering the faults of his art is superlative. Most of his charts are of deceased persons, in which having chosen a birth time giving directions for the most notable accidents, he counts this with no little pomp as mightily pronouncing the truth of astrology, all the while concealing how much his corrected time differs from the observed time. But he is more sparing of his predictions for living persons lest the event not occur, and with good reason -- he predicted danger of death in 1661 for the King of Sweden (or 1663 if he should escape 1661), certain death in 1660 for the Prince of Orange, and the same in 1667 for the Duke of York, yet today (1674) all three are still alive and well.

Even if we grant the planets some influence, we must still ask how astrologers can be confident of their judgements when they do not agree on which house system to use, nor on how to use fixed stars. They agree that the stars do have an influence, and some pretend to use them when everything else fails, but they never consider their aspects, which may contradict what is promised by planetary aspects. So how can we be certain of the truth of their predictions?

And tell me, reader, how it is possible that the planets, reflecting only a small part of the sun's light, should have more effect on us than a good fire or candle, which despite their superior light and heat have not the influence on our thoughts and actions that the astrologer says comes from the stars.

Since astrology finds no natural grounds to sustain it, and since experience shows us its falsehood, I hope my readers will withdraw any credit they may have given to this imposture. As for astrologers, I have no hope of reforming them because their profession -- no matter how foolish and opposite to reason -- is too lucrative. My reward for this plain speaking will no doubt be the title of "ignorant and peevish".

Evolution of claimed evidence for astrology

Seven examples 1850-1908-1933-1936-1951-1958-1976

Abstract -- Debates about astrology are as old as astrology itself. But the procedures and inferential statistics needed to make proper tests did not arrive until after 1900, and the computers needed to apply them on a large scale did not properly arrive until the 1980s. This article looks at how the claimed evidence for astrology evolved up to the 1970s using examples from 1850s astro-meteorology, a 1908 debate between astrologers and astronomers in the magazine *English Mechanic*, a 1933 debate between astrologers and critics in the UK newspaper *Sunday Referee*, a 1936 booklet by British astrologer Charles Carter answering objections to astrology, a 1951 letter supporting astrology by Pulitzer Prize winner and science editor John O'Neill, the 1958 founding of the British Astrological Association, and a 1976 response to 186 scientists by science writer and *Horoscope* book reviewer Mark Feldman. The first example (1850s) shows how science was not yet ready to challenge astrology. The next three examples (1908, 1933 and 1936) show how the failure of critics to try astrology for themselves, plus the failure of astrologers to recognise the unreliability of experience, led to the usual stalemate. The remaining three examples show how speculative physics in 1951 and the AA's founding in 1958, followed by further speculative physics in 1976 and the earliest direct tests, were leading to the start of questions being answered. The above examples are a reminder of how limited our scientific understanding of astrology was up to the 1970s, and of the great advances made since then (as will be evident from the articles on this website under Doing Scientific Research).

1850s -- Astro-meteorology

Based on Maureen Perkins, *Visions of the Future: Almanacs, Time, and Cultural Change 1775-1870*, Clarendon, Oxford 1996, pp 197-230; and Brant M Vogel, *Weather Prediction in Early Modern England*, PhD thesis, Emory University, Georgia 2002.

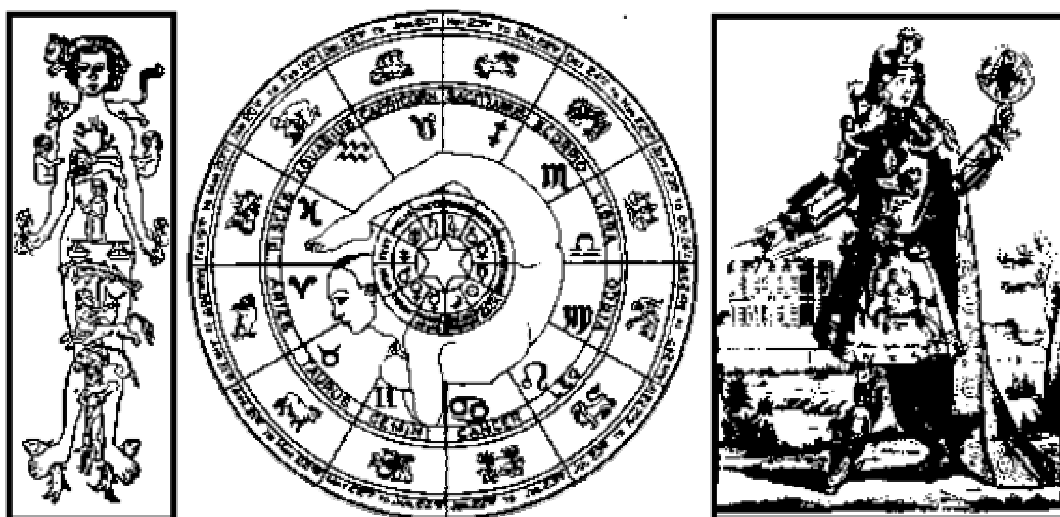
Weather affects almost everything -- farming, building, travel, safety at sea, social activity in general. So predicting the weather became a feature of almanacs that, from the late 16th century onwards, were the most widely read literature after the Bible. Predictions were based on planetary aspects (eg afflictions from Saturn indicated cold weather) and the Moon (eg a change in phase indicated a change in weather), which for centuries had been part of natural astrology. Nothing changed until the 17th century inventions of the thermometer and barometer.

The new instruments started as a hybrid of science and folk practice, then became items of commerce and signs of class. As the market for instruments grew, the Royal Society began making systematic records, and around the 1850s British astrologers saw weather prediction as a way of making astrology respectable. Weather was clearly related to atmospheric phenomena, albeit in unknown ways, so a demonstrable link with astrology would be good news. Proponents included the two most influential astrologers of the time, namely R.J.Morrison, compiler of the famous *Zadkiel's Almanac*, and W.J.Simmonite, author of *The Arcana of Astrology* textbook (Simmonite actually gave up his astrology practice in order to concentrate on astro-meteorology).

But almanacs were losing appeal. The increasing use of barometers, and a recognition that almanac predictions were seldom correct, led to the hope that science might provide better predictions. In 1855 the British Government set up a Meteorological Department that was soon gathering enough data from surface weather stations to create pressure maps and issue two-day forecasts. But due to the lack of upper-atmosphere data, a lack not remedied until the early 20th century, and a focus on wind-

for-shiping rather than rain-for-farming, the forecasts were seen by land dwellers as scarcely more useful than almanacs.

Nevertheless the forecasts began to appear in newspapers, now widely affordable, and the message that weather could be forecast only two days ahead was bad news for astro-meteorology. Indeed, once it became clear that the weather in different parts of the world could be completely different despite having the same astrology, astro-meteorology was doomed. Common sense (rather than a challenge from science) prevailed. As natural forces became better understood, and meteorology became more and more recognised as a science, astrologers lost interest in the weather. Later generations such as Alan Leo never mentioned it, and today articles on astro-meteorology rarely appear more than once every few years in most astrology journals. It was perhaps the first example of astrology's quest for respectability via emerging fields of science, and more were to follow.



Four centuries of Zodiacal man. Like astro-meteorology, zodiacal man was a feature of astrology until the 20th century. From left to right these examples are from *Le Grand Calendrier et Compost des Bergers* 1491, June Marsden's *Follow your Stars to Success* 1935, and Jules Enquet's *L'astrologie* 1786. Zodiacal man was needed by ordinary people at home and on the farm for finding the best days for bloodletting, purging, surgery, taking medicine, and so on. Thus bleeding or surgery should be avoided when the Moon was in the sign linked to the affected part. The systematic allocation of head = Aries down to feet = Pisces was, like planetary links with the weather, metaphysically so perfect that no empirical confirmation was necessary. But despite their perfection and acceptance over many centuries, both ideas failed to contribute anything useful to science. Today they illustrate how the claimed evidence for astrology did not properly evolve until the 20th century.

1908 -- Astrologers debate astronomers in the *English Mechanic*

Based on Alan Leo, *Astrology and the Scientific Press*, *Modern Astrology* New Series 5(5), 193-206, May 1908.

For three months starting in December 1907, a vigorous debate about astrology occurred in the correspondence columns of the weekly *English Mechanic*, which is "as everyone knows a paper largely contributed to by astronomers." It began with a letter noting that "Practically every scientific man to-day regards astrology as either a fraud or a delusion. Astrologers, on the other hand, are equally assured that theirs is a true science. What is wanted is an investigation -- a test ... Mere argument is wholly beside the point." To which a well-known astronomer replied "I agree ... Let astrology be

tested." To which the sub-editor of *Modern Astrology* suggested that, if the editor of *English Mechanic* cared to send in the birth data and sex of an undisclosed person, he would send back chart readings by the readers of *MA* for his assessment. To which the *EM* editor replied "We cannot undertake ourselves to do what is suggested" and proposed that others might be interested. But nobody took up the challenge.

Subsequent letters argued that a positive result might not mean much because it could be due to ESP, nor would it establish astrology as a science. Thus "A few select cases, in which the vague terms of a horoscope can be shown to partially agree with the destinies of some eminent person, have not the weight of scientific argument." One letter asked "Where can I find within a moderate compass the principal theorems of astrology and the facts on which they are based?", to which the sub-editor of *MA* suggested writing to him for a book list (nobody did). He also recommended A G Trent's *The soul and the stars*, an 1880 article reprinted in 1893 as a booklet, which gave numerous examples of the match between chart and person.

The nearest the letters get to evidence were two from astrologers, one noting vaguely that astrology might be explained by "the electrical discoveries of Professor J J Thompson", the other (whose letter had opened the debate in the first place) noting that "When correspondents have learned to cast and judge horoscopes, it will be time enough then to consider their views. It was practical investigation that won me over to astrology, and nothing I have read in these columns has shaken my faith in the least."

Shortly afterwards the debate was terminated by the *EM* editor because it was "useless to occupy space" when nothing was being achieved. Alan Leo noted how nobody had supplied a subject for testing, or enquired about books, and concluded "it is difficult ... to believe that the critics really desire to find out the truth." (p.206)

Alan Leo (1860-1917) is generally acknowledged as the father of modern astrology. Through his magazines and books he converted a prediction-oriented tradition into a systematic method of psychological analysis with a strong spiritual basis that reflected his Theosophist views. In 1902 he founded the Society for Astrological Research, the first of its kind, but it lasted only one year.

But stalemate was inevitable, simply because astrologers were putting the onus on scientists (rather than on themselves) to provide evidence, and neither side had any. Overall a revealing snapshot of the early years. As shown next, a similar debate fared better in 1933, most likely because the emergence of Sun sign columns three years previously had drawn attention to astrology like never before.

1933 -- Astrologers debate critics in the *Sunday Referee*

The UK *Sunday Referee* was a national newspaper (circulation 350,000) noted for its lively content and large controversial postbag. On 11 June 1933 a letter noting the failure of astrologers to predict the Epsom Derby winner led to the publication of nearly 50 responses (a fraction of those received) over the next three months. The debate was heated and wordy but both sides showed more familiarity with astrology and science than in the *English Mechanic* debate 25 years earlier. It was also probably the first to appear in a major UK newspaper. Initially there was the same lack of hard evidence:

Supporters argued that planets are occupied by gods who influence our affairs; commercialisation is deplorable but does not silence the truth; critics should verify for themselves that birth charts accurately indicate character; planets rotating in the ether emit radiation that acts on earth; critic X's letter is hot-headed and exactly matches his

chart; astrology is the science of subtle electro-magnetic energies; an astrologer reading my chart got more details than anyone could know outside myself; astrology works and theoretical reasons why can be given; astrology is not mystical but subject to laws ascertainable by experiment; in the June 1933 issue of *Astrology* a correct weather forecast was made a month in advance (this was from leading British astrologer Charles Carter who features in the next section).

Critics argued that planetary gods are unbelievable; astrologers count hits and ignore misses; the future is in the hands of our Creator not astrology; astrology works via generalities and fails on specifics; astrology has no scientific proof only unsupported speculations; nobody should believe that masses of hydrogen and helium could affect the destinies of men; the only cure for astrology is more education in science; measuring life by heavenly conjunctions is utterly useless; I have seen several predictions of the Derby winner and every one was wrong; plagues and pestilences arise from stinking drains and polluted rivers not from the stars; Mr Carter ignores the many wrong forecasts that appeared in *Astrology*.

Prominent were two astrologers claiming to be scientific:

Edgar Bray BSc urged ignoring second-hand opinions in favour of testing the claims. It is unfair to judge astrology via complicated predictions. Instead start with something simple. Which native has red hair and which has black hair? I believe my hit rate would exceed 95%. Which native is quarrelsome and which is mild? I believe my hit rate would be 100%. A solar eclipse in 27 Leo occurs on 21 August 1933. Subsequent transits by major planets over this degree indicate war, earthquakes or other disasters in Central America (where the eclipse is overhead) in January, May or October 1934. In England there could be serious epidemics in January.

Edgar Bray was a friend of Charles Carter, who described him as "in his own field one of the best" (in *The Lunar Principle*, *Astrology* 26(3), 1952). Bray published articles in *Astrology*, and died prematurely in the 1950s from a cerebral tumour.

William J Tucker claimed astrology is a science but Derby prediction is futile. Vague pronouncements do not advance debate. Astrology provides explanations that are scientifically verifiable. Other than in certain philosophical areas my astrology is purely scientific. Events can occur because of fate, purpose, or chance, of which only the first can be traced to the stars. Mr Bray has shown he is working with progressions and transits, but such approaches are unscientific and worthless. His warning will not be fulfilled. On 20 August 1906 an eclipse took place in 27 Leo, exactly similar to this year, but historical records indicate no corresponding happenings.

William J Tucker (1896-1981) was a British astrologer of some standing. His first contact with astrology came in 1929 at age 33 through the writings of Alan Leo, whose mystical content he did not like. So he aimed to put astrology on a scientific basis. By 1960 he had written 24 books, most of them self-published, and over 300 articles during 1951-1960 alone. (From his *Autobiography of an Astrologer* 1960.)

Hard evidence was nowhere in sight until five weeks into the debate, when a critic identified only as "JSS" proposed a test that both Bray and Tucker accepted. I was born in England on 8 June 1907 at 4 pm. What is my hair colour, sex, height, weight, profession, religion, politics, state of health, and chief hobby? (16 July 1933, when he was aged 26)

Six weeks later JSS announced the results. Neither Bray nor Tucker knew anything about me except my birth data. Both are very experienced and both claim to be scientific. They are openly contemptuous of each other's methods, and both are equally wide of the mark, the outcome being: hits 1 (politics), misses 5 (hair colour, height, weight, religion, health), not definite misses 3 (profession, hobby, marriage). Hardly support for the claims of astrology.

Both astrologers also gave a character reading, and here JSS's test was perhaps the first of its kind to use controls, albeit crude ones. So his assessment is worth describing in some detail:

Character. Here both astrologers become much more prolific, definite, and flattering. Bray says I am highly gifted and artistic, with a noble character and an accurate sense of values. Tucker says I am very emotional, strong, determined, practical, very artistic, logical, intellectual, precise, loyal, hard working, ambitious, sensitive, obstinate, and sympathetic. Now the crude controls. Earlier today I got character readings from three different weighing machines [insert a penny to receive your weight printed on a card with a character reading on the back]. They agree with each other about as well as Bray and Tucker do. Together they say I am shrewd, practical, good at detail, an excellent judge of people (all of which coincide with what Tucker says), slightly superstitious, tactful, resourceful, and inventive.

JSS concluded: "The test has been an unqualified and obvious failure suggesting unmistakably that astrology has no scientific or practical significance, and that the stars can tell me nothing that I cannot get for a penny out of an automatic machine with equal certainty of being correctly informed." (20 August 1933)

THE *Sunday Referee*

THE ASTROLOGERS HAVE
FAILED

MY TEST CASE AND THE OUTCOME

Sunday Referee headline announces JSS's test result

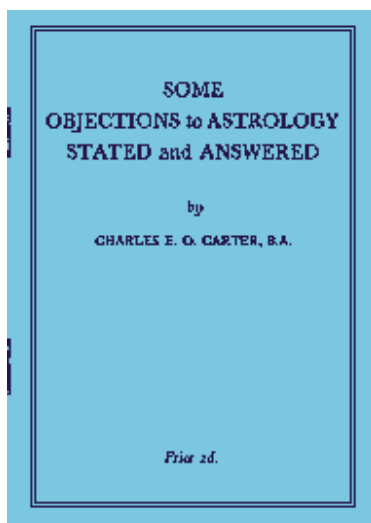
One critic noticed further problems: Bray qualifies his statements with vagueness so they may mean anything or nothing. Tucker knows all about JSS's personality but nothing about his profession or hobbies. If JSS matches Tucker's description he must be as mad as a hatter -- How can anyone who is emotional and temperamental be practical and determined? Or be suited to being a salesman? How can a changeable mind be logical and precise? As for Bray's eclipse-based forecast, seismic events are common in Central America, and England always gets influenza epidemics in January. So Mr Bray's guess cannot be wrong. Conclusion: "Astrologers batten on the almost universal unwillingness of people to examine their prophecies closely and the equally common tendency of inadequately educated people to be swayed by cabalistic terminology and high-sounding phraseology. Astrologers are either conscious knaves or unconscious fools". (13 August 1933)

On 27 August 1933, after 11 weeks of heated debate, the editor announced "The correspondence on Astrology must now be regarded as closed", implying that one test was worth a thousand quarrels. He added "We shall return to the question at a later

date." But it never happened. Perhaps because the newspaper ceased publication when it was sold in 1939.

1936 -- Charles Carter answers objections to astrology

Based on Charles Carter, *34 Objections to Astrology, Stated and Answered*, privately published 1936, reprinted as *Some Objections to Astrology Stated and Answered*, Astrological Association 1968, a tiny booklet of 24 pages. According to the editor of the *Astrological Journal* (1991, 33, 208), until 1990 it was the only work of its kind, at least in English. (The 1990 addition was Robert Parry's *Astrology's Complete Book of Self-Defence*, reviewed on this website under Book Reviews.)



Cover price in 1968 was two pence

Charles Carter was the leading British astrologer of his day and was noted for his clear writing. His 34 objections are actually questions such as "How is it that twins are often dissimilar in disposition and fortune?" (Answer: their nativities are never identical.) Questions 4 and 5 come closest to the issue of evidence. The first asks "Is it not on the face of it absurd to believe things as distant as the planets can affect human beings?", to which Carter replies by appealing to experience and authority:

"This question is best answered by an appeal to facts, for Astrology is still largely in the stage of being an empirical science, that is, it is a science that observes and utilises facts. ... Astrologers KNOW, as a matter of practical research, that the stellar and planetary orbs are related to human beings; and any inquirer can soon prove the matter for himself. ... The only deniers of astrological truths are those who, being entirely ignorant of its principles and practice, are yet so devoid of the true scientific spirit that they will not abstain from passing judgement upon what some of the greatest minds of the past [such as Kepler] have studied and believed."

The next question points out that, even if "planets are related to emotional or even physical changes in our organisms, it is still very hard to believe they can bring about purely accidental happenings", to which Carter replies by again appealing to experience:

"It must be frankly granted that it is hard to explain this on lines that can appeal to one accustomed to think only objectively. Yet it is undoubted that all important events are

indicated in the horoscope of birth, or nativity, and the time at which they happen can be ascertained by what are called 'directions', some of which can be seen at a glance from the nativity."

Controlled tests were still some decades away, and other questions are answered by the same appeal to experience. "Has astrology any value from the standpoint of health?" (Yes.) "Besides this, of what practical use is Astrology?" (It shows abilities and where best to apply them.) "If Astrology is so helpful, how is it that astrologers themselves are not pre-eminently successful in life?" (Some are, but most do not seek material success.) "How can I be sure that any particular practitioner really knows his business?" (By recommendation or by results.) In short, there was no advance over the previous stalemates.

However, attempts to break the stalemate by empirical tests were being made by a small number of astrologers in Europe, among them Paul Choisnard (1867-1930), who just before his death published a 212-page book *Les Objections contre l'Astrologie: Reponses aux critiques anciennes et modernes* (Leroux, Paris 1929). In it he systematically sets out the arguments against astrology (twins, precession, fatalism, etc) with counterarguments based on his own empirical tests. Later, Gauquelin found fatal flaws in Choisnard's tests (see Part 1 under Gauquelin on this website), so the counterarguments came to nothing. Nevertheless they signalled the start of a crucial move away from claims based on unreliable experience, a move that, via Gauquelin and others, eventually led to the large research base that exists today. But as shown below, early progress was painfully slow.

1951 -- Letter by John O'Neill supporting astrology

Based on Sydney Omarr, *My World of Astrology*, Wilshire 1965:31-45

On 29-30 June 1951 there was a late-night three-hour table-pounding debate on radio WPEN in Philadelphia between astrologer Sydney Omarr and Dr Roy K Marshall, director of the Fels Planetarium in Philadelphia. Dr Marshall was also science editor of the *Philadelphia Evening Bulletin* (then the largest evening newspaper in the USA), a popular spokesman for astronomy, and well-known for his vitriolic attacks on astrology. He was the classic closed-minded debunker.

Along the way Omarr quoted John J O'Neill, Pulitzer Prize winner and science editor of the *New York Herald Tribune*, from a talk O'Neill gave in 1942 to the Astrologer's Guild of America in New York. According to Omarr, O'Neill held a positive view of astrology, but Marshall (who knew O'Neill very well) did not believe him. Omarr subsequently wrote to O'Neill for clarification, and received a prompt reply. Excerpts relevant to the claimed evidence for astrology are reproduced below.

8 July 1951

Dear Mr Omarr:

The quotation you cite is: "While I do not believe all astrology is scientific and worthwhile there is a certain amount of good work being done in that field and it is that which makes me try to do something to help the astrologers."

I have no hesitancy in verifying the quotation. If I were making the statement today I would make it much stronger on the basis of developments in the meantime. ... I have had, over a long period of years, extensive contact with all of the sciences from anthropology to zoology. I have [also] made numerous contacts with astrology. For years I condemned it as unscientific and totally irrational. ... [But] I have learned that astrology is something vastly different from what I thought it was, and what most astrologers think it is. ... Astrology, properly defined, is the accumulated and organized knowledge of the effect on man of the forces reaching the earth from surrounding space. ...

The hypothesis of the astrologers that forces are transmitted to the earth without attenuation with increasing distance, and do not vary with respect to the differences in masses of the Sun, Moon and planets on which they originate, was totally inconsistent with the old-style Newtonian mechanics, but today it is in complete accord with the much more recent Einstein photoelectric theory, which demonstrates that the effect of a photon does not diminish with distance, and which has been universally adopted by scientists to supplant the Newtonian mechanics in that field. ... A vitalistic

cosmogony will recognize a complete and most intimate harmonic relationship, in a single pattern, between every entity from the fundamental particles, through the atoms, through man, through the planetary system, through the galaxies, the cosmos, to the Godhead itself. The hypotheses of astrology are consistent with such a vitalistic cosmogony. In this respect, the astrological concept is much more modern than the astronomical. ...

In presenting this objective view of astrology I do not want to be misunderstood as recommending that scientists take lessons in the technique of casting and interpreting horoscopes, or that I am giving sanction to the varied misconceptions and unsupported claims in which many of the astrologers indulge. ... I do urge an extensive statistical investigation of every claim for specific and configurational effects attributed to the planets by the astrologers. Until this is done, no scientist can provide justification for making a statement for or against the existence of such effects. ... [But] scientists are not going to rush into this field to take up research problems. The task must rest largely on the astrologers themselves.

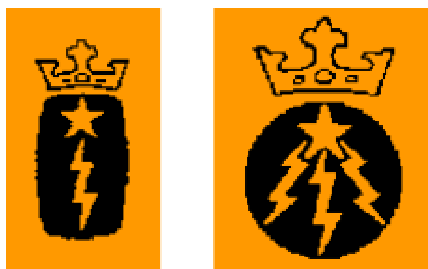
Sincerely yours, John J O'Neill

In hindsight we can see that O'Neill's comments are based more on extraterrestrial influences than on astrology itself. He would have been aware of Ellsworth Huntington (seasonal effects) and Edward Dewey (cycles). He was also aware of Velikovsky, whose now discredited views he described as "a magnificent piece of scholarly historical research". His view of the need to justify statements for or against planetary effects was widely held, but getting adequate data and proper tests was very difficult, as was doing every calculation by hand, to say nothing of overcoming prejudice. Nevertheless, compared to 1908 and 1936, we can see here a continuation of the move towards empirical findings, and away from claims based on unreliable experience.

1958 -- Founding of the Astrological Association

The move away from claims based on unreliable experience gained a decisive impetus when the British Astrological Association (popularly known as the AA) was founded in 1958. After lengthy discussion, the founding had been fixed in advance for Saturday 21 June at 8:22 pm in London, at which moment the chairman of the meeting, watch in hand, announced that the AA had been born.

Jupiter was almost exactly on the MC, Saturn was three degrees below the Ascendant, and the closest aspects within two degrees were (in order) Jupiter sextile Saturn, Sun sextile Pluto, Mars trine Uranus, Mercury trine Neptune, and Moon square Venus. Something for everyone.



Left: the AA's original logo devised by John Addey: "The CROWN symbolises the royal character of the art and science of Astrology, the STAR the heavenly bodies, the LIGHTNING FLASH the Irresistible Power from Above. It is also a subsidiary symbol of Uranus, usually regarded as the planet of Astrology. The BLACK GROUND symbolises Night, which is the field of Astrology, both in the mystical and mundane sense". **Right:** the AA's logo from 1971 and still in use today. Orange was the AA journal's cover colour from 1969 through 1996.

In the 1950s the leading astrological body in the UK was the Astrological Lodge of the Theosophical Society, which had been founded in 1917 by Alan Leo (1860-1917). From 1920 until 1952 its president was Charles Carter (1887-1968), the leading British astrologer of his time, followed until 1982 by Ronald Davison (1914-1985). The Lodge

arranged many excellent lectures and discussions in its London meeting rooms, but there was no provision for research. Some members led by Brigadier Roy Firebrace (1889-1974), John Addey (1920-1982), and Joan Rodgers (1925-1980), all of whom were or had been vice-presidents, felt that a new research-oriented organisation was needed away from Theosophy, and in June 1958 the Astrological Association was founded. Within one year it had 130 members.

Firebrace was a sidereal astrologer, big in frame and heart, who had worked closely with the eminent siderealist Cyril Fagan (1896-1970) and did not suffer fools gladly. Rodgers was editor of the Arts Council magazine and a model of good sense and clarity. Addey was a remarkable combination of lucid and eloquent writer, practical mystic, inspiring organiser, brilliant theoretician, and unflagging experimentalist, who three years earlier had set out "to discover and demonstrate, if possible, a secure scientific basis for astrology. Being wholly convinced of the truth of this study I believed that such a demonstration would be relatively easy. I was mistaken." (*Selected Writings*. AFA, Tempe AZ, 1976:159)

Firebrace was the AA's first president, Rodgers its first editor, and Addey its first secretary. Firebrace wanted the new Association to be exclusively sidereal, but this was resisted, so in March 1961 he resigned to found the sidereal journal *Spica*. Addey was elected president in his place, holding this position until 1973. He was also editor 1962-1972 following Rodgers' resignation due to ill-health, and originator of the AA's logo. Four pages of photographs of the AA's leading players appear in *Astrological Journal* Summer 1979.

The June 1958 issue of the Lodge magazine listed the aims of the new Association, which included "to enlarge the knowledge of Astrology in a scientific spirit", and had a brief statement by John Addey in which he urged using the scientific approach for "distinguishing factual truth from error, for checking theories." After the first meeting "Various research projects were started and enthusiastic volunteers went to the Brigadier's house to list planetary positions etc of extensive collections of doctors, clergymen, or whatever, whose birth dates had been culled from such sources as *Who's Who*, the object being eventually to test statistically the value of traditional ideas or formulate new ones" (James Russell, *Early Days of the Association*, *Astrological Journal* 1983, 25, 148-149).

Eleven years later, in September 1969, the new Association held its first conference, a one-day non-residential in London on *The Future of Astrology*. The talks were notably research-oriented, and "for the first time (in Association history) astrologers from London and the home counties were joined by country and overseas members to provide an altogether more vigorous and original mixture of ideas and aspirations" (*Astrological Journal* Winter 1969:11). The Association was providing an environment where the slow move away from claims based on unreliable experience could now flourish, a move that in due course would revolutionise the understanding of astrology. The Association was also inspiring the founding of research organisations in other countries, such as the International Society for Astrological Research (1968) and National Council for Geocosmic Research (1972) in the USA, and Nederlandse Vereniging tot Wetenschappelijk Onderzoek van die Astrologie (1976) in the Netherlands. For more on the AA's research orientation see *Patron of research* on this website under Historical.

1976 -- Response by Mark Feldman to 186 scientists

Based on Mark Feldman's article "Horoscope vs The Humanist: An Expose of the

Scientists' Objections to Astrology", *Dell Horoscope* March 1976:37-40. Feldman was a science writer and book reviewer for *Dell Horoscope*. When in 1975 *The Humanist* published its "Objections to Astrology" and a statement signed by 186 scientists, he talked to people on both sides and concluded that the objectors were generally misinformed or ignorant about astrology. The outcome was the above article. Excerpts relevant to the claimed evidence for astrology are given below. The headings have been added.



The statement by 186 scientists as seen by cartoonist Craig of *The Columbus Dispatch*. The afflicted astrologer is saying "My horoscope said this might happen".

Soft evidence for astrology

Where we have some practitioners devoted to little more than the Sun-Signs, we also have university professors utilizing astrology as part of their lectures on human behavior; where we have astrology buffs playing parlor games, we also have doctors of medicine insisting on seeing a patient's horoscope chart before he even sees the patient; and where we undoubtedly do have some astrologers whose aims are questionable, we also have psychologists like the late Carl Jung and Vernon Clark, as well as Ralph Metzner and Zipporah Dobyns, researchers like Carl Payne Tobey and John and James Williamsen, and writers like John Addey and Joseph Goodavage; all humbly offering the results of their work -- none of which has been disproven based on the tenets of modern science.

Hard evidence for astrology

No astrologer or astronomer can yet explain how or why the astrological premise of cosmic/planetary influence works, but to deny their existence summarily is ludicrous. ... Any suggestion that the Sun, for example, does not have a profound influence on this planet because of the distance involved is wholly inadequate and inaccurate. ... Soviet scientists have been carefully studying two research trends established in 1915: (1) changes in the functional state of the human nervous system under the effect of solar factors; (2) studies of world statistics of epidemic diseases, where the large numbers could facilitate detection of the reflected effect of solar disturbances and planetary configurations.

The results were extremely meaningful. A parallelism was soon established between the incidence of most epidemics, such as cholera, grippe, plague, diphtheria, relapsing fever, and cerebrospinal meningitis, and the solar activity cycle. Statistically positive results then led to a study of the overall mortality rate, resulting in a detection of the same remarkable correlation in this field. "The time coincidence of the heliogeophysical and

the pathological phenomena undoubtedly indicates an exceptionally close relationship between them; i.e., a certain heliogeophysical factor synchronously provokes a marked increase in mortality at various places on the planet. The correlation coefficient for some of these curves is very close to unity" (A Chizhevskii, "Physicochemical Reactions as Indicators of Cosmic Phenomena, The Earth in the Universe, 1968). "From the time distribution of mortality," the scientists go on to say, "we may conclude that the number of deaths caused by certain diseases at a given moment depends mainly upon the frequency and intensity of the specific solar radiation. It would be erroneous to assume that the ailments or deaths were caused by these radiations. The latter may only provide the impetus, which, in the presence of suitable conditions in the organism, causes its death."

Gauquelin

[Feldman notes without giving details that there have been "numerous statistical studies conducted over the years, mostly by astrologers." He had previously reviewed Gauquelin's work in *Horoscope*, November 1974, so his treatment here is brief.]

[Gauquelin's work has been dismissed] as "an interesting case wherein totally fallacious results appear to be scientifically valid." [And] as "complex statistical manipulations." Gauquelin's statistics are not "manipulations" at all: they are nothing more or less than pure statistics! It should be remembered that Gauquelin sought desperately to disprove astrology, but, much to his amazement and shock, he found that planetary influence is a fact.

Evidence against astrology

First, no one has ever disproved astrology, and I do not expect science even to try, for it is not practical to expect anyone to prove a negative. It is like expecting someone to prove that God or UFO's do not exist. What astrologers would prefer is that science actively become involved in serious empirical research in this field. Secondly, if anyone has established scientific evidence that the astrological premise is invalid, it has yet to reach my attention.

Astrology's popularity

As Professor Mimi Lobell of the Pratt Institute in Brooklyn recently commented, "The reason for astrology's popularity is that it offers people what science does not; a psychologically meaningful link between the individual and the cosmos" (*Science News*: Letter, October 4, 1975). "To dismiss astrology," Professor Lobell continues, "as superstition shows a lack of understanding of the primordial psychological need for a meaningful relationship with the cosmos ... It is a call for cognitive frames which describe not only the order of the universe, but also give the individual a sublime sense of participation in that order."

Future of astrology

It seems there are two possibilities: Either astrology will eventually come into its own as an interdisciplinary scientific field of inquiry, or it will be assimilated into other disciplines of science. In other words, as one astronomer put it, "science is already 'chipping-away' at various astrological accomplishments, including them as part of existing fields, and claiming all along that astrology has had nothing to do with it." The definitive work on solar influence and biological processes, discussed earlier, represents an example that this has already begun to happen. Science will rename the phenomena -- such as astrobiology or cosmopsychology -- and reclassify their disciplinary origins, with no mention of astrology as having paved the way. ...

Astrology has contributed to the knowledge of modern science in no small way. (See John Nelson, *Cosmic Patterus*, AFA Washington DC 1974, and Giorgio Piccardi, *The Chemical Basis of Medical Climatologp*, Springfield IL 1963) The fact that this field always seems to be a few yards ahead of science should be considered commendable: for although we cannot yet fully understand the phenomena we study, we have long-recognized them as being in existence. "The fact that man discovered that there were microbes did not solve the mystery of the universe, it only increased it" (Ernest Cuneo, *Science and History*, Duell, Sloan and Pearce, NY 1963). So too with astrology.

In hindsight we can see that Feldman's comments, like O'Neill's, were based more on extraterrestrial influences (mostly solar) than on astrology itself. But direct tests were only just emerging, as were the results of the AA's focus on research, so there was no real alternative. The idea that "no one has ever disproved astrology" might have pleased astrologers but it tended to view astrology as a yes/no effect, which today is adequately countered by considerations of effect size and artifacts. The appeal to "a psychologically meaningful link" with the cosmos was true of any religion and hardly amounted to claimed evidence. The idea that "astrology has contributed to the knowledge of modern science" (and will end up as science) was plausible only by redefining astrology as physics, which most astrologers today would vigorously reject. Overall a reminder of how limited our scientific understanding was of astrology only thirty years ago, and of the great advances made since then (as will be evident from the articles on this website under Doing Scientific Research).

Professor H.J.Eysenck

In Memoriam 1916-1997

Geoffrey Dean and David Nias

From *Correlation* 16(1), 48-54, 1997 with an added section on Eysenck's birth chart.

Abstract -- Professor Hans Eysenck (1916-1997) was arguably the most influential psychologist of his time. This lengthy obituary (4400 words) traces his upbringing, his career (he took up psychology by accident), his writings (he wrote over 1000 articles and nearly 80 books), his interest in graphology, astrology and parapsychology (which led to about 5, 19 and 12 publications respectively), and his work with Jeff Mayo (zodiac zig-zag) and Michel Gauquelin (planetary effects). Eysenck was famous for his stupendous clarity and unrelenting rationalism. All statements had to be based on sound experiment and measurement. "If it cannot be measured then it does not exist", he said. Those who argued the opposite by citing, say, love or artistic taste were quickly confronted by inventories that measured exactly that, and a vast erudition seemingly always at his fingertips. Debating Eysenck was a sobering experience. His book *Astrology Science or Superstition?*, written with David Nias in 1982, is now dated but is perhaps still the most readable scientific account of astrology ever written. His interest in astrology helped to launch London Research Conferences and three overseas Eysenck Research Seminars. The first seminar led to the formation of the Committee for Objective Research in Astrology, with Eysenck as Chairman, to counter the generally poor quality of astrological research by providing free guidance and advice. It still exists even though few enquiries have been received, most of which did not proceed further. Eysenck was quiet and soft-spoken with just a trace of accent, always helpful and approachable, remembered by his students and colleagues as loyal even when their views differed from his own. He set an example of open-mindedness and good science that everyone can aim for but few will achieve. The response by astrologers has been generally to praise his favourable comments and to condemn him otherwise. No doubt Eysenck saw this as an example of the phrase he had framed many years earlier to characterise irrational thinkers, namely "my mind is made up, don't confuse me with facts." Eysenck's birth chart reveals little about astrology other than its ability to describe almost anything in retrospect. 15 references.

Professor Hans Jurgen Eysenck, arguably the most influential psychologist of his time, died on 4 September 1997 aged 81 after a long illness. He was for more than thirty years Professor of Psychology at the Institute of Psychiatry in London. He attracted controversy, albeit unwillingly, and called his autobiography *Rebel with a Cause* (1990). He pointed out that psychotherapy was no better than no psychotherapy in curing neuroses. He denied theories of the sub-conscious in favour of the role of learning. He argued that smoking did not necessarily cause lung cancer by itself but interacted with other factors such as personality. He championed Arthur Jensen's belief in inherited IQ racial differences. He supported Gauquelin's conclusion that planetary positions correlate with the personality of eminent professionals. In each of these cases (many more could be cited) he adopted a position that his opponents found outrageous.

Eysenck was born in Berlin in 1916 to gifted actor parents, his father specialising in comedy and his mother in silent films. At age 2 his parents divorced leaving him in care of his grandmother. At age 18 he left Germany because tertiary study required that he join the Nazi party, which he refused to do. He went first to France, where he studied history and literature at Dijon University. But because he liked English poetry and writing more than the French, he went on to England, where he applied to study physics and astronomy at London University. But by mistake he had not taken certain vital courses. It was either wait another year or enter the only science subject that his courses allowed, namely psychology, which he had never heard of! "Thus is one's fate decided by bureaucratic stupidity" he said. Later he came to realise that competition in physics was much fiercer than in psychology, leading to a much harder life, so he felt that the fateful decision may have been for the best.

The scientific approach to psychology

His PhD thesis, completed in 1940, looked at how artistic judgement and taste (for pictures, for poetry) varied among individuals. He found that there was some objectivity

to artistic judgement, so there were genuinely good and bad judges, that a work of art was "better" if it contained both complexity and order, that in general there was more agreement than disagreement between experts and lay persons, but that their preference depended on personality. For example extraverts preferred loud jazzy pictures whereas introverts preferred restraint. Ironically, recognition of this now-unremarkable dependence on personality is still absent from most university art departments.

One of his major objectives was to develop a scientific understanding of personality. When he started the field was in a terrible mess, with thousands of apparently different traits each supported or condemned by various rival schools. In his first book *Dimensions of Personality* (1947) he developed the independent dimensions of extraversion and neuroticism. In a later book *The Scientific Study of Personality* (1952) he added psychoticism. Subsequently there was the *Eysenck Personality Inventory* (1964) for measuring E and N, and the *Eysenck Personality Questionnaire* (1975) for measuring E, N and P, both becoming one of the most widely used personality tests in psychological research. Today, fifty years later, there is virtual consensus that there are just a handful of independent dimensions, ranging from Eysenck's three to (most commonly) five. Altogether he wrote over 1000 articles in scientific journals and nearly 80 books.

Outside the academic world Eysenck was best known for his popular books on psychological topics. The first was *Uses and Abuses of Psychology* (1953), written at the invitation of Pelican Books. It was based on his lectures and took only a fortnight to write -- as with all except his earliest writings, he simply dictated each chapter as it came along, and then made an absolute minimum of changes to the transcript, arguing that too much revision spoils the spontaneity. (Given careful thinking ahead of time, but not otherwise, he could dictate a 9000-word article in a five-hour day.) This book, together with *Sense and Nonsense in Psychology* (1956) and *Fact and Fiction in Psychology* (1965), became bestsellers, selling literally millions of copies in many translations and reprintings, and more than trebling his rather poor salary as a university professor. Other popular titles included *Know Your Own IQ* (1962), *Check Your Own IQ* (1966), *Psychology is about People* (1972), *The Inequality of Man* (1973), and his own favourite *Decline and Fall of the Freudian Empire* (1985). All were written with his usual stupendous clarity and unrelenting rationalism, because unsupported speculation was not his style. All statements had to be based on sound experiment and measurement. "If it cannot be measured then it does not exist", he said. Those who argued the opposite by citing, say, love or artistic taste were quickly confronted by inventories that measured exactly that, and a vast erudition seemingly always at his fingertips. Debating Eysenck was invariably a sobering experience.

His unswerving allegiance to the scientific method took him into a vast psychological territory whose diversity was formidable, the major areas being behavioral genetics, personality, intelligence, social attitudes, psychotherapy and Freudian psychology, behaviour therapy, sexual and marital behaviour, smoking and health, sports psychology, and (often to the surprise of his associates) the politically-incorrect areas of graphology, astrology and parapsychology. Eysenck's contributions to all these areas are described in anthologies edited by Modgil & Modgil (1985) and by Nyborg (1997).

Today, when the methods of behavioural therapy first proposed by Eysenck are widely accepted, it is hard to imagine the furore they originally created. In 1958, after his first talk on the subject to a packed house of psychoanalysts, where he contrasted the secure

experimental basis and proven success of behaviour therapy against the opposite situation in psychoanalysis, "the audience seemed to erupt, jumping up and down, yelling, screaming imprecations, and waving their fists in the air ... a *reductio ad absurdum* of the claims made by psychoanalysts that training in psychoanalysis made people more rational" (Eysenck 1990:145-146). On the other hand, "tact and diplomacy have never been my strong points. I always felt that a scientist owes the world only one thing, and that is the truth as he sees it. If the truth contradicts deeply held beliefs, that is too bad" (1990:119).

These two major contributions (behaviour therapy and personality theory) each have associated journals founded by Eysenck, namely *Behaviour Research and Therapy* (1963) and *Personality and Individual Differences* (1980), or *BRAT* and *PAID* for short. Today both are thriving and both are leaders in their fields. Eysenck was also the founding editor of the *International Series of Monographs in Experimental Psychology* (1962), aimed at work too long for journals and too specialised for books. Many issues have become quite well known.

Despite his influence on clinical practice, Eysenck never practised any therapy himself. Indeed, he often said he was not a good psychologist in the layman's sense of having an intuitive understanding of other people's reactions. But the opposite prevailed in sports psychology -- as a tennis junior he was ranked No 2 in Germany, and he continued playing an hour or two of tennis or squash each weekday well into his 70s. (Interestingly, Gauquelin was also an active tennis player and achieved national ranking in France.)

Opposites also prevailed when he met Sybil, later to become his second wife. The equity theory of love and marriage says that advantages and disadvantages for both partners should be roughly equal if the partnership is to be successful. She was young, pretty, and vivacious; he was older and poverty-stricken. She was extraverted, sociable and used to going out; he was introverted, a reader of books and used to staying at home. She was extremely low on psychoticism; he was much higher. But she had virtues not normally associated with extraversion like extreme efficiency and punctuality, and had a neuroticism score compatible with his own zero score. She also had an intuitive understanding of his work, and later made significant contributions to it. Their lives became inseparable, and in over forty years of marriage they never had a serious quarrel. Eysenck always remembered their first meeting (at a daily discussion group) as if it were yesterday: "I have never believed in love at first sight, and still don't know whether it exists, but what I felt at that moment must have come pretty near to it" (1990:110).

Eysenck's interest in astrology

Eysenck's interest in graphology, astrology and parapsychology led to about 5, 19 and 12 publications respectively, not counting any in foreign languages. In each case the result was a confrontation between a learned man of science and areas where convincing evidence is hard to come by. He was, as the astrological editor Terry Dwyer (1986) put it, "a worldwide known critic of insufficiently demonstrated assertions, as well in classical psychology as in borderline science."

Each of these three areas (graphology, astrology, parapsychology) was controversial but each had a solid core of testable ideas. It was this important quality of testability, plus apparently positive results, that first attracted Eysenck's attention. He said "the main attraction of a field such as hypnosis (or parapsychology, or astrology), is the promise it

contains of entirely new and extremely important knowledge that might be gained by a study of the (alleged) phenomena in question" (1990:233).

Eysenck (1986) emphasises that he came to his positive conclusions (on the Gauquelin findings, on ESP, on psychokinesis) only after carefully assessing the evidence and failing to find sources of error. He comments "it is said that one should not waste time on topics which are obviously absurd, ... I do not believe myself that *a priori* judgments of this kind are admissible in science; scientists have been wrong too many times in making explicit statements of this kind to be considered infallible. In any case, the time that is wasted is mine, and to waste it by reading the literature on astrology and parapsychology is probably better spent than in watching pornographic films, or becoming a football hooligan!" (1986:382-383).

Eysenck's positive conclusions arose even though the claims seemed at first unlikely to be true. The result was appreciable cognitive dissonance: "I do not enjoy having to defend empirical findings which go counter to my own instinctive beliefs. I would much rather be in a position to disprove all parapsychological and astrological claims: life would be so much easier if we could cosily go to sleep in the shadow of orthodox science!" But the facts decided the issue: "I certainly did not come to positive conclusions in these matters simply in order to annoy orthodox scientists. ... Perhaps strong innate feelings for the underdog have something to do with it; I believe that these fields have been decried by orthodox scientists without specialist knowledge of what has been done in them, and this I consider to be insupportable" (1986:384).

Eysenck was involved with astrology mostly during 1975-1985, ten years after he became involved with parapsychology. His interest in astrology was aroused by the findings of Michel Gauquelin (1926-1991). Over the years Gauquelin had disconfirmed many of astrology's claims, but one curious finding persisted. At the birth of eminent professionals such as soldiers and painters, certain planets tended to prefer or avoid the areas just past rise and upper culmination, roughly one fifth of the total. The surplus or deficit could not be explained by demographic or astronomic artifacts and was typically 10 to 25 per cent more than expected. (This may seem like a lot but the corresponding effect size, which for thirty years nobody bothered to calculate, was only 0.02 to 0.05.) To add to the puzzle, the effect disappeared if the professionals were not eminent. The usual explanations such as sampling errors did not apply because Gauquelin used large samples with N sometimes exceeding 3000, the results were highly significant with p often below 0.0001, and the effect seemed to replicate. Eysenck was impressed, and gave a favourable review of the Gauquelin results in the now-defunct magazine *New Behaviour* (1975).

In the same article Eysenck took issue with Karl Popper's argument that astrology, like psychoanalysis, is a pseudoscience because it consists of untestable assertions. Eysenck argued that, on the contrary, astrology does make testable assertions such as those linking planetary positions and personality, hence "there should be no difficulty in arranging an experiment to test the hypothesis quite unambiguously." In giving Gauquelin's research as an example, Eysenck commented "I think it may be said that, as far as objectivity of observation, statistical significance of differences, verification of the hypothesis, and replicability are concerned, there are few sets of data in psychology which could compete with these observations. ... I think we must admit that there is something here that requires explanation." This is a good illustration of Eysenck's insistence on giving priority to facts over mere opinion.

At the time of his *New Behaviour* article Eysenck was also becoming involved in a test of sun signs. In 1971, the British astrologer Jeff Mayo had sent Eysenck a study of 1795 subjects in which their mean scores on Mayo's extraversion questionnaire were plotted against sun sign. The results showed a zig-zag pattern completely in accordance with astrology. Eysenck was intrigued and made the EPI available to Mayo for further tests. Then in 1973, quite independently of Mayo, the British sociologist Joe Cooper showed Eysenck a study of Bradford University students in which their mean E scores were plotted against sun sign. The results showed the same zig-zag pattern.

The outcome was a paper by Mayo, White & Eysenck (1978) detailing the EPI results for 2324 subjects, followed in the same journal by a paper by Smithers & Cooper (1978) detailing the EPI results for 559 students. In each case the result was a zig-zag pattern in agreement with astrology. However, the difference in mean E score between odd and even signs was only 0.7, which is very small compared to the mean E score of about 13 and SD of about 4, and is much smaller than the claims of sun-sign astrology would suggest. In due course this led to over a dozen replications, most of them positive, the mean effect size being 0.09.

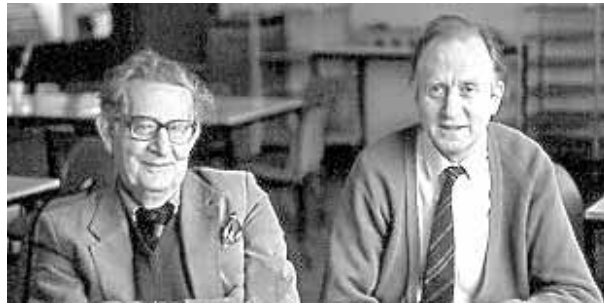
Advance notice of the Eysenck paper was hailed by astrologers as "possibly the most important development for astrology in this century" (*Phenomena* 1977, 1, 1). But Eysenck later discovered that the effect disappeared when people unfamiliar with sun-signs were tested, so it had a simple explanation -- prior knowledge of astrology. Ask Sagittarians (who are supposed to be sociable and outgoing) whether they like going to parties, and astrology might tip their answer in favour of yes rather than no. The same bias applies to the other signs, who are supposed to be alternately E+ and E-, hence the zig-zag. The bias may be unconscious and very slight but in large samples it can attain impressive significance, as in the Mayo study where $p = 0.000005$ (although reported by convention only as $p = 0.0001$) for $N = 2324$.

Just before the Mayo study appeared, *Recent Advances in Natal Astrology* was published. This was the first critical scientific review of the research basis to astrology. To ensure accuracy it involved a total of fifty-four collaborators, one of whom was Eysenck, who assisted with the sections on personality and psychology. The availability of this review and the encouraging results of the Gauquelin, Mayo and Cooper studies prompted Eysenck to take his interest further. He facilitated the use of the Institute of Psychiatry by astrologers and psychologists for a joint weekend research seminar in May 1979 (Gibson, 1981:209). The seminar was a success and by 1996 nine more had been held. The first four were held at the Institute of Psychiatry, the rest (from 1986) were held elsewhere in London. Attendance has varied from a high of 110 in 1981 to a low of 45 in 1989, with a mean of 70, of which typically 15 are speakers.

The interest of Eysenck in astrology led to three "Eysenck Research Seminars" being organised by astro-sympathisers at Long Beach, Freiburg and Naples in 1986, 1987 and 1988 respectively. The first had a dozen speakers but attracted only 25 people, despite being timed to follow two major US astrology conferences of the traditional kind, each of which attracted about 1000 people. Nevertheless the seminar was significant because it resulted in the formation of the Committee for Objective Research in Astrology (CORA), with Eysenck as Chairman, and twelve others (astrologers and academics) chosen for their expertise. CORA was set up to counter the generally poor quality of astrological research by providing free guidance and advice. It still exists even though few enquiries have been received, most of which did not proceed further.

Astrology: Science or Superstition?

In the late 1970s Eysenck and David Nias began a survey of the scientific evidence for astrology aimed at a more general readership than was *Recent Advances*. The result was the book *Astrology: Science or Superstition?* (Eysenck & Nias 1982), which covered astrological principles, sun-signs, marriage, illness, suicide, appearance, time twins, season of birth, terrestrial and solar cycles, radio propagation, earthquakes, lunar effects and the work of the Gauquelins. Despite the availability of *Recent Advances*, the original literature was accessed wherever possible, resulting in a stack of photocopies half a metre high. This illustrates the care taken to be independent and to get the facts right. Also new material was discovered resulting in about 40% of the book's 230 references being additional to the 1020 appearing in *Recent Advances*. In 1986 the book appeared as a Penguin edition, now out of print; it has also been translated into seven languages, the latest being Norwegian.



Eysenck (left) and Nias in 1992 in the Institute tea rooms, for 30 years the traditional place for meeting Eysenck.

Apart from reviewing the evidence for astrology, Eysenck & Nias made two original and important refutations, both of which were subsequently confirmed by others. First, the Mayo zodiac effect was shown in two separate studies to be an artifact of prior knowledge. Second, the claims of John Nelson (that planetary positions can be used to predict shortwave radio quality with about 90 per cent accuracy) were shown to rest on an artifact in calculating the accuracy rate.

With respect to other claims, Eysenck & Nias were able to point to various non-astrological explanations, for example much of the acceptance of astrological readings was explained by the Barnum effect. But they remained puzzled by the Gauquelin findings, agreeing with the now-famous quote of Arthur Mather (1979): "Both those who are for and against astrology (in the broadest sense) as a serious field for study recognize the importance of Gauquelin's work. It is probably not putting it too strongly to say that everything hangs on it."

Overall, the astrology book reflected Eysenck's skill in explaining complex issues in everyday language. As one of the quotes on the back cover puts it: "No scientist of our time, that I have ever read, can match Hans Eysenck in marshalling relevant data, presenting them lucidly, and drawing from them plausible conclusions." For example, on the argument that no factor in a birth chart shall be judged in isolation, and that judging all factors collectively is too subtle a process to be investigated scientifically, an argument which can occupy astrologers for several pages, it is all over in one paragraph:

"But this [argument] misses the point. If the most basic tenets of astrology are true, they should be detectable in their own right, regardless of other subtleties. To take an analogy, suppose we were investigating the belief that there is a connection between

diet and body weight. Of course many other factors come in, such as genetic make-up, age, exercise, health and so on. Nevertheless, if we took a large enough sample, we should certainly expect to see indications that fat people tended to be well fed and starving people tended to be thin. If astrology is true, it must pass that kind of test" (p.31).

In general Eysenck's contributions to astrological research were his insistence that there was an effect to be explained, his insistence that matters be resolved by appropriate experiments, and his refusal to be satisfied with dismissive explanations. In short, he set an example of open-mindedness and good science that everyone can aim for but few will achieve. Unsurprisingly, the response by astrologers has been generally to praise him when his comments were favourable to astrology, and to condemn him otherwise. For example, when he delivered his revised verdict on the Mayo study during the 1979 astrology conference at the Institute of Psychiatry, "there was a strong feeling among some of the astrologers that Eysenck had first beguiled them with his patronage, and then betrayed them by bringing forward some ugly facts" (Gibson 1979:210). Similarly, in response to an article by Eysenck on research methodology in astrology, the astrologer Sandra Ellis (1982) commented "I am puzzled why some astrologers ... feel a need to be accepted by self-styled sole proponents of rationality." No doubt Eysenck saw this as an example of the phrase he himself had framed many years earlier to characterise irrational thinkers, namely "my mind is made up, don't confuse me with facts."

A most accessible professor

The controversial aspects of Eysenck's career might be thought to reflect a dogmatic, difficult and unfriendly personality. On the contrary, he was quiet and soft-spoken with just a trace of accent, always helpful and approachable, remembered by his students and colleagues as loyal even when their views differed from his own. Arthur Jensen called him "easily the most accessible professor I have ever known." His graduates are dispersed around the world, many of them now eminent in their own right (one in three of his PhD students are now professors of psychology), and every one holding him in great esteem.

Although Eysenck wrote several papers on research methods in astrology, he was doubtful that research could be taught via cookbooks. The things most needed were motivation and critical thinking, and these were best obtained by interaction with informed and enthusiastic others. For many years from the 1950s he and Sybil held informal supper evenings at their home, described by an associate as "a Hansel and Gretel sugar house of red and pink and yellow" (1990:154) and a pleasant 20-minute walk from the Institute, to which all staff and students (typically a dozen, rarely more than twenty) were invited to discuss current work. Rather than sell particular ideas, Eysenck would help them answer their own questions, pointing out any particular difficulties they needed to address, and inviting critical comment from the others. In this way people discovered things for themselves and became runaway enthusiasts. As noted by Arthur Jensen, "rarely have I encountered a group of researchers more involved and excited in what they were doing." Of course this was psychology, not astrology, but the same principle applies. As Eysenck himself said, "I organized my life around research, putting almost everything else aside; this you must do if you want to get anywhere" (1990:279).

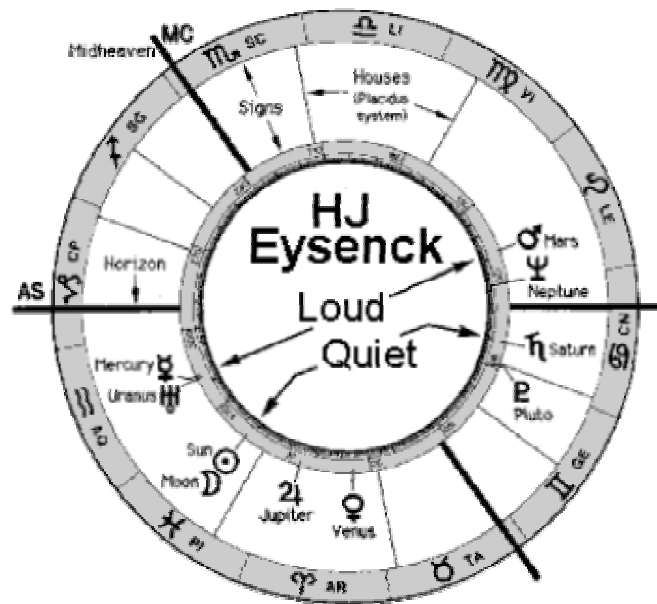
Eysenck's preference for things that could be measured is shown by page 284 of his autobiography, which lists members of British psychology departments with the most

citations in the 1985 *Social Sciences Citation Index* (which counts the number of times their work is cited by others). He was far in front with 813 citations. The next nearest had 251. Internationally, Eysenck became the world's most cited living psychologist, and (after Freud and Piaget) the most cited psychologist of all time. There can be few astrological researchers to whom he was not an inspiration. He will be sorely missed.

Eysenck was twice married and is survived by his second wife Sybil, a son from his first marriage (now Professor of Psychology at Royal Holloway College), and three sons and a daughter from his second. In the UK, obituaries appeared on 8 September 1997 in the *Independent* and the *Times*, on 10 September 1997 in the *Daily Telegraph*, and in the November issue of *The Psychologist*.

Birth chart of H J Eysenck

According to Eysenck's birth certificate he was born at 5am (4am GMT) 4 March 1916 in Berlin. His birth chart has a Capricorn Ascendant, with a Pisces Sun and Moon in exact (to the minute) conjunction trine Saturn, indicating quiet reserve and self-control, and a close Mercury-Uranus conjunction opposition Mars, indicating loud outspokenness and self-will.



Birth chart of H.J.Eysenck (tropical zodiac, Placidus houses)

At first sight Eysenck's birth chart appears to be an uncanny match to his contrasting public and personal sides mentioned by his biographer, who describes Eysenck as having a quiet, soft-spoken personal manner that is nothing like his public image of extreme tough-mindedness. But if as a control we take the exactly opposite personality, namely loud, outgoing, easily upset, submissive and lacking in confidence, inspection of astrology textbooks shows that the first three of these traits are exactly matched by the above "loud" configuration, and the rest by the "quiet" configuration, especially as the Sun and Moon are in Pisces, indicating sensitivity and passivity. Therefore Eysenck's chart reveals little about astrology other than its ability to describe almost anything in retrospect. (This section adapted from Nias & Dean 1986:369-370.)

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How astrology can help everyday life

Digest of a 1984 monograph

Dietrich von Heymann

Abstract -- The original wordy monograph (six times the length of this digest) is a booklet dated February 1984 written by Dr Dietrich von Heymann, a professor of religious studies at the University of Freiburg. He was a member of a working group on Uranian Astrology (an event-oriented astrology that involves eight hypothetical planets), wrote articles for the German astrological magazine *Meridian*, and arranged lectures on astrology (at German universities a professor can offer special lectures on any subject), only to suddenly disappear from the astrological scene. The monograph was written (in English) before the findings of research became known in Germany and is thus misleading. Nevertheless its conclusion (astrology, even if false, brings helpful new opinions on life's troubles) is an example of the thinking then emerging and now well established. Dr Dietrich argues that the astrological mode of thinking is logical, testable, and open to checking by anybody. The birth chart contains more than enough combinations to describe situations in life, all based on "as above so below". For example it shows a picture of the person, his mental and physical abilities, his profession, marriage, partnerships, children, enterprises, difficulties, preferences, and so on. The picture is special because it is personal and cannot be manipulated. On the other hand, astrologers disagree on the rules of interpretation, charts can fit many others as well, and man loses his responsibilities to the stars. But even if astrology were based on error or deception, it can still be helpful. What matters is not whether it is true or not, but whether it brings new viewpoints that are true for us. It forces us to recognise how life means receiving and accepting, and how this can lead to new activities and a satisfying life. In effect astrology is a school of life plans. Its research is important for society, economy, and for the single person, and should be pursued not only privately but also in brainy universities. Despite the monograph's dated views, its underlying positive attitude towards a no-need-to-be-true astrology still holds.

The astrological mode of thinking

Many people read their horoscope every day. Bookshops contain astrology books. Do readers think there is something in it? To hope it will reveal the future is against common sense, for man has to form his future himself. Instead, astrology is a scientific mode of thinking, which is just one mode among many.

For example, for economists there is a "marketing mode", for sociologists there are "social modes", and for psychologists there are "behaviour modes". But scientists cannot accept the "mode of thinking" of astrology because it does not fit their own "modes of thinking" that are characterized by technique and rationalization. Nevertheless it meets the conditions of scientific thinking, that is, it is logical, testable, and open to checking by anybody.

Astrological thinking involves recognised rules

Calculation of the birth chart involves a great deal of astronomy, and its interpretation involves recognised rules. For example Mars symbolizes activity and Saturn symbolizes slowness. Altogether the birth chart contains more than enough combinations to describe situations in life. For example it shows a picture of the person, his mental and physical abilities, and also his profession, marriage, partnerships, children, enterprises, difficulties, preferences, and so on.

It is now clear what a responsibility the astrologer has. If the wish for "wanting to get married" combines with "not being able to marry", how should it be handled? This involves ethical, even educational, points of views, which we cannot explore here because we have to consider the hypotheses that underly astrology.

The hypotheses of modern astrology

The hypotheses of astrology can be summarised as follows:

- As above so below. Also, stars don't force, they only favour.
- The birth chart reveals potential. What we can aim for.
- The chart is coded in symbols. They have to be decoded.
- Only the whole chart is meaningful. All viewpoints are connected.

Different schools may differ in their working methods but normally this does not upset the astrological mode of thinking. The birth moment symbolises the start of the lifeplan. What already existed on a small scale gets unwrapped.

Reasons for belief

People believe in astrology for various reasons:

- From experience. What the astrologer says is true and helpful.
- People long for order and meaning free of human judgement.
- Astrology operates on a higher level, like a religion.
- Astrology knows more about the person than the person does.

In short, astrology is personal. It balances strong and weak points and shows a way out. Nowadays few situations make me personally important, such as at church, at the tax office, and at airline counters. On the other hand, astrology cannot take any burden off me, or abolish my contradictions and serious past, or prevent future difficulties.

Liabilities

Here the liabilities exist on different levels:

- Astrology might include an unbearable *fatalism*.
- Astrology might tempt a *misuse of its power*.
- Astrology's *language* is abstract and fits many others as well.
- Astrology seems closer to *fantasy* than to logical thinking.
- Astrology doesn't reveal where its *rules of work* come from.
- Astrologers disagree on the *interpretation* of the used symbols.
- The jargon only *raises feelings in the client*, not proper knowledge.
- People *want to believe*. The result is a "self-fulfilling prophecy".

All protests against astrology can be reduced to this: Man loses his responsibility, and his duties of active living are neglected. Some astrological schools reply "Stars don't force, they only favour." So men have a little free will? It sounds like being a little pregnant.

Of course, the protests often rise from an emotional level. "There must be something which can be done against fate." But such protests could be applied to every science, religion, or art, by simply saying: "I don't believe it because I can't believe it -- and because I don't want to believe it".

How astrology can help daily living

So what can astrology do? This is the question now. What does it offer compared with other modes of thinking? I see the advantages as:

- Objectivity. The birth chart is independent of individual opinions.
- Detail. Almost every aspect of life can be exactly described.

But if we want to explain the extent to which astrology can help life, we have to leave the level of scientific discussion. We come to areas that are philosophical, even theological. Astrology can help life because it shows I can't experience anything that doesn't belong to me. It also resolves the apparent conflict between determination and responsibility, because birth is the beginning of following a certain path. To *follow* is responsible living. To follow the *path* is called determination.

Even if astrology were based on error or deception, it would make me conscious of the connection with other people, as if I were praying: "Give to us our daily neighbour, today." Nor does it matter whether it is true or not; more important is whether it is true for me.

Astrology brings new opinions on life

Very often the question remains: Why am I like this? Why do I have to experience this? And so on. The other human sciences bring all sorts of explanations, such as home conditions, relationships, school, special events, and they are often correct. But this is not helpful. A person cannot be satisfied by stating reasons. He wants to be superior to his life-plan, wants to change it and submit to it. He wants to decide for himself when there should be day and night.

It is here that astrology brings a new opinion on his life. He is forced to recognize his weakness, to give up apparently safe positions. He then learns how life means receiving and accepting, and how this can lead to new activities and a satisfying life. Thus, astrology is a school of life plans. It shows the kind of seed that is sewn into a man's life.

A youth enters a store and asked the wise old man behind the counter "What do you sell?". The wise man replies "All you want". The youth says "I would like world peace, no poverty, no unemployment, equal rights for all, and...". But the wise man interrupts him "You got me wrong. We don't sell fruit here, only seeds."

Similarly with astrology. A lady asks "I have shares in a company, shall I take charge and manage it myself?" Astrology shows she is given direction and aims by others, who use their power against her. So no, she is not suited to managing a company. But she becomes the managing director anyway, and three years later the company becomes insolvent. This is a case from an astrological practice in Freiburg.

Often professional qualifications, proved by examinations, are not enough for achieving a leading post. Human qualities are also needed. Astrology can help here to make objective decisions, objective because the person cannot manipulate the message of his birth chart, nor does it depend on the astrologer with his likes and dislikes; the chart can be proved mathematically, and also shows the prospects of success.

These examples show how astrology concerns important fundamentals of everyday life. Its research is important for society, economy, and for the single person, and should be pursued not only privately but also in brainy universities.

Indian scientists on Vedic astrology

Thirty comments from *Current Science*

Abstract -- In 2001 the University Grants Commission (UGC) in India decided to provide funds for courses in astrology and palmistry at Indian universities. The decision provoked outrage and controversy in the pages of the prestigious Indian science journal *Current Science*. Of thirty comments, most of them from scientists in university departments or research institutes, about half dismissed astrology as a pseudo-science, about half of the rest felt decisive tests were needed, and the rest felt there was nothing wrong with funding something that the majority of Indian people believed in. In chronological order, the authors and their comments are briefly as follows, starting with editor P. Balaram:

2000, Volume 79, issue 9

Balaram -- UGC should not promote astrology and palmistry courses.

2001, Volume 80, issues 6-11

Ganeshiaiah -- But tests not decisive, more are needed to assess claims.
Balaram -- Evidence is overwhelmingly against, UGC lacks credibility.
Pal -- No respectable university should accept UGC's offer.
Sitaram and 29 others -- Our apathy means protest may be too late.
Murthy -- Opposition to astrology is based on sensible science.
Chandrashekaran -- No defence is needed when so many people believe.
Rao -- Why haven't scientists protested? Astrology is not a science.
Khare -- Vedic astrology has not been scientifically validated.
Virk -- Guru Nanak rejected astrology in 15th century. So should we.
Tiwari -- Big science is suppressing new ideas and should be challenged.
Sashidhar -- Astrology is a pseudo-science, scientists will ignore it.

2001, Volume 81, issues 1-3

Narasimhan -- The ancients were good observers, give their ideas a chance.
Karanth -- Astrology relates to gems, and mineralogy is part of science.
Seshadri & Kathiravan -- Most Indians believe in astrology, so honour it.
Chattopadhyay -- Some scientists secretly believe, so don't blame public.
Subbarao -- Faith is often needed to overcome fear and uncertainty.
Chopra -- Funding psychological props is OK if other needs not affected.
Devakumar -- Vedas say nothing about astrology, so *Vedic* is a misnomer.
Valluri -- Astrology fails to meet the methodology of a science.
Gautham -- Most consult an astrologer if pressed, so struggle is futile.
Balasundaram -- Tests of astrology are indecisive, it needs demystifying.
Tiwari -- Vedic = beyond sensory experience. How can Vedic be science?
Gupta -- Astrology may be a science-like knowledge but more difficult.
Mandal -- We either accept astrology and reject evolution, or the reverse.
Ganeshiaiah -- Issue is nonsense vs good information, not arts vs sciences.
Abhyankar -- Astrologers offer only therapy by talking. Why be fooled?
Narlikar (review of *Astrology: Believe it or not?*) -- Not! Recommended!
Sitaraman -- Science not threatened by Vedic astrology or any other.
At which point the debate was closed by the editor. Three years later:

2004, Volume 87, issue 8

Chattopadhyay -- Government reaffirms UGC proposal. But we stay silent.

In 2001 the University Grants Commission (UGC) in India decided to provide funds for courses in astrology and palmistry at Indian universities. Their circular said "There is urgent need to rejuvenate the science of Vedic Astrology in India ... and provide opportunities to get this important science exported to the world." To those Hindus who allow astrology to influence the course of their business and family lives (which is most of them including major political leaders), the UGC's decision might seem only sensible if overdue.

But the decision provoked outrage and controversy among India's modern intellectuals, especially in the pages of the prestigious Indian science journal *Current Science*, which in content and standard is similar to *New Scientist*. The journal was founded in Bangalore in 1932 in collaboration with the Indian Academy of Sciences and is published every two weeks. Back copies can be downloaded from <http://www.ias.ac.in>. Of thirty comments, most of them from scientists in university departments or research institutes, about half dismissed astrology as a pseudo-science, about half of the rest felt decisive tests were needed, and the rest felt there was nothing wrong with funding something that the majority of Indian people believed in. Of those who referred to tests, none seemed aware of the full extent of Western research findings. The comments from *Current Science*, condensed on average to one sixth of their original length, with their original headings, are as follows, starting with editor P.Balarum:

2000, Vol 79(9), 1139

Editorial -- Creationism, Astrology and Science

Last summer, the Kansas State Board of Education decided to remove references to evolution and cosmology from its curriculum. In India the University Grants Commission (UGC) has decided to promote courses in astrology and palmistry. Despite our inalienable right to profess any faith and subscribe to any belief, superstition is best practised by individuals in private. The government must not provide a licence for the formal teaching of a subject that only serves to mislead its believers. P.BALARAM

2001, Vol 80(6), 719

An unscientific way to bury astrology

The decision by the KSBE to remove evolution from the curriculum calls for an unambiguous condemnation by the scientific community. But the decision to introduce astrology and palmistry into the university curriculum in India cannot be equated with this. How many hours have been spent in assessing the truth or otherwise of these areas? I am not aware of strong data sets that reject their claims. There are several scientists in western universities (eg I.W. Kelly) working hard to evaluate the sense and nonsense of astrology. So why should Indian universities hesitate to study astrology? I think these ideas at least deserve a post mortem examination to assess how useless they are. K.N.GANESHIAH, University of Agricultural Sciences, Bangalore.

2001, Vol 80(9), 1085

Editorial -- The astrology fallout

The generally placid academic science community in India has been stirred into unprecedented ferment by the UGC's decision to set up a few departments of Vedic astrology in Indian universities, which "would provide exclusive teaching and training in the subject leading to certificate, diploma, undergraduate, post-graduate and PhD degrees". The new departments will have Professors, Readers, Lecturers, Library Attendants and Computer Operators, with a possible "non-recurring" budget of Rs 6 lakhs for an "observatory" and Rs 5 lakhs for a "computer lab and horoscope bank". [About \$US14,000 and \$US12,000.] The UGC's assertion that Vedic astrology is a science has stirred a hornets' nest. Astrology has been here for centuries. Despite overwhelming scientific evidence that planets at the time of birth do not dictate the course of human affairs, astrology will be with us in the foreseeable future. The present battle is not between astrology and science but between the UGC (which is charged with the responsibility of fostering higher education) and the scientific community. The UGC's view that astrology needs to be promoted as a science in our universities is a pointless initiative that will further erode the credibility of our institutions. P.BALARAM

2001, Vol 80(9), 1087

UGC decides to set up departments of Vedic astrology in universities

The UGC has actually accepted that the study of time is best done through Vedic astrology. So forget science. If you want to know the age of the earth or the universe all you need to do is to consult the appropriate Vedic texts. I hope no self-respecting university would ask to start such a department. Y.PAL, All India Council for Technical Education, New Delhi.

2001, Vol 80(9), 1088

Astrology and science

Indian scientists have once again shown our customary apathy in not coming forth to preempt the UGC's attempt to start courses in vaastushastra and astrology. Our occasional strong protests may be too late now. The UGC has actually passed a resolution giving legitimacy to such courses. We should read the excellent book by S. Balachandra Rao *Astrology: Believe It or Not?* [see review below], where he describes and then debunks this pseudo-science. A.SITARAM and 21 others all from the Indian Statistical Institute, Bangalore, and 8 others from variously the Indian Institute of Science, Bangalore, the Raman Research Institute, Bangalore, the Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, the Indian Institute of Astrophysics, Bangalore, and the Institute of Mathematical Sciences, Chennai.

2001, Vol 80(9), 1088

Astrology and science -- in response

Funding agencies in India, in their unfortunate generous moments, have supported pseudo-scientific projects such as effect of music on plants, and geomagnetism on human health, with disastrous consequences. It is not lack of open mindedness or intolerance that prompts us to criticize allocation of resources, both manpower and monetary, for astrology or palmistry. The opposition is based on sane scientific sense. M.R.N.MURTHY, Molecular Biophysics Unit, Bangalore.

2001, Vol 80(9), 1088-1089

Astrology and science -- in response

Ganeshaiiah pleads that astrology and palmistry should be allowed into university curricula. One would have thought, especially in Bangalore, that astrology was being seriously studied and believed by a worrisomely lot of people. Every newborn child in a family has its horoscope cast. The late founder editor of the astrology journal often used to lecture in the Department of Mathematics at the Madurai Kamaraj University, when the topologist M. Venkataraman was there. So what is Ganeshaiiah talking about? Have not astrology and palmistry survived all these centuries and do they need to be defended in the pages of a mere science journal? M.K.CHANDRASHEKARAN, Evolutionary and Organismal Biology Unit, Bangalore.

2001, Vol 80(9), 1089

Astrology and science -- in response

I am disturbed that Indian scientists have not protested, in one voice, against efforts to accord this kind of respectability to astrology. Astrology claims to be a science. But its claims are belied because its premises are false, its approach is at variance with the tenets of the scientific method, and it does not grow like other sciences by the self-corrective method adopted by science. No hypothesis or theory has been proposed to explain the effects of planetary positions on human beings. It was not without good reason that the eminent mathematician David Hilbert said, "When you collect the ten

wisest men of the world and ask them to find the most stupid thing in existence, they will not be able to find anything stupider than astrology". J.R.L.RAO, Mysore.

2001, Vol 80(10), 1250

Vedic astrology

In response to Ganeshaiiah. The issue is whether or not Vedic astrology should be recognised as a valid branch of science by bringing it into the mainstream of education in the country. I believe that the UGC has a responsibility to verify the correctness of the information that it proposes to impart to students. In the absence of any proven scientific validity of Vedic astrology, belief in it is a matter of blind faith. So the day will not be far off when the present Indian Administrative Services will be replaced by Indian Astrological Services, the job of its officers being to advise the government in their decision making, based on planetary positions rather than on the merits and demerits of the issue in question. P.KHARE, Department of Physics, Bhubaneswar.

2001, Vol 80(10), 1250-1251

Vedic astrology

According to J.V. Narlikar (*The Tribune*, Chandigarh, 10 April 2001), "Astrology has been subject to scientific tests many times and each time it has failed. But this fact is not sufficiently publicized. Research journals have reported how controlled experiments were performed but failed to prove anything in favour of astrology or horoscopes". In a national seminar on History of Science in October 2000, some firebrand proponents of the Vedic science argued that even quantum ideas are borrowed from the Vedas! During the 15th century Guru Nanak, the prophet of Sikh religion, rejected Vedic astrology by his argument (in *Ad Guru Granth*, SGPC, Amritsar, pp.12,136): "Units of Indian time, and change of seasons, are related to the motion of our Sun. By God's grace, all days and months are beneficial for human kind". We are proud of our rich heritage but that does not mean we put the clock of Indian education in reverse gear. H.S.VIRK, Department of Physics, Amritsar.

2001, Vol 80(11), 1363

Jyotir Vigyan

A news report says that Patna University plans to create a Vedic Astrology Department, but not in the science faculty, so any campaign by scientists against it is misplaced. Ganeshaiiah has convincingly refuted Balaram's alarmist editorial. Today big science is suppressing new ideas. If the tyranny of the orthodox science establishment is not challenged, we are sure to enter the age of darkness. Narlikar and crusaders against Jyotir Vigyan would do well to address the problematic philosophy, methods and limitations of science rather than spreading misleading propaganda to divert public attention from its failures. S.C.TIWARI, Varanasi.

2001, Vol 80(11), 1366

Astrology and science

The UGC decision is a giant leap backwards for Indian science. Astrology is not a religion, it is a pseudo-science purporting to make definitive predictions of human affairs based on planetary conjunctions. Khushwant Singh, in his column "Sweet and Sour", mentions numerous examples of astrological predictions made by "eminent" astrologers which fell flat. Ganeshaiiah says we should not discard astrology just because it is a pseudo-science, but give it time to kill itself if it does not have the strength to stand alongside science. But suppose he was giving a talk on say "Long-term strategies for bio-conservation", and a graduate in Jyotir Vigyan said it was futile because the world would end soon as we are in Kaliyuga, what would be his response? He would say, "My

dear sir, keep your Jyotir Vigyan degree to yourself. We scientists will always plan for research in the long term. That's how we are trained to think, with logic and reasoning".
V.R.SASHIDHAR, Department of Crop Physiology, Bangalore.

2001, Vol 81(1), 7

Science and Astrology

Astrology is as much a science as theories of genetics were in their early days, when critical observation was the key to progress. Our ancient rishis were intellectual giants who had reached conclusions on the basis of their observations. Today the conclusions may be regarded only as hypotheses; but believers would say there is enough material evidence in their favour, so solid proof can come later; just as proofs for several biological postulates are only now coming in. The three supreme postulates of Hindu philosophy (universal Atman, rebirth, and karma) have parallels in modern biological postulates (universal genetic material, heredity, and genes), which shows the astounding observational ability of the rishis. So let us recognise their postulates in various areas of human activity. Astrology is one of them. N.S.NARASIMHAN, Department of Chemistry, Pune.

2001, Vol 81(1), 8

Astrology, navratnas and gemmology

Hindu astrology assigns nine gems to the nine major planets (navratnas). Despite the progress in science and technology, there is a great demand for "stones that bring luck" or "stones that pacify a planet positioned unfavourably in one's horoscope". Such are the facts of the Indian gem market. Astrology is a part of gemmology, and gemmology is a part of mineralogy (science). R.V.KARANTH, Department of Geology, Vadodara.

2001, Vol 81(1), 8-9

Astrology -- Hype, hope and future

Almost 60% of the Indian population prefer to go to an astrologer for many events from birth to death. Astrology guides most of them in their distressed moments. This shows the belief Indian people have in the subject irrespective of caste, creed, race and region. Nowadays most of the dailies and magazines, irrespective of geographical area, publish astrology columns. Almost all ISPs on the internet offer astrology, tarot cards, numerology, etc. Most of the successful industrialists and politicians believe in astrology. Our epics tell us that most of the wars were won by astrology, and most of the temples are built according to vaasthu and astrological principles. It is our responsibility to praise the science of astrology for surviving over the centuries. The UGC proposal would result in developing quality astrologers to satisfy the masses and to get rid of quacks. If not successful, this would also die in due course. S.SESHADRI and K.KATHIRAVAN, Entomology Research Institute, Chennai.

2001, Vol 81(2), 138

Faith and rationality

Underlying the UGC proposal is belief that the achievements of modern science have their root in traditional Indian knowledge. This should inspire people at the helm of affairs to rejuvenate such knowledge. In the battle between faith and rationality, faith has the edge because science does not necessarily inculcate rationality in researchers. Which is why some people, working in premier research institutes of India, use gemstones to ward off various personal problems; or they use special garlands to treat jaundice. It is unfair to blame common people for blind faith, since they draw inspiration from these research people. M.K.CHATTOPADHYAY, Institut Jacques Monod, Paris.

2001, Vol 81(2), 139

Admission test for astrology

Until the 17th century, all belief was good, but faith was better. Then came science, based on impersonal truths. Hence the overreaction of scientists towards astrology, palmistry, tantrik practices, etc. But faith is often needed to overcome fear, uncertainty, and natural disaster. C.SUBBARAO, Department of Geophysics, Visakhapatnam.

2001, Vol 81(2), 139

Astrological education

Astrology is not a science. Nevertheless it provides a psychological prop to many human beings all over the world. Weddings in many Hindu families, including those of some scientists, take place only if the associated zodiac signs and rasis match favourably. And of course, astrology is a life-line of hope for most of our politicians. If people are willing to pay, it makes a case for introducing astrology as a social science course. But not if the funds are diverted from other pressing social needs. Experience shows that protests from individuals outside the power circle have no effect. An organized group effort is needed. K.L.CHOPRA, New Delhi.

2001, Vol 81(2), 140

More on Vedic astrology

As correctly brought out by Vasant Sathe in his recent letter to the *Times of India* (19 May 2001) there is nothing in the Vedas about astrology, so the prefix Vedic is not justified. Nevertheless it is time the scientific community recognised Indian traditions and gave a scientific verdict after meticulous studies and avoided merely looking through the lens of the Western world. C.DEVAKUMAR, Delhi.

2001, Vol 81(2), 140-141

Astrology and the methodology of science

How to decide whether astrology could be treated as a science? The scientific method requires that the hypothesis be relevant to the phenomenon to be explained, be compatible with well-established observations, be testable and reproducible, be able to predict things yet unknown, and take Ockham's Razor into account (the simplest explanation is the most likely). Astrology does not conform to the first, where astrologers cannot explain why only a few among zillions of heavenly bodies should be relevant, nor why predictions by astrologers can contradict each other. So the other conditions become irrelevant. S.R.VALLURI, Indira Nagar, Bangalore.

2001, Vol 81(2), 141

Futile struggle against Vedic astrology

Most of us would consult an astrologer before we fix a date for the wedding of our children. So the struggle against Vedic astrology is probably futile. More objectionable is the emphasis on Vedic, and not (perhaps) Indian, astrology. What about, for example, Mughal astrology? N.GAUTHAM, Department of Crystallography and Biophysics, Chennai.

2001, Vol 81(2), 142

A time for demystification of astrology

The available scientific results neither confirm nor deny astrology. Where Gauquelin seemed to confirm, other studies seemed to deny. In the USA a survey showed that one-third of people believed in astrology while another one-third did not believe. Objections to astrology signed by 186 leading scientists was followed by another letter supporting astrology signed by 187 academicians. Such contradictions have prevailed since time immemorial. Thus Plato and Aristotle believed but Lucretius and Cicero did

not. So why not subject astrology to scientific analysis and put the matter to rest? Let us hail the UGC decision as an official opportunity to demystify this field once and for all.
C.BALASUNDARAM, Department of Animal Science, Tiruchirapalli.

2001, Vol 81(2), 142

A note on Jyotir Vigyan

Jyoti represents the primeval light of Brahma. Vigyan is transcendental knowledge that is beyond sensory experience. Thus the term Vedic astrology or Vedic science does not make sense. Instead Jyotir Vigyan is founded on recognition of the supreme conscious Brahma, unity of the universe encompassing sentient and non-living beings. The prevalent system of prescribing rituals to change a planet's effect appears to be a crude and vague form of exercising free will. S.C.TIWARI, Institute of Natural Philosophy, Varanasi.

2001, Vol 81(2), 143

Astrology -- a neo-science without utility

Whether Vedic astrology is a science, and whether it should form a university study, are two different questions. The main reason why predictions fail is insufficient knowledge of astrology, imprecise calculations and wrong interpretations. In all probability astrology may be a science or a neo-science, or at least a systematic knowledge similar to science, but much more difficult to understand and practise than physics or mathematics. It is a human weakness to want to know one's future. If astrology is made a part of the curriculum in universities, it lends respectability to the practice of knowing the future, but its study would not leave us any wiser and would lead to more confusion.
Y.K.GUPTA, Hardwar.

2001, Vol 81(2), 144-145

Astrology or arrant trash

If we look around, we see that the mere chanting of mantras over the years could neither help mobilise food for half a billion population nor help in making a super highway. The fundamental axiom of astrology implies that divination is at the core of astrological knowledge. Planets moving with divine energy are analogous to the motion of divine creations including human beings. But if we are a direct creation of God, what happens to our objective investigation of evolution since the formation of protoplasm? Either we accept astrology and discard evolution, or we accept the reverse.
R.K.MANDAL, Department of Metallurgical Engineering, Varanasi.

2001, Vol 81(2), 145-146

Whipping astrology -- a science crime

Most responses to my earlier letter on astrology have misunderstood it. The others suggested that astrology is not appropriate as science but fine as arts. But for me there is only sensible information and nonsense, and it is immaterial whether the sensible knowledge is arts or science. K.N.GANESHAIAH, Department of Genetics and Plant Breeding, Bangalore.

2001, Vol 81(2), 158-159

Astronomy and astrology

Based on an article published in *Society and Science*, a journal of the Nehru Centre, 1982, 5, 16-24, by K.D.ABHYANKAR

When I tell people that I am an astronomer, they ask me immediately whether I can predict their future from their horoscopes. On receiving a negative reply, they look down

upon me as a man of no consequence and wonder what kind of astronomer I am. It is not their fault, because most persons, including the well-educated ones, do not know the difference between astronomy and astrology.

Astronomy studies the physics and chemistry of heavenly bodies. It is an observational rather than an experimental science. Nevertheless astronomers follow the same logical process known as the scientific method that is used in the experimental sciences.

Astrology is not a science. The ancients believed that the planets and Nakshatras could produce good or evil effects, which led to the notions of astrology. Today, from the laws of physics, it is clear that the planets cannot have the effects claimed by astrologers. Even astrologers know this, but they go on fooling innocent people in order not to lose face. Further, there is no astrology in the Vedas, so the term Vedic astrology is a misnomer.

Many people will agree with me but will still consult astrologers, even though most forecasts are wrong. One can look up the forecasts published in various newspapers to verify this. People visit astrologers in the same way that they visit many doctors and get partially cured just by talking with them or by taking their fake medicines. So astrologers are more like psychiatrists than anything else. Once we realize this, we would rather face our problems rationally and courageously than consult an astrologer. So the UGC proposal to introduce astrology as a subject in science faculty is a step in the wrong direction. It amounts to replacing truth by untruth and light by darkness.

2001, Vol 81(2), 215

Book Reviews

Indian Mathematics and Astronomy: Some Landmarks. Jnana Deep Publications, Bangalore, 261 pp. *Indian Astronomy, An Introduction.* Universities Press, 3-5-819 Hyderguda, Hyderabad 500 029, 207 pp. *Astrology: Believe it or not?* Navakarnataka, 101 Crescent Road, Kumara Park, Bangalore 560 001, 153 pp.

All three books are by Balachandra Rao, Principal and Professor of Mathematics at the well known National College, Bangalore. The first one tells us about the development of astronomy and mathematics from Vedic to colonial times. The second goes into technical details, re-deriving the mathematical results obtained by the ancients. Here knowledge of geometry, trigonometry, and algebra will be required.

The last book is aimed at general readership and describes the subject of astrology while pointing out why it is not a science. If you were restricted to buying only one of these three books I would recommend the last. In the ongoing controversy of whether astrology is a science, the astrologers often criticize the scientists for dismissing their subject without understanding it. So here BR presents the essentials of astrology in as systematic a way as possible.

BR emphasizes the shakiness of various predictions especially in the context of Indian politics of recent decades. He has reproduced predictions from well established astrologers side by side with what actually happened. The lack of predictive power evident from such cases would alone disprove any case that astrology might have for being called a science. There are also discussions of sociological and psychological aspects of belief in astrology.

The author could have given some more examples of western tests of astrological predictions which have proved to be negative. Since Indian astrologers are quite capable of saying that western astrology is all wrong, there is need for controlled experiments to test the veracity of predictions of Indian astrologers. J.V.NARLIKAR, Inter-University Centre for Astronomy and Astrophysics, Pune.

2001, Vol 81(3), 231

The Vedic astrology controversy

Does Vedic astrology hurt science? No. Does it hurt society? It could by misuse. Does it hurt students? No. Does it hurt teachers and teaching? No. Do universities care? Very few do. True science can be rash and breathtaking. It does not require government pronouncements or elite support, and will not be threatened by Vedic astrology or any other. V.SITARAMAM, Department of Biotechnology, Pune.

Editors' note: Correspondence on this subject is now closed.

2004, Vol 87(8), 1030

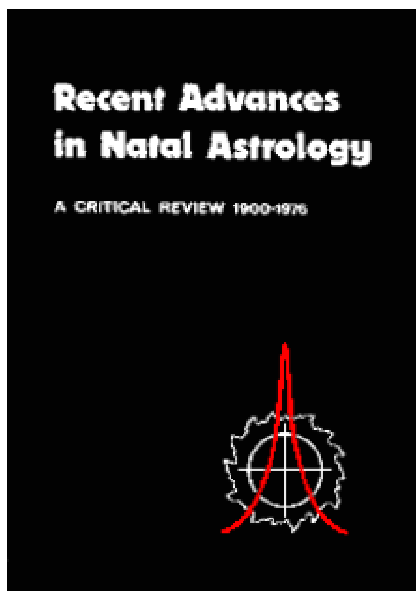
Astrology and science awareness

The present government has no desire to drop the proposal to introduce astrology into the university curriculum. Unfortunately scientists who were against the proposal last time have mostly chosen to keep silent. M.K.CHATTOPADHYAY, Centre for Cellular and Molecular Biology, Hyderabad.

Origins of Recent Advances in Natal Astrology

Interviews in 1978, 1985, 1989 about this 1977 milestone

Abstract -- The publication in 1977 of *Recent Advances in Natal Astrology: A Critical Review 1900-1976* is widely regarded as a milestone in the history of scientific astrology. It led to a boom in research, and to the founding of London research conferences and the research journal *Correlation*. But most astrologers regarded it with horror before retreating en masse from critical thinking. Those times have been recorded in three published interviews: (1) Dean and Mather interviewed by Malcolm Dean in 1978. Covers origins of *Recent Advances* (it was needed), how it was compiled (get help from around the world), the enthusiastic support of the Astrological Association (especially Charles Harvey), and the next step (complete literature retrieval and coverage of missed topics). (2) Charles Harvey interviewed by Michael Erlewine in 1985. Covers the support given by the Astrological Association and some later reactions (*Recent Advances* gives the facts and figures but neglects what astrologers love and which draws people to astrology). (3) Geoffrey Dean interviewed by Rudolf Smit in 1989. Covers reactions (mixed), new research (also mixed), status of the next step (much has been published), and the pains and pleasures (new discoveries and support from informed others make it rewarding). An update on the next step (*RA2*) covers work already published, and compares topics in the 1970s (chart factors) with those of today (artifacts and faulty reasoning). Includes a possible birth chart of *Recent Advances*. If nothing else, *Recent Advances* has shown how lighting candles is more productive than cursing the darkness.



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200 RULERSHIPS	530 OTHER EVIDENCE
	535 OTHER
410 PLANETS	544 OTHER FACTORS
411 NON-PLANETS	550 COMPUTER SYSTEMS
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486 NON-PLANETS	920 OTHER FACTORS
487 NON-PLANETS	925 OTHER FACTORS
488 NON-PLANETS	930 OTHER FACTORS
489 NON-PLANETS	935 OTHER FACTORS
490 NON-PLANETS	940 OTHER FACTORS
491 NON-PLANETS	945 OTHER FACTORS
492 NON-PLANETS	950 OTHER FACTORS
493 NON-PLANETS	955 OTHER FACTORS
494 NON-PLANETS	960 OTHER FACTORS
495 NON-PLANETS	965 OTHER FACTORS
496 NON-PLANETS	970 OTHER FACTORS
497 NON-PLANETS	975 OTHER FACTORS
498 NON-PLANETS	980 OTHER FACTORS
499 NON-PLANETS	985 OTHER FACTORS
500 NON-PLANETS	990 OTHER FACTORS
501 NON-PLANETS	995 OTHER FACTORS
502 NON-PLANETS	1000 OTHER FACTORS

Recent Advances had its contents listed on the back cover. Chapter headings are: Introduction, Perspectives (eg Validation), Zodiacs, Signs, Houses, Rulerships, Planets, Non-Planets (eg Nodes), Aspects, Lack of Aspects, Angularity, Other Factors (eg Midpoints), Birth, Cycles, Other Evidence (eg Blind Trials), Summaries in French and German, Index, Glossary. The book was available only in paperback. Size is 214 x 151 x 33 mm thick. Price shown on back cover is £10 or \$25 (whether USA, Canada, Australia, or NZ). In 2007 used copies were advertised via Amazon at \$US150 or more.

The publication in 1977 of *Recent Advances in Natal Astrology: A Critical Review 1900-1976*, popularly known as *RA*, is widely regarded as a milestone in the history of scientific astrology. In 608 pages and 250,000 words it summarised empirical findings

from 300 astrology books (out of over 1000 consulted), 400 journal articles, and 300 relevant scientific works. At a time when references and indexes were generally unknown in astrology books, this one contained over 1000 references and a 17-page index. It took Geoffrey Dean and Arthur Mather, together with 52 astrologers and scientists from 10 countries, seven man-years to prepare.

Reviews were predictably either for or against. "The magnum opus in the intellectual and scientific house-cleaning of astrology so long overdue" from *Omni*, and "An important first thrust at the Gordian knot of unquestioned belief that stifles astrology" from *Cosmecology Bulletin*, were opposed by "Very little is done, however, to show the artistic, interpretative challenge presented by the vast store of astrological symbolism" from *Astrology Now*. That was in 1978.

Effect on Research

The effect of *Recent Advances* on research was threefold. First, it identified promising areas for future research, notably John Addey's harmonics ("promises to revolutionise astrology"), Donald Bradley's Jupiter Pluvius ("must rank among the most remarkable studies"), John Nelson's radio propagation studies ("the most valuable insight of all"), the Mayo-Eysenck sun sign zigzag ("no conclusion is possible"), Vernon Clark's matching experiments ("strong apparent support for astrology"), and Michel Gauquelin's planetary effects ("without doubt the most rigorous work of all").

Second, it led to the founding in 1979 of London research conferences, in 1981 of the research journal *Correlation*, and subsequently of Urania Trust research grants. In 1982 it led Eysenck and Nias to publish *Astrology Science or Superstition?*, a survey of the scientific evidence for astrology aimed at a more general readership, which in turn led to the founding in 1987 of Eysenck Research Seminars and of CORA, the Committee for Objective Research in Astrology, with Eysenck as Chairman. Today we tend to take such activities for granted. But before *Recent Advances* they were almost unheard of, at least at a scientific level.

Third, it led to studies including prize competitions that focussed on the promising areas identified in 1977. But artifacts were found in each case, so their support for astrology effectively disappeared (for details see *Artifacts in data* on this website under Doing Scientific Research). By the late 1990s these and other studies had changed astrology from an ancient mystery to a process easily explainable in terms of human judgement biases and statistical artifacts, which twenty years earlier might have seemed unlikely. These later studies also had the effect of negating the positive conclusions of *Recent Advances*, which today are so dated and misleading that they have only historical value. More on this later under "Status of RA2 in 2007".

Effect on Astrologers

In 1996, nearly twenty years after the appearance of *Recent Advances*, its effect on astrologers was described by former British astrologer Nick Hunter as follows (abridged from a posting on alt.astrology):

"I am fascinated by the culture conflict between the scientific mind and the way astrologers work. As a geoscientist, I was appalled by the way in which mainstream astrology went fleeing en-masse away from mundane and most things non-psychological or non-symbolic after Dean and Mather published *Recent Advances in Natal Astrology* in 1977.

"Dean and Mather worked carefully with all the top names in astrology at that time. They applied statistical techniques to astrological assertions and found reams of rubbish, much unsubstantiated nonsense and very little which would

stand up to a student's t-test or simple statistical validation. I was fascinated by the objectivity of their landmark analysis, but to my horror, I found that most fellow astrologers were frightened witless by their book.

"No-one wanted to face up to the new verification discipline that Dean and Mather had laid out, and the whole astro-clan went fleeing off into psychological, symbolic, mythological or historical astrology. Compared with other sciences, the energy, the output, the learned discussion, the wisdom, the insights are so feeble as to be cause for shameful lament.

"Dean and Mather were scrupulously fair, but the discipline they brought to astrology triggered the effective demise of astrology as a science. I packed up and left astrology in about 1985, but still keep an eye open for something of interest. Nothing much has really changed in the past ten years. I mourn the dreadful state astrology has got itself into."

Origins of Recent Advances

Because *Recent Advances* was such a landmark, historians may wish to know something about its origins, the attitudes in those days, and subsequent reactions. Fortunately such things have been recorded in three published interviews with respectively Geoffrey Dean and Arthur Mather (1978), Charles Harvey (1985), and Geoffrey Dean (1989). These interviews are reproduced below in abridged form to exclude irrelevant material. At the end is an update on the status of *RA2* and a possible birth chart of *Recent Advances*.



Recent Advances was once essential reading for every well-dressed astrologer

Dean and Mather interviewed by Malcolm Dean in 1978

Abridged from *Phenomena* 2.3-2.4, May-August 1978. Malcolm Dean (no relation) was the editor. The interview was conducted by mail and includes material from an unpublished 1976 interview with Mark Feldman, then book reviewer for *Horoscope* magazine.

PH: Do you think astrology could, or should, be more scientific? How would this alter astrology?

GD: If astrology does not become more objective it will continue to be overloaded with fantasy.

AM: And this fantasy can only be to the detriment of all concerned ... except perhaps the less scrupulous professionals. Without a science of astrology there can be no art of astrology.

PH: What are the origins of the *Recent Advances* project?

GD: *Recent Advances* did not begin as a specific project. It just grew from a modest literature survey I made in Western Australia in 1973. I went to the UK, and found myself living near the Astrological Association Research Library, then one of the best collections of astrological books and journals available anywhere. I was able to greatly improve the survey. At that time I had nothing more in mind than an article. Then the Astrological Association expressed an interest in publishing it in book form. The article was not yet adequate for this, so I did more literature surveys and circulated the results to various astrologers for comment. From that point on it grew to its present status.

PH: Why did you consider doing the project?

GD: Because it was needed and I was in a position to do it. I want to stress that it was possible only because the right things were in the right place at the right time. Such a project has a number of essential requirements: (1) Access to astrological literature. Astrology libraries do not grow on trees. Yet one of the best in the world was around the corner. (2) Access to the best astrologers. Who has the opportunity to chase around the world to find these people? Yet my job as a science writer for NATO took me to Europe and the USA, where I was able to give lectures and involve people personally in a way that mere letter-writing never could. (3) Access to wordprocessing and xeroxing facilities, which in the 1970s were still rare. Yet they were available as part of my NATO work. (4) Expertise in literature searching, science writing, layout, graphic design and organization. This is my professional specialization. (5) Adequate finance. This was the biggest problem. Other than the loans raised to cover printing costs, it all had to come out of my pocket. We almost didn't make it.

Finally, there has to be co-operation. Not from a cast of thousands, but from just a handful of people who are qualified, competent, dedicated, and who deliver the goods on time. And I had that. In particular I know of nobody else with the ideal blend of experience, expertise, and access to facilities that Arthur has, and it is especially fortunate that he also had the time. The opportunity to bring all these elements together doesn't occur every day.

AM: As far as the Astrological Association is concerned, it has always greatly valued the scientific approach to the problems of astrology, and indeed it was founded 20 years ago with this in mind. It has long been the intention to compile into one publication the best of scientific astrology and astrologically-relevant science. Unfortunately the effort required to do this properly has so far been beyond our means. Hence when Geoffrey appeared with a project which, when extended, coincided precisely with our own, the Association's most active researchers were quick to participate. After a massive expenditure of effort, most of it Geoffrey's, the result is a review that has exceeded our best expectations.

GD: I should point out that while the book may be a start, it is certainly not exhaustive - there must be countless books, journals and astrologer's files that remain untapped. In principle an exhaustive review presents no problems; it would merely require perhaps 20 man-years of work throughout a dozen countries. As a private venture this is clearly not

feasible. But given the financial resources of, say, the AFA, it could already have been done several times over. It seems to us that any major expansion in the book's coverage (as opposed to updating) will necessarily depend on the availability of such resources.

PH: The book seems quite comprehensive already. Is major expansion likely?

AM: We estimate that about 75% of the relevant astrological literature in English has been covered, but less than 20% in other Western languages. So potentially the coverage could expand by 100%.

GD: This of course assumes that the quality of the items missed is as good as those already included. However, the feedback from readers to date suggests that this could be so. In other words, going for exhaustive coverage could really be worthwhile.

PH: What were your initial goals in *Recent Advances*?

GD: To review the literature. The average astrologer is totally unaware of the vast amount of useful information that is hidden away in journals.

AM: Here, "review" sounds very simple. But in fact it includes summarising, checking, co-ordinating conclusions, describing relevant techniques, suggesting areas needing research, and so on. So there are many spin-offs.

PH: Why did you do *Recent Advances* alone?

AM: You could say that the road to stagnation is paved with committees.

GD: We didn't want any concessions to sales appeal, popular taste, or whatever. For once astrology had to come first. Which is not what publishers want to hear.

PH: What qualifies you, astrologically or otherwise, to undertake such a project, particularly as a "final arbiter" of the data?

GD: The book covers such a huge field that no one person could possibly do it justice. Hence there were 52 collaborators -- hopefully between us we got it right.

AM: In any survey of knowledge it is far more important to know the right questions and the right people, than it is to attempt to get all the right answers.

GD: The book was a group effort which depended as much on others as on me. In particular, Arthur worked with me through all stages of the recyclings. As each chapter was finished it went to him and corrections were recirculated among the collaborators until everyone was happy. This process is never quick (the introduction went through about 20 different versions) but hopefully the end result justifies it.

AM: With specialized topics, such as the work of Nelson or Gauquelin, an initial draft was sent to them for comment. After it came back, their comments were incorporated, and returned with any queries that arose. The process was then repeated until everyone was happy: Usually there were several recycles. The record is about about 10 recycles and \$US30 in postage for a total of about 2-3 pages.

GD: As regards being the final arbiter, there was very little to arbitrate because there were no limitations on space, and hence the problem of choice rarely arose. In any case, everything was checked by several people chosen for their expertise relevant to the topic in question. If a topic was controversial then both sides were given. That way everybody should be happy. We do hope, however, that there will be a full and active debate on the contents. Any shortcoming can then be rectified in the next edition.

PH: To what extent did you consider the opinions of others?

GD: All the time The book was not written in the usual sense. Instead it evolved by progressive recycling among the best astrologers. The first version took about one man-year of my time, filled 200 pages, included all the feedback, and was circulated in whole or in part to 50 collaborators world-wide. The third version took another four man-years, filled 600 pages and is the version now on sale.

AM: Even this is only an interim stage to the next edition. In the book we invite readers to send in comments, information, research results, items missed, anything. This way we hope to make the next edition not only exhaustive but also truly representative.

GD: In other words we want to consider all opinions. All that readers have to do is send them in. The ball is in their court.

PH: The book is typewritten. Why wasn't it properly typeset?

GD: Simply to keep costs down. Overall, the book has been a very expensive undertaking. Nearly \$US200 for typewriter ribbons alone, enormous postage, telephone and xeroxing costs (we sent over 500 letters, 9000 xeroxed pages and 10 kg of related paperwork, most of it by air mail), plus three years of office overheads, and so on. And part of the proceeds from sales goes to support research by the Astrological Association.

PH: But at \$25 the book is still fairly expensive.

GD: Not really. The average price per page of all new first-edition paperbacks over 50 pages listed by the New York Astrology Center since late 1975 to date, a total of 66 titles, is 4.6 cents. The average price per page of *Recent Advances* is 4.1 cents.

PH: Has the book changed your attitudes towards astrology?

GD: It is not possible to review astrology fairly without maintaining an impartial attitude towards all views. Our job is not to take sides but merely to get it right. Personally I hardly have any attitudes to maintain other than a complete intolerance of fog.

AM: It seems to us that a critical examination of the evidence is not likely to lead to a wider belief in astrology as currently practised. On the other hand, it opens up many exciting new areas for investigation. It points the way to a new astrology.

PH: Do you think recent studies of astrology are of a higher calibre than older material?

GD: Yes, generally, simply because more technically competent people are becoming interested in astrology and this competence is beginning to make itself felt. For example, astrological research by psychologists may sometimes be deficient in its understanding

of astrology, but it is setting standards of investigation and exposition that are unparalleled in astrological literature.

AM: It demonstrates that, despite what some astrologers say, the complexities of astrology are not incompatible with clear and objective inquiry.

PH: In what sense is the book critical?

AM: Yes, critical requires some explanation. Critical reviews are very common in science, and indeed reviews which are not critical are poorly regarded because without evaluation there is chaos. It is quite wrong to regard a critical review as an attack on something. A critical review is merely one in which a high level of evidence is required and in which all the pros and cons are carefully assessed.

PH: What of the future?

GD: We plan to collect previously missed material, and incorporate this with the comments and information generated by the first edition. In other words our aim is a complete literature retrieval, not just of books and journals but also of individual unpublished work. To do this privately is not feasible, hence everything depends on funding.

AM: Once all the past work is covered it can be continuously updated by say an Annual Review of Astrology.

GD: The days of talking are over.

Charles Harvey interviewed by Michael Erlewine in 1985

Abridged from Talking with Charles Harvey, *Astro*Talk* 1985, 2(2), 1 and 15-18.

Erlewine was the editor, and Harvey was the president of the UK's Astrological Association. The interview was conducted in person.

ME: Can we ask you to talk a bit about Geoffrey Dean, about how you met him, how he showed up at your door.

CH: His mother happened to live a few miles away from my house. He was involved in astrology, and he came to visit the research section library, which is at my house. Later he said "Well look, there is all this amazing wealth of literature, but no one has a clue what anyone else has done. You open a journal, and the article that has references doesn't exist. Only one article in ten refers to the work of others."

We then realised we were on to something else. The concept of *Recent Advances* was to bring together all possible work that had been done on astrology, of any kind, not necessarily critical, but attempting to see how astrology works, trying to understand better the principles behind astrology. So began the most extraordinary marathon you will ever witness. He would arrive at 8 in the morning and leave at 10 at night. You would offer him a cup of tea. No, he didn't drink tea. You'd offer him coffee, no; lunch, no; anything, no. And for twelve or fourteen hours at a stretch he would be taking notes, taking notes, taking stuff away to xerox, taking notes, taking notes. I have never seen someone work with such 100% concentration and dedication.

He realized that the first thing we had to do was to contact as many people as possible. So we put out feelers. The Association already had a very good network of contacts with all the main European and American astrologers. We started writing and started a dialogue with every key person we could find. What did they know of that we hadn't got? And we would circulate the text that we had already. *Recent Advances* grew from an eight-page leaflet to a six-hundred-page work.

ME: Do you know that he is a very controversial figure here in the states? Why is that? Why did some Americans, and I'm not sure it's just Americans, have such difficulty with his book? What is your summation of that?

CH: I think the summation of it is that *Recent Advances* is a wonderful book if you take it as a reference work. It is a poor book if you take it as a book to give you anything to do with the quality of astrology. It is very dehydrated. It tells you the facts and figures that [in astrology books] are very few and far between.

ME: So you're saying it does not capture the spirit of some of the work.

CH: It did a job that needed doing. Astrology had to catch up with the 18th and 19th centuries in one fell swoop. But facts without values don't really amount to very much. Somehow it squeezed out the very thing that astrologers love and which draws people to astrology.

ME: So we are to take it as an imperfect work, and be thankful for what we have got.

CH: I think where it deserves absolute 100% marks is that people have been talking about this [need for a scientific survey] for years and years and years and we still talk about it, but *Recent Advances* has gotten down and done it. In the whole of our community here, we never managed to do that.

Geoffrey Dean interviewed by Rudolf Smit in 1989

Abridged from Exclusief vraaggesprek met Dr Geoffrey Dean, *Astrologie in Onderzoek* 1989, 4(2), 2-7. The interview was conducted in person and was translated into Dutch. What follows is from the original English.

RS: *Recent Advances* resulted from a tremendous joint effort by many collaborators. Are Arthur Mather, and all those other people, still helping you with *RA2*, the extension and update of *RA*?

GD: Oh yes. They are either helping or waiting in the wings to be called upon. And they are absolutely essential -- the field is too big to be adequately assessed by any one person. Far too big!

RS: When *RA* was finished, were you, at the time, still a believer in astrology?

GD: When *RA* was finished we had sorted through an enormous amount of information and evidence, some of which seemed very promising and some which seemed not promising. So we were simply open-minded, perhaps more open minded than when we had began. When we began we certainly were believers. At the end we were more critical, but we were still hoping that new investigations would produce marvels. So in general we were still believers.

RS: When the book came out, what kind of response did you get?

GD: It certainly aroused a lot of controversy. Some astrologers jumped up and down in outrage, but others jumped up and down in sheer pleasure. Those astrologers who are generally useful to advancing astrology are still more than eager to talk to us. But those who seem to have very little to contribute are the ones who are not wanting to talk, so in fact we are not missing very much. Also as time goes on, you discover more and more people waiting in the wings who have a great deal of interest and expertise, and they are very willing to come to your help. So, yes, some people won't cooperate, but there are many more who do, and in the end you are better off.

RS: You said, a lot of people were waiting in the wings. Did they all come forward by themselves?

GD: Yes, that was one very pleasing aspect of the book. People we had never heard from before, wrote to us and said: "Look, this is really interesting stuff. Can I send you results of my own research?" Or they had comments on some of the work in *RA*, or they had suggestions to make, and they did this quite voluntarily. So we had lots of useful interesting material coming our way, purely spontaneously from these people, and that was very encouraging.

RS: But now of course the crucial question. Did people generally come with something of real value -- perhaps a beginning of a breakthrough?

GD: Yes and no, because it was mixed. Some people came forward with unfinished work, so they did not know what the outcome would be. Others had produced what seemed like positive results, while others had produced what seemed like negative results. In each case we were able to examine the data more rigorously to see if they had missed something. So overall the studies were neither for nor against. They were mixed. But we can certainly say that many of them were exceedingly interesting. Incidentally, in many cases the person had not considered their study worth publishing. So we are able in the update to present work which is unpublished, but well worth knowing about.

RS: I have the strong impression that the update has been deferred and deferred, simply because so much is coming forward now. Am I right?

GD: Again, yes and no. Unlike *RA*, the update looks at many new things, for example new areas which weren't covered in *RA*, and material which was missed in *RA*. These things require a completely different approach. In *RA* you simply looked at what already existed, summarised it, and that was it. But for *RA2* you must first find what you have missed and that takes time. It takes time also to survey areas which haven't been surveyed before. For example, no survey exists of human judgement biases in astrology, so you must create your own by spending several months in a university library. And there is a third reason, perhaps most important of all, why the update should be so long in coming. Having surveyed the field in *RA*, one can see certain areas which hold a great deal of promise, but which still contain gaps. For example, John Nelson's work on radio disturbance, Donald Bradley's work on Jupiter and rain, the Vernon Clark experiments, and so on. So these gaps have to be filled, either by ourselves or by other people, and this takes a great deal of time. Which is why the update is taking so long. But when it arrives I can guarantee it will be worth waiting for.

RS: Well, I assume that because of all this you are the person with the widest overview of what is going on in astrological research today.

GD: I would hope not! For the simple reason that all the important research is now published in magazines like *Correlation* and *APP*. So anyone who reads these will have as good a view as anybody of what is going on. Perhaps the only thing I have which may be special is a huge file of stuff gathered from dusty drawers around the world. But these are usually gathered from times before computers and rigorous tests so they are not quite as useful and convincing as the later work.

RS: Now, what is your idea about the future of astrology?

GD: To speak of the future of astrology is difficult if we do not break astrology down into its various components. Take that part of astrology which is purely the helping part and operates very well irrespective of whether it is true or not. For example, we might discuss with a friend his problems in a consoling or warm or reassuring manner. So he might get a lot of help from our conversation, even if all we said were lies. So that part of astrology is independent of all this research work.

Now take that part where your astrology is required to be true. Here the research results are not promising at all, so you may have to change your tune. Now take that part where astrology is simply an interesting social phenomenon. Here again of course it makes absolutely no difference what the research results are like.

So you can see that the future of astrology depends on how you define it. One would imagine that whatever happens, the changes in the actual public image of astrology will be rather slow. So the future of astrology is not measured by the difference between today and tomorrow, but by the difference between this generation and the next. And I think the work that researchers are doing will have more impact on the next generation than on this one.

Of course it is always easy to criticise. Do you remember the follow-up study that you and I did on the Pluto research data of Terry Dwyer? After weeks and weeks of work we thought we had finished, only to find loopholes requiring even more weeks of work.

RS: It was in 1987 when I was still in Perth before my return to the Netherlands. I did the computing and you did the analysis. There seemed to be always one more thing to check, just to be sure we had not missed anything. It seemed to go on forever.

GD: And that was just on someone else's data after they had done all the spadework! So you can imagine what it's like when you have to do everything. If you still have time for things like watching TV or going to the cinema, then you are not doing it properly.

RS: And despite our trying again and again to find something positive, we still ended up with nothing. So people accused us of trying to demolish astrology, as if the results were all our fault. It's like killing the messenger for bringing bad news.

GD: People seem to think that we delight in negative results. In fact nothing could be further from the truth. Continuing negative results are difficult to publish, there is nothing to win you recognition, and nobody will give you any money. So apart from

wasting your time, they guarantee that you will end up starving in obscurity. To say that people like us delight in that sort of thing is rather curious.

RS: I agree. Final question: You have been working with astrological research now for some fifteen years. Aren't you getting fed up with it?

GD: Hopefully one can never get fed up with astrology. It brings you into contact with an area of interests which extends, on the left, from astronomy to, on the right, psychology. It is in fact limitless. And in those fields there are some very interesting and most able people. So although the response of astrologers is sometimes disappointing, the response from others more than makes up for this. Indeed, many scientists who are usually much maligned by astrologers, turn out to be more open minded and more even in their response than the astrologers themselves. It is this and the chance to find out what is really happening, which makes research in astrology such a continuing interest.

Status of RA2 in 2007

Work on *RA2*, the long-planned update of *Recent Advances*, has been in progress since 1978. Unfortunately the hoped-for funding and astrologer support did not eventuate, which together with the need to fill gaps has made progress slower than hoped. On the other hand, most of the work has already been published on this website. In particular a broad overview (but without actual reference to *RA2*) can be found in *The Phillipson interview of researchers*, especially sections 8 and 9, under Doing Scientific Research.

In print, the article that comes closest to what *RA2* will contain is the entry on astrology in *Encyclopedia of the Paranormal*, edited by G Stein, Prometheus Books, Buffalo NY 1996, pp 47-99. Its 28,000 words by Dean, Mather and Kelly cover history, popularity, arguments for and against, conceptual problems, controlled tests, effect size comparisons, problems of birth chart interpretation, how belief in astrology arises, role of human judgement biases, and the future of astrology. For comparison the main topics covered by *Recent Advances* were zodiacs, signs, houses, rulerships, planets, non-planets, aspects, angularity, and cycles. Note how the focus has changed from chart factors to human judgement biases and statistical artifacts -- the former have become largely meaningless in the light of the latter.

Again, compare overviews. In 1977 *Recent Advances* put it this way:

Despite much progress there remain few concepts in astrology that are not disputed among astrologers. To date the most significant research results have sometimes supported tradition but have more usually contradicted it. The picture emerging suggests that astrology works, but seldom in the way or to the extent that it is said to work. Obviously genuine research must start with as few assumptions as possible. (page 7)

Twenty years later the above encyclopedia article put it this way:

Astrology has a very early history. Today it covers every facet of material and spiritual existence from sun sign trivia to profound religious insight. As a result astrology means different things to different people. Astrologers claim that the heavens indicate earthly circumstances so pervasively that no area of human affairs is exempt. They also claim that experience shows it works. But there are numerous often conflicting doctrines. Progress has not been made by observation or other acceptable means. Scientific tests have failed to reveal effects commensurate with astrological claims. Orthodox approaches have much larger effect sizes. Unaided human judgement is subject to biases that can fully explain why astrology seems to work. In short, astrology shows all the symptoms of pathological science. Nevertheless astrology may be here to stay. (page 97)

Note how the former uncertainties and mysteries of astrology have been largely dispelled. The full *RA2* will be published in due course, hopefully before 2010. If nothing

else, *Recent Advances* has shown how lighting candles is more productive than cursing the darkness.

Birth Time of Recent Advances?

Recent Advances evolved over numerous stages, none of which can be clearly identified as *the* starting point, so there can be no birth time in the traditional sense.

Nevertheless, because they were open-minded about astrology, Dean and Mather made a special effort to accurately time the moment when the material book took on an independent existence, namely the official handing over of the camera-ready copy to the printers, details of which are revealed here for the first time. To ensure that the printing would be in good hands, Dean and Mather had just completed a tour of the printing works taking nearly an hour, on a date set by the printers (it was a Monday), so the timing was not in any way pre-determined. The handover occurred at 9:56.4 am BST (8:56.4 am GMT) \pm 0.1 minutes on 3 October 1977 at Camelot Press, Shirley Road, Southampton, SO5 1W25. At that moment Uranus was barely two degrees below the Ascendant, Saturn was four degrees before the MC, and Jupiter was moderately elevated in 8th whether by Placidus or Equal House. The strongest planet by aspect was Neptune, being sextile Sun and Pluto and in a T-square opposite Moon and square Venus.

Patron of research

A tribute to Charles Harvey 1940-2000

Arthur Mather and Geoffrey Dean

An expanded version of the original tribute in *Astrological Journal* 42(6), 45-46, Nov/Dec 2000.

Abstract -- Charles Harvey influenced the course of 20th century scientific research into astrology more than anyone else. His eminence within astrology, and his enthusiasm for scientific research, led to his becoming a key figure in the astrology-science debate. Without Charles there would be no *Recent Advances*, no *Correlation*, no London Research Conferences, no Kepler Days, no British research tradition to lead the world, and no websites like astrology-and-science.com. Like his mentor John Addey, he pinned his hopes on Neoplatonic ideas (true reality is intangible and manifests through number) and on a scientific revolution that would eventually validate astrology as a "systematic algebra of life and consciousness." Such an astrology, he believed, would heal mankind's ills by uniting spiritual and material values. Unfortunately research failed to support astrology to the extent that everyone had hoped, and in the years since his death the support has grown even weaker. The divide between astrology and science is still not bridged. Ironically Charles's efforts may have inspired a growing recognition, at least among researchers and innovators, that astrology is a spiritual endeavour not a material one. And with this, in contrast to his own belief, comes the need for a separation between perceived inner meaning and outward reality, between astrology and science, as the constructive way forward. Without Charles and the achievements he set in motion, the position today might be far less clear.

Charles Harvey influenced the course of 20th century scientific research into astrology more than anyone else. His achievements in mainstream astrology alone were extraordinary. Chronologically the main ones were: 1965 Astrological Association records officer, 1968 AA secretary, 1970 founder trustee of the Urania Trust, 1973 co-founder of the Cambridge Circle to develop harmonic astrology, 1973-1994 AA president, 1977-1986 Faculty vice-president, 1980 co-founder of ISCWA (Institute for the Study of Cycles in World Affairs), 1988 driving force behind the UT Astrology Study Centre and the acclaimed annual UT guide to astrological resources (effectively his own address book writ large), 1992 co-director of the Centre for Psychological Astrology, and 1994 AA patron, at which time it was estimated that Charles had devoted 19,000 hours of unpaid labour to the interests of astrology (*Astrological Journal* 36(5), 285-287, Sep/Oct 1994). In 1998 he named and launched the Sophia Project to guide a million-pound bequest for establishing astrology at a British university, characteristically setting up a meeting of astrologers and sympathetic academics to discuss options although he himself was too ill to attend. He passed away peacefully in his 60th year in February 2000. Over 300 people attended his memorial service in St James Piccadilly.

Respect for science

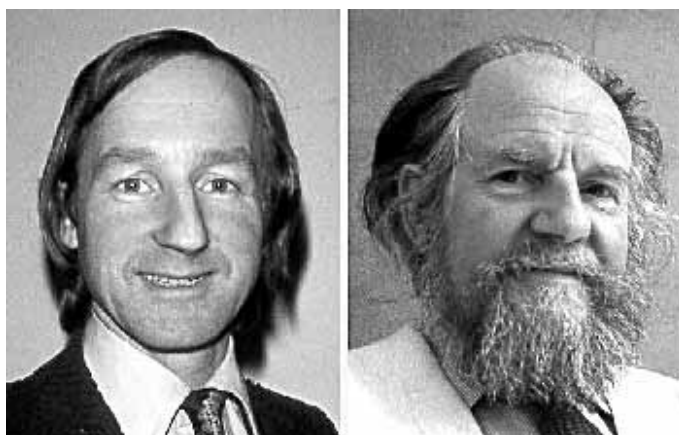
Charles's influence extended well beyond the traditions of astrology. It was his enthusiasm and respect for scientific research that led to his becoming a key link in the astrology-science debate. Without Charles there would be no *Recent Advances*, no *Correlation*, no London Research Conferences, no Kepler Days, no British research tradition to lead the world, and no websites like astrology-and-science.com. Much was due to his natural affinity for science (his two best school subjects were chemistry and music), to his early close association with John Addey, and to what Charles himself always stressed and admired -- doing instead of talking. He knew that data and resources (of manpower, methodology, scholarship) would be the key to genuine progress in research, and worked unceasingly to acquire them. To us he represented the

last link with the original scientific foundations of the AA as envisaged by John Addey and Brigadier Roy Firebrace.

In 1969 Arthur Mather was making regular research contributions to the original *Correlation*, pre-cursor of today's *Correlation*, when in the cafeteria of the Royal Festival Hall he had his first meeting with Charles to discuss research. Thanks to Charles he succeeded Fleming Lee as editor and in 1971 was appointed AA research co-ordinator. Charles's commitment to acquiring scientifically viable data blended perfectly with Arthur's own commitment to identifying scientifically viable tests. It was three years later, in 1974, that Geoffrey Dean first met Charles to discuss research. Charles was then living in Bromley and Geoffrey, temporarily returned to the UK from Western Australia, was staying in Chislehurst just a bus ride away. Without that slender coincidence of geography, and Charles's enthusiasm for research, the two of us (Mather and Dean) might never have met.

The first scientific survey

Our initial focus was a study by Geoffrey on aspects and lack of aspects. In his inimitable way Charles encouraged us to widen the scope and, once done, to widen it again, and then yet again, a daunting task made feasible by Charles's contacts with astrologers worldwide, by the AA Research Library that was housed in Charles's back room, by a large boxful of scientific papers that Arthur had been collecting over the years, and by Geoffrey's work that happened to involve the necessary (and then rare) wordprocessing and photocopying facilities. After four years of almost full-time work, *Recent Advances in Natal Astrology* was published under the aegis of the Association, with Charles as one of the major collaborators. It was a book of 608 pages including 17 pages of index and 1010 references, both fairly rare in astrology books at that time.



Charles Harvey (left) and his mentor John Addey in 1977 at the completion of their long involvement with *Recent Advances*

As Charles himself puts it, the idea of *Recent Advances* was "to bring together all possible work that had been done in astrology, ... not necessarily critical, but attempting to see how astrology works, trying to understand better the principles behind astrology" (see *Origins of Recent Advances* under Historical on the home page). Its success in bringing together hitherto widely scattered facts and figures had been made welcome ("The most important book ever written on astrology" said *Phenomena*), but not its general lack of support for astrology, which led many astrologers into much rationalising after the event ("no room for empathy or universal wisdom" said *Astrology Now*).

Surge of research interest

Recent Advances led to a surge of interest in research, which in turn led to the founding in 1979 of London research conferences, in 1981 of a new *Correlation* and Urania Trust research grants (which in 1986 totalled over #5000), and in 1990 of Kepler Days (small research conferences), all of them a legacy of Charles's enthusiasm and seemingly endless contacts. And with Charles's support we started on *RA2*, still on-going, parts of which were subsequently published in various articles, book chapters, and on the Web. We also ran three prize competitions for evidence supporting astrology, of which the largest (the \$US5000 superprize launched in 1983 for convincing evidence that astrology cannot be explained by non-astrological factors) had numerous co-sponsors including the AA and a panel of eight judges including Charles, but no winners.

Unfortunately, when we reviewed for *RA2* the outcomes of this new research activity, they failed to substantiate astrology to the extent that everyone had hoped. If anything the later picture got worse rather than better, which led to a perceptible distancing on the part of Charles, who was wedded to astrology and its interests above everything else. As he told us in person, but only much later in print, he felt that in *Recent Advances* and in our subsequent work we were too hasty in drawing conclusions from tests that he felt were inadequate. Charles's criticism was largely due to the Neoplatonic ideas he had inherited from John Addey soon after becoming active in the AA, and which guided his attitude towards astrology from then on.

Insights from harmonics

John Addey (1920-1982) was a remarkable combination of lucid and eloquent writer, practical mystic, and unflagging experimentalist. He was AA president 1961-73 and editor 1962-72 of its journal. His Neoplatonic ideas had been set out in his 1971 Carter Memorial lecture later published by the AA as a 24-page booklet *Astrology Reborn*. Addey held that there is a Neoplatonic hierarchy from the highest organising unity down to the lowest material plane, that astrology plays a central role in this hierarchy, and that true reality is intangible and manifests through number. He felt that the last was amply confirmed by his empirical discovery of harmonics in astrology, which led to his famous (and still unfulfilled) statement that astrology was about to be reborn: "From being an outcast from the fraternity of sciences, it seems destined to assume an almost central role in scientific thought" (p.1).



Charles Harvey chairs an expert panel at the second AA research conference at the Institute of Psychiatry London in November 1981. It was the AA's largest research conference and attracted 110 people. From left are John Addey, Theodor Landscheidt (Germany), Charles Harvey, Françoise and Michel Gauquelin (France), and Thomas Shanks (USA).

It was this claim, and Charles's enthusiasm, that resulted in Addey's harmonics receiving prominent treatment in *Recent Advances*, albeit not all of it positive. For example, contrary to what harmonics implied, the harmonic waves found in the Sun positions of 7302 UK doctors bore no relation to those of 6877 US doctors (p.150). Nevertheless, from now on, Addey's harmonic findings seemed to get progressively more positive while the conventional scientific findings seemed to get progressively more negative. This led Charles to believe that the negative findings were due to a failure to ask the right questions. But he still pinned his hopes on a more enlightened scientific approach eventually validating astrology.

These hopes are described in his essay "Ideal Astrology" in Tad Mann's anthology *Future of Astrology* (Unwin Hyman, London 1987, pp.71-80). Unlike most of the other essayists, Charles delivers what Mann's title promises. He predicts that full-time astrology courses will appear in universities "in the fairly near future", where huge banks of computer-analysed charts with portraits and case histories will lead to a better understanding of astrology. But before this can happen "many more astrologers will need to dedicate themselves ... to real astrological research." (He was obviously keenly aware of how astrologers generally showed little interest in serious research.) He stresses the need for empirical research: "we cannot evade the need for demonstrable, quantifiable evidence for astrological effects. ... Astrology works according to laws and principles, and much of the building of the larger future of astrology will depend upon the demonstration of these laws and principles in clear, unambiguous and often quantifiable terms."

Research philosophy

Charles's research philosophy (again inherited from John Addey) was very clear -- if astrology is true then it can be shown to be true. But despite his stressing that astrological effects "can be measured", he became increasingly dismissive of conventional scientific attempts to measure them. Thus in 1990, in the *Astrological Journal* 32(6), 399-402, he criticises *Recent Advances* for "its constant willingness to draw unwarranted conclusions from inadequate evidence" and most of the controlled studies for being "from an astrologer's viewpoint ... relatively simplistic." He comments "What is needed are really thoughtful and imaginative experiments based on the way astrologers work with astrology" and that "genuinely creative experiments depend upon asking the right questions." He stresses that "this kind of research is very difficult" and that "we are at the very, very beginnings of our explorations." So it would be "foolish, and contrary to the principles of good science, to abandon our first principles on the kind of negative evidence produced to date." He ends by suggesting that the recognition by science of Neoplatonic higher realms will result in a new science to which "astrology must in due course become central ... In the meantime for this to occur ... we do need better tests."



Charles Harvey (left), Arthur Mather, and Geoffrey Dean at the AA Conference, University of York, 11 September 1983. Our disparate geographies (respectively England, Scotland, Australia) made this the only occasion on which we three met in person. Photo was taken on GD's camera by the nearest bystander, who happened to be Michael Baigent.

This conclusion points to a difference in viewpoint between Charles and ourselves. Whereas we saw an absence of evidence as indicating "not proven", Charles saw it as indicating "not disproven." To him astrology was valid until proven otherwise, and even then any apparent disproof might be overturned by more sensitive investigations.

Reaction to negative evidence

During the 1990s his dismissal of negative evidence grew even stronger, even though (thanks to computers and journals like *Correlation*) the quality of research far exceeded anything reported in *Recent Advances* twenty years earlier. Charles justifies this dismissal in an article "Different Approaches to Astrological Research" in *Correlation*, 13(2), 55-59, 1994, where he identifies two distinct categories of research. One is the scientific search for hard evidence, which is at "something of an impasse." The other is the development of ideas, such as Ebertin's midpoints, Rudhyar's cyclical approaches, Addey's harmonics, Lewis's astro-cartography, Hand's composite charts, and the re-emergence (at least in Britain) of Neoplatonic ideas.

Charles notes that "such major developments in astrology, with all their profound philosophical implications, are discounted or dismissed by most [conventional scientific] researchers as unproven, illusory, or as post hoc rationalisations to explain why any chart fits the facts." Yet an astrologer has a "sensitive awareness" of how astrology works and "knows that the same combination can express itself in a whole range of ways" that escape scientific scrutiny. Therefore "The more those of us researching astrology start thinking in the kind of symbolic and metaphorical language used by astrology, the more likely we are to come up with experiments which will produce convincing and interesting results."

This conclusion points again to the difference in our viewpoints. While it is true that scientific researchers tend to discount such developments, they do so only because they see a sensitive awareness of astrology's variability as an unawareness of nonfalsifiability. To us the argument would be more convincing if astrologers were not so ready to believe that astrology works while simultaneously failing tests that in many cases they themselves had helped to devise. Arguments about methodology do not explain why astrologers believe astrology works if astrology is so difficult to demonstrate under conditions where non-astrological factors are controlled. Or their seeming inability to

meet Charles's urgent 1990 call for "really thoughtful and imaginative experiments based on the way astrologers work", or even to identify "the right questions."



Charles Harvey opens the combined AA-UT-NCGR 3-day research conference at London's Palace Regent Hotel 20 November 1987. It was the AA's second-largest research conference and attracted 90 people including 28 speakers from seven countries. In front of Charles is Neil Michelsen (glasses). At far right are Michel Gauquelin and Suitbert Ertel.

Neoplatonic views

In his final book *Principles of Astrology* (Thorsons 1999), co-authored with his wife Suzi, Charles re-emphasises his Neoplatonic view of astrology. "Despite the contemptuous guffaws of scientific orthodoxy, it [astrology] still continues to enthral the minds of some of our finest contemporary thinkers." The reason is simple. Astrology sees the cosmos as "a living, intelligent, purposeful entity in which part and whole dance together in resonance to the music of the spheres; a hierarchy of levels of order in which the higher levels order the lower and in which the apparent random activity here on Earth below can be seen to be orderly behaviour when viewed from the heavens above" (p.3). He notes that Neoplatonic principles can be glimpsed by various divinatory processes such as numerology and the tarot. "Where astrology is unique, however, is in its identification of the way in which the movements of the bodies of the physical solar system mirror, or plot out as on a huge cosmic clock, the moment-to-moment processes of life. Armed with this fundamental insight, astrologers over the centuries have been able to develop a remarkable science and art for studying the creative potential of any moment of space-time, be it past, present or future" (p.36).

Unlike his previous writings, there is no hint here of the need for better tests. The only empirical findings he cites in favour of the "remarkable science and art" are the positive findings of the 486Gauquelins. Their negative findings are not mentioned nor the existence of hundreds of other empirical studies. His chapter on resources lists sixty astrology books and journals but omits any reference to *Recent Advances*, to *Correlation*, or to anything scientific. Other than a brief aside there is not even a mention of John Addey's harmonic findings, possibly because Charles was aware that a study by one of us (GD) had shown they could reasonably be attributed to artifacts (*Correlation*, 16(2), 10-39, 1997).

Hopes of a scientific revolution

In the end Charles was receiving negligible support from the scientific approach he had championed twenty years earlier during the compilation of *Recent Advances*. Like John Addey before him, he was sure it would lead to the scientific revolution promised by *Astrology Reborn*. To him its failure could only be temporary. So he continued to pin his hopes on an eventual scientific revolution, one echoed by physicist David Bohm's idea of implicate order, where "a picture begins to emerge of astrology as a systematic algebra of life and consciousness which is entirely compatible with the new physics" (p.26).

Essentially this was a version of the ancient mystic idea of implicate spirit as the primary force in the universe and explicate matter as its manifestation. For centuries astrologers have made similar leaps of faith in pursuit of an astrologically-friendly universe. But Charles's meticulous practice and vast experience made him arguably more justified than most in making such speculations.

Like John Addey, Charles believed that astrology would eventually revolutionise science and contemporary thought, and that it would heal mankind's ills by uniting spiritual and material values. But in the years since his death, empirical support for astrology has continued to dwindle. And as noted by American astrologer and historian James Holden, the idea of harmonics "has not found favor with most astrologers, and interest in it has waned" (*A History of Horoscopic Astrology*, AFA 1996, p.201). The divide between astrology and science is still not bridged.

Ironically Charles's efforts, unrewarded by the hoped-for results, may have inspired a growing recognition, at least among researchers, that astrology is a spiritual endeavour not a material one. And with this recognition, in contrast to his own belief, comes the need for a separation between the spiritual and the material, between perceived inner meaning and outward reality, between astrology and science, as the constructive way forward. The hoped-for revolution is not ruled out, but it would still have to accommodate the results already obtained. Nevertheless Charles's own work, and the achievements he set in motion, have established a sound context for whatever may emerge in the future. Working to clarify these fundamental issues would be a fitting tribute to his life. Charles's contributions to astrology are commemorated by the AA's annual Charles Harvey Award for outstanding service to astrology. Recipients have been Liz Greene in 2001, Olivia Barclay in 2002, and Nick Campion in 2003.



Left. London researchers in 1983. From left seated are Charles Harvey, Danielle Claret, Jane de Rome, Mick O'Neill. Standing are David Stevens, Nick Kollerstrom, Rowan Bayne, Martin Budd, Simon Best, Patrick Curry, Michael Startup, Graham Douglas, Jonathan Cainer. **Right.** Charles's last book, dedicated "To all who would hear the music of the spheres"

Other tributes

The Charles Harvey memorial issue of the *Astrological Journal* 42(3), May/June 2000 has 25 pages of tributes and recollections, many of them extremely moving, from some of astrology's leading names around the world. They illustrate Charles's outstanding contributions to astrology in general, and how he touched the hearts and minds of everyone he met. The astrology he loved was a topic afflicted by violent disagreements, yet Nick Campion could note (in 1994) that "through the fourteen years I have known

him I have never once heard him utter a disparaging word about anyone." Full obituaries appeared in the *Times* (reprinted in the above memorial issue) and the *Guardian*. For a long obituary by Simon Best, founding editor of *Correlation*, see *Correlation* 18(2), 3-8, 2000. We thank Nick Campion for helpful comments.

Sextus Empiricus

An ancient philosopher's criticism of astrology

Bart Koene

This article first appeared in *Correlation* 15(2), 26-34, Winter 1996/1997. For this version the abstract has been expanded and the notes have been incorporated into the text.

Abstract -- The book *Against the Professors* written by the Greek physician and philosopher Sextus Empiricus around 200 AD gives many arguments against astrology -- as-above-so-below sympathy does not exist, astrology cannot exist unless all things are destined, forecasting sure events is useless (they cannot be avoided), forecasting unsure events is useless (they can be avoided), why birth and not conception, birth time is uncertain (birth is a long process), birth time cannot be accurately known by the observer of the sky (who might be on a mountain peak), the sky cannot be observed in daytime or on cloudy nights, many people are born at every instant but none was equal to Plato or Alexander the Great, many people with different births nevertheless meet the same end, astrological analogies (Leos are brave like lions) are absurd, astrology is meaningless unless the same planetary positions produce the same result. Many of these arguments are still in use today. Interestingly they cannot be dismissed as the ravings of a practitioner of scientism, reductionism, materialism, or neopositivism, because Sextus was none of these. Instead he practised an early form of skepticism that resolved uncertainties by suspending judgement, a sort of ignorance is bliss. What is the nature of X? All we can know is how it seems. But what is its real nature? Suspend judgement, and thus achieve tranquillity! Nine references.

I am sitting with a philosopher in the garden: he says again and again "I know that that is a tree", pointing to a tree that is near us. Someone else arrives and hears this, and I tell him. "This fellow isn't insane. We are only doing philosophy." *Ludwig Wittgenstein* 1951

Introduction

One of the most influential of Western philosophers is the Greek physician Sextus Empiricus, who lived in the 2nd or 3rd century AD. Few things are known about him. We do not even know where he lived or worked. Also, it is uncertain whether he is correctly called "Empiricus." One might get the impression that Sextus is an empiricist, which is not true. The rediscovery and publication of the work of this little-known man in the 16th century influenced such philosophers as Montaigne, Gassendi, Bayle, Descartes, Berkeley, and Hume. The word "scepticism" is often used as a shorthand for "ethical scepticism", "religious scepticism," "scepticism with respect to the paranormal," or some other field of human enterprise. In contrast, Sextus's philosophical scepticism covers all fields where knowledge claims are made. His scepticism is known as pyrrhonism, named after the first known sceptic Pyrrho of Elis (c.365-270 BC).

[Note that the arguments here are not affected by the recent distinction between the Latin-based "scepticism", which has the philosophical sense of doubting everything, and the Greek-based "skepticism" (from *skeptikos*, to look about, consider, observe), which is used by modern skeptics to emphasise its etymological sense of requiring evidence.]

About Pyrrho the following story is told. When Alexander the Great marched through Asia, the philosopher Anaxarchus of Abdera and his student Pyrrho traveled in

Alexander's suite. When somewhere on the route Anaxarchus fell into a swamp, Pyrrho walked by the place where his teacher was in danger of drowning but did not help him out. Fellow travellers had to save Anaxarchus and reproached Pyrrho about that, but Anaxarchus himself praised Pyrrho's indifference and heartlessness.

According to other stories, Pyrrho's friends followed him everywhere to prevent him from falling under a wagon or into an abyss. According to a testimony by his student Timon of Phlius (c.320-230 BC), the goal (*telos*) of Pyrrho's scepticism is *ataraxia*: not to bother oneself. No writings of Pyrrho exist, perhaps as a consequence of his philosophy. Fortunately, however, the works of Sextus Empiricus survived the ages. His definition of scepticism in *Outlines of Pyrrhonism* (PH, translation by Mates 1996) is worth mentioning:

The Sceptic Way is a disposition to oppose phenomena [things perceived] and noumena [things reasoned or assumed] to one other in any way whatever, with the result that owing to the equipollence among the things and statements thus opposed, we are brought first to *epoche* and then to *ataraxia*. (PH 1:9)

Sextus explains: "By *equipollence* we mean equality as regards credibility and the lack of it, that is, no one of the inconsistent statements takes precedence over any other as being more credible."

It is interesting that the word "doubt" does not appear in this oldest-known definition of scepticism. The term does not even appear in the whole account of Sextus on pyrrhonism (ie in *Outlines of Pyrrhonism*), a fact that has important philosophical consequences. The influential Latin translation by Henri Estienne (Stephanus, 1528-1598) of 1562 wrongly translated the crucial term *aporo* as *dubito*. *Aporo* means "to be at a loss" and does not imply doubt.

Pyrrhonist philosophy is a practical philosophy. Pyrrhonists want to live normally and peacefully, free from metaphysical dogmatism or fanaticism. The only form of statement pyrrhonist philosophy accepts is: ***It seems to me now that P.***

Herein P denotes some statement about reality. To give a classical example, a pyrrhonist would not claim that "honey is sweet," but that honey appears sweet to him is something he would usually assent to. Not acceptable in this philosophy is *diabebaiousthai* ("to maintain firmly, over time and against objections"). Sextus writes:

[The pyrrhonist] follows, without any belief, the ordinary course of life: for this reason he has no *pathos* [feeling] one way or the other as regards matters of belief, while his *pathe* [affects] in regard to things forced upon him are moderate. As a human being he has sensory *pathe*, but since he does not add to these the belief that what he experiences is by nature bad, his *pathe* are moderate. (PH III:235)

In non-philosophical contexts the pyrrhonist behaves like anybody else. In recent years it has become increasingly evident that Sextus's scepticism (pyrrhonism) is quite different from modern forms of scepticism. Many books on the history of philosophy discuss scepticism only in passing, although it is an important source of philosophy. Nowadays, a new interest in philosophical scepticism is emerging. In 1996 a Dutch translation of all known works of Sextus appeared, and recently I reviewed a collection of articles about the history and forms of philosophical scepticism (Koene 1997, De Martelaere 1996). Also a new translation of the *Outlines of Pyrrhonism* by Benson Mates appeared, two years after the translation by Annas and Barnes (Sextus 1994). The former has an elaborate introduction and commentary.

Below, special attention will be paid to Sextus's description and criticism of astrology in *Against the Astrologers*, which is a part of his book *Against the Professors* (here abbreviated as ATP), that comes in six parts. For citations I have used the formal and accurate translation by R.G.Bury. In this book also the grammarians, rhetoricians, geometers, arithmeticians, and musicians are criticised. A discussion of these other parts is beyond the scope of this article. I mention them only to illustrate that Sextus's philosophy is a total and not a partial scepticism.

Against the astrologers

In *Against the Astrologers*, Part V of *Against the Professors*, Sextus inquires into astrology or the Mathematical Art, which is distinguished from the Complete Art (arithmetic and geometry), and from astronomy. The Greek text is only 24 pages in the Loeb Edition. Evidently, Sextus has no high opinion of astrology (in the following quote he uses the word "Chaldeans" -- people from Mesopotamia -- as almost synonymous with "astrologers"):

[Astrology] is rather the casting of nativities, which the Chaldeans adorn with more high-sounding titles, describing themselves as "mathematicians" and "astrologers," treating ordinary folk with insolence in various ways, building a great bulwark of superstition against us, and allowing us to do nothing according to right reason. This we shall understand after we have first traced back a little the things which contribute to their method of speculation. (ATP V:2-3)

Next he summarises the astrology of his time. Of course, Sextus focuses on points necessary for his arguments against astrology. However, his description seems accurate enough to give a good impression of astrology as it was practised in the 2nd or 3rd century AD. Therefore, his text may also be useful for historical research into astrology. Where it seems the best thing to do, I give a summary or description of the essence of his text.

Sextus's description of astrology

The basic assumption of astrology is that "things on earth 'sympathize' with those in the heavens, and that the former are always newly affected by the effluences of the latter." (ATP V:4) This may be a possible opinion of a modern astrologer, but the majority of astrologers think differently. Because of this assumption, the astrologers "declare that the seven stars [Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn] stand in the relation of efficient causes for the bringing about of everything which occurs in life, and that with them the parts of the zodiac co-operate." (ATP V:5)

As modern astrologers do, they divide the zodiac into twelve signs, and each sign into 30 degrees and each degree into 60 *lepta* ("minutes"). The signs are masculine or feminine, bi-corporal (Pisces and Gemini) or not (the others), and some are tropical (Aries, Libra, Capricorn, Cancer) and others fixed (Taurus, Scorpio, Leo, Aquarius):

Masculine and feminine are those which possess a nature which aids the birth of males and females: thus the Ram is a masculine Sign, but the Bull, they say, is feminine, the Twins masculine and the rest alternate in a similar proportion, some masculine, others feminine. (ATP V:7)

Some astrologers use a generalisation of this structure:

Some, too, divide each Sign into twelve parts and use much the same method: as, for instance, in the case of the Ram, the first twelfth part of it they describe as the Ram and male, the second as the Bull and female, the third as the Twins and male: and the same rule holds for the other portions. (ATP V:8)

The signs in astrology have not changed over the past 18 centuries. Also unchanged is the importance of Ascendant, MC, Descendant, and IC for the horoscope:

However, of all these Signs those which are dominant at each geniture for the production of effective influences and from which they principally frame their prognostications are, they say, four in number; and to these they give the generic name of *centres*, and more specifically they call them *horoscope* [ascendant], *mid-heaven* [MC], *setting* [descendant], *subterranean* and *anti-midheaven* [IC]. (ATP V:12)

Sextus also sketches the astrological meaning of the various houses, though the word "house" is not mentioned in these sections (he does so when he speaks about the planets). The angular houses have the names already given above. The other houses have names such as *goddess* [3rd], *good fortune* [5th], *punishment* [6th], *principle of death* [8th], *god* [9th], and *evil daemon* [12th]. He also reports the astrological theory that connects parts of the human body to planets and signs:

And there have been some Chaldeans who have referred each part of the human body to one of the Signs as 'sympathizing' therewith: thus they call the head the Ram, the neck the Bull, the shoulders the Twins, the breast the Crab, the sides the Lion, the buttocks the Virgin, the flanks the Scales, the pudenda and womb the Scorpion, the thighs the Archer, the knees Capricorn, the shins Aquarius, the feet the Fishes. (ATP V:21)

The Chaldeans watched the rising sign by night by sitting on a high peak observing the stars after being informed of the birth by the sound of a gong. During the day, however, they studied the *horologes* (sundials) and the motions of the sun. The Sun and Moon are the most important of the "seven stars":

and for this reason the Egyptians liken the Sun to the king and the right eye, and the Moon to the queen and the left eye and the five stars to lictors and the other fixed stars to the rest of the people. (ATP V:31)

These "five stars" are *beneficent* (Jupiter and Venus), *maleficent* (Mars and Saturn) or *common* (Mercury). Some astrologers, however, believed that the position of the planets influenced their effect:

They say also that the same stars have increased power owing to their being in their proper *houses* or *elevations* or *boundaries*, or owing to the fact that some are *guarded* by others or because they *look towards* one another or are in a certain *configuration* one with another, or because they are at the *centres* [ie ascendant, MC, descendant or IC]. (ATP V:33)

Hereafter, Sextus sums up the rulerships of the different planets: "the Lion is the house of the Sun, the Crab of the Moon," and so on. Next he discusses the meaning of the "elevation" of a planet in contrast to "depression" (where a planet has little power) and the meaning of a "triangular figure" and "quadrangular figure."

Most of this will probably sound familiar to modern astrologers, even though they tend to consider the sun sign as the most important factor in the horoscope, whereas eighteen centuries ago it was the ascendant. Nevertheless, eighteen centuries have not affected much of the basic concepts of astrology. Further differences between the astrology in Sextus's time and today are beyond the scope of this article. I have only indicated what is apparent from the account of the pyrrhonist.

Sextus's criticism of astrology

Sextus begins with three arguments against astrology, which were more common in his time. First, he argues forthrightly that terrestrial things do not "sympathize" with things celestial. Then an argument about destiny: for unless all things happen according to destiny, astrology, which maintains this, does not exist" (ATP V:45). His third argument is the following. There are three possibilities for events: they occur by necessity, by

chance, or by our own action. With respect to chance events, one may argue that this is impossible, because they are irregular, and for things that occur through our own action and have "no predetermined cause," no one can possibly make a prediction. More eloquent is the argument in the case of necessity:

But if they do so about necessary events, their forecasts are useless in practice: for it is impossible to avert what happens by necessity, for that must take effect whether we like it or dislike it. And the prophecy would have been useful only if it had had reference to the means of averting it. (ATP V:47)

Evidently, not much knowledge of astrology is required to invent the arguments above. Sextus calls them "long range fire" and he adopts a "method of attack at close quarters" (ATP V:49). His first argument can be summarized in the form of the question: Why is the time of birth used and not the time of □ depositing of the seed □ or the conception? □ A number of problems to determine the latter are mentioned showing Sextus' medical expertise. The time of birth is another problem:

For ... the moment when birth should be said to take place is a matter of doubt, is it when the child begins to emerge into the cold air, or when it has emerged a little, or when it is deposited on the ground? (ATP V:65)

The determination of the ascendant is the key to the horoscope. If it is wrong or impossible, astrologers have no basis for their work. Nowadays, it is relatively easy to acquire the necessary astronomical data when the time of birth is known accurately. Against the possibility of synchronisation of birth and observation of the stars, Sextus forwards the following argument:

Next, let it be granted that the time of birth is discoverable, still it is not possible to transmit it by sign at the exact time. For the fact that in moving up to the peak [where the observer is] the sound of the gong takes a considerable amount of time. ... And what is observed in the case of those who fell trees on a mountainside is a proof of this: for the sound of the blow is heard a considerable time after the fall of the axe, so that it takes some time to reach the listener. (ATP V:60)

Determination of the horoscope for children born in daytime was, of course, rather problematic. At night, on the other hand, cloudiness, mist, or even poor vision on the part of the observer could easily spoil adequate observation of celestial phenomena. These were serious limitations for astronomy and astrology. With respect to people consulting the Chaldeans, Sextus adds:

yet it is plain that none of the ordinary persons who apply to the Chaldeans has observed for himself the exact time before applying: for the task calls for much expertness, as we have shown above, and seems beyond the capacity of the ordinary man. (ATP V:86)

Next Sextus lets the problem of birth time rest and discusses some consequences of astrology. Cases of people being born simultaneously, at different times and people with a similar fate are discussed. Further, he compares the lives of a man and an animal. The following applies to people born (approximately) simultaneously:

some, for example, have been kings while others have grown old in chains. Thus, though many throughout the world were born at the same time as he, none was equal to Alexander of Macedon [Alexander the Great 356-323 BC] nor to the philosopher Plato. (ATP V:89)

When people are born at different times it does not imply that they will be absolutely different:

For if those who have the same "disposition" at birth meet with the same results during life, then certainly those whose births are different become different. But this is false; for we see many, who differ as to age and bodily shape and countless other peculiar affections, yet meeting with a similar end. (ATP V:91)

Of different people that have a similar fate Sextus gives the following examples:

For the man who was born in the arrow's point of the Archer is doomed -- according to astrological theory -- to be slain, how is it that all those myriads of barbarians who fought against the Greeks at Marathon were all slain at one time? For the horoscope was not the same for them all. And again, if he who was born in the pitcher of Aquarius is doomed to suffer shipwreck, how is it that the Greeks who were being brought back from Troy were all drowned together round the Hollows of Euboea? For that all these men, who differed greatly from another, could have been born in the pitcher of Aquarius is impossible. (ATP V:92-93)

Another argument compares the lives of a man and an animal born simultaneously:

And some other person will raise the doubt regarding the irrational animals. For if the effects in life naturally result from the configurations of the stars, then, when a pack-ass and a man are both born in this same portion of the Sign, the same kind of life ought to have followed as a result in both cases, instead of the man being, for example, conspicuous as a statesman and admired by the citizens, while the pack-ass is continually laden with burdens or led away to the mill-houses. (ATP V:94)

Sextus concludes from these arguments that it is not reasonable or logically understandable that life is ordered according to the motions of the stars. But this is not the end of his argumentation. Already in the first centuries of our era, astrologers associated shapes and characters of men with the figures of the signs. This practice is attacked by Sextus:

For, in the first place, if they assert that the man born in Leo is brave because the lion is a valiant and manly beast, how is it that they reckon the Bull, which is on a par with the Lion to be a womanish beast? And secondly, it is nonsense to suppose that the lion in the heavens, that most beautiful Sign, bears any analogy to the earthly lion: for it is probable that the ancients gave them names of this sort merely because of the similarity of their figures, and perhaps not even for this reason, but just for the sake of clearness in exposition. (ATP V:96-97)

The following argument refutes some properties that were associated with the sign Virgo:

And again if he who has the Virgin for horoscope [ie ascending] is straight-haired, bright-eyed, and white-skinned, it must follow that none of the Ethiopians has the Virgin for horoscope, else they will be granting that an Ethiopian is white, bright-eyed and straight-haired, which of all things is the most absurd. (ATP V:102)

The final argument that I will show here is fascinating, because of Sextus's request for reproducibility as evidence:

I affirm that if the prediction is to be reliable, the same position of the stars ought not be observed once only in connexion with the life of some one person, but a second time with a second life, and a third one with a third, so that from *the equality of the resultant effects in all the cases* we might learn that when the stars have assumed a certain configuration the result will certainly be of one particular kind. (ATP V:103) (my emphasis)

Much of Sextus's criticism of astrology seems rather modern. Many of his arguments can be and are still used by modern sceptics of astrology. Further, the book of Sextus clearly illustrates that one does not have to be an adherent of scientism, reductionism, materialism or (neo) positivism -- just a few of the terms some astrologers use as invectives -- to object to astrology. For pyrrhonists are none of these. Now I will discuss Sextus's arguments in the light of his sceptical philosophy.

Discussion

One may wonder why Sextus's statements on astrology are not of the form "It seems to me now that P." First, I respond like a pyrrhonist would. Sextus was simply reporting as a chronicler what appeared to him to be the case at the time that he wrote it (PH I:4). Sextus followed his feelings (*pathe*) with respect to astrology (see PH III: 235, quoted above). Sextus also uses statements of the form P, for which the true philosophical

meaning is "It seems to me now that P." He emphasises this frequently in his *Outlines of Pyrrhonism*.

By speaking this way, pyrrhonists are not always distinguishable from ordinary people and their philosophical opponents, the Dogmatists (mainly Stoics, Epicureans and Academics). In the eyes of Sextus, dogmatism is something like a disease that needs treatment (PH III:280). He hopes that no matter how good or bad his arguments are dogmatists will be cured of their dogmatism.

In the literature, there is a lively discussion about philosophical scepticism (eg Mates 1992, De Martelaere 1996). Being less vulnerable to attempts of refutations than several other forms of scepticism, including many modern forms of scepticism, pyrrhonism appears to be a tough nut to crack. In *Doubt and Dogmatism*, Burnyeat (1980:50) writes about the pyrrhonist appearance-statement (ie it seems to me now that P): "At times, no doubt, the non-epistemic reading is sheer bluff on Sextus's part, *but the objectors opposition will itself be no better than bare counter-assertion unless he can muster more to say*" (my emphasis).

I do not think Burnyeat is right. As said, pyrrhonists sometimes use statements of the form "P" as an abbreviated way of saying "It seems to me now that P." When asked about it later, however, in pyrrhonist philosophy one is free to say whether "P" seems to be the case at that moment. Hence, to appearances they seem to adhere undogmatically. According to Sextus, moderation is a property of their philosophy (PH I:15, I:29, III:135). It should be added that pyrrhonists are not conspicuous and are hard to distinguish from other people in daily life.

With respect to Sextus and, in passing, Ludwig Wittgenstein, Cohen (1984:419) remarks: "Neither could repress completely his philosophical, *dogmatic* temperament" (my emphasis). Here the term "dogmatic" seems rather out of place to me. (Also, in passing, what psychological method did Cohen use to determine that Sextus Empiricus and Ludwig Wittgenstein "repressed" their temperaments?) So what is the matter? In the introduction of his article he writes that he hopes to "enrich us with some new, perhaps even provocative, insight into the psychology of doubt and certainty, and even into the nature of the philosophical mentality as a whole" (Cohen 1984:406). On page 423 footnote 14 Cohen also quotes the sentence of Burnyeat that I quoted from *Doubt and Dogmatism* (remarkably without the second part of the sentence that I emphasised); however, he refers to this work as *Doubt and Scepticism*, ie he replaced "dogmatism" by "scepticism". Perhaps that's what must be done with his strange psychological remark. Thus it should read: "Neither could repress completely his philosophical, sceptic temperament."

Of course, pyrrhonism raises questions. Sextus's definition of scepticism (PH 1:9) may be represented by the following scheme: *isostheneia* (equal strength (of arguments)) leads to *epoche* (suspension of judgement) leads to *ataraxia* (mental tranquillity). Suspension of judgement (*epoche*) is the means, and tranquillity (*ataraxia*) is the goal, of his philosophy. One of the central questions seems to me: How can one always find (counter) arguments with equal strength? In the case of the philosophies of his so-called dogmatic opponents, Sextus often gives useful examples.

Sextus's arguments Against the Astrologers is not typical of a pyrrhonist and could also have been written by any other author of his time. To me it seems that Sextus differs from other philosophers in the way he criticises astrologers, though he still considers

them -- I think -- as a species of dogmatists. He does not mention the words *isostheneia* and *epoche* in connection with astrological theory. It is apparent that astrology is weighed against "common sense" or reason (*logos*). For pyrrhonism -- like stoicism and epicurism, a "practical wisdom philosophy" -- it seems important that things are plausible.

Much of Sextus's criticism of astrology may seem rather definitive. I do not think though that Sextus was dogmatic in his statements about astrology. For he would state otherwise when someone would convince him of the contrary. Nevertheless, I do not have the impression that the most capable modern defender of astrology would be able to provide the necessary evidence that a pyrrhonist would accept. This of course remains to be seen.

Acknowledgement

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A 1910 symposium

The value of astrology to the world

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Abstract -- Around 1910, at a meeting of Alan Leo's Astrological Society in London, members read papers on the value of astrology that showed a "wonderful diversity" of viewpoint. In this article Leo presents eight selected papers under the labels of recluse, philosopher, student, scientist, palmist, wayfarer, practical man, and onlooker. By today's standards the papers are wordy (wordiness being the style of the day) and devoid of the scientific insights that came three-quarters of a century later. Nevertheless, compared to modern views, they show breadth, humanity, and freshness, possibly because astrology in those days was less embattled by scientific attacks. One might even ask if modern astrologers are worthy heirs of Alan Leo. On the other hand, these eight views can also be seen as a testimony to the power of hidden persuaders (see *Artifacts in reasoning* under Doing Scientific Research), which in those days were unknown and unsuspected. For the **Recluse** astrology enables people to make the best use of time, thus advancing their own development and that of society. For the **Philosopher** astrology shows the tides of fate just as astronomy shows the tides of oceans. Just as for a ship, to miss a tide is to miss an opportunity. Astrology is our compass in life. For the **Student** astrology provides insight beyond the ordinary senses, in the same way as the gauges on a steam engine provides insight into its remote workings. Faults are thus easily discovered and corrected. For the **Scientist** astrology provides a personal equation, a prism for separating the components of divine wisdom, a radiograph of our strengths and liabilities, a clue to knowing thyself. For the **Palmist** astrology seemed at first like fortune telling. Then its true nature became clear. It helps us understand ourselves and deal with difficulties in life perhaps more clearly than does palmistry. For the **Wayfarer** astrology is about spiritual well-being. It points to a higher life and liberates us from crass materialism. Its value will be determined by the kind of people who use it. Its study fosters tolerance and compassion, which are things the world needs and might secure if kings and rulers used astrology as a national guide. For the **Practical Man** it is too early to judge the value of astrology. It needs time to prove itself just as radium did, so it must be more widely practised to make its value more evident. Organisations such as the Astrological Society are ideal for this. For the **Onlooker** the value of astrology to the world is more than the collective gain of individuals. It provides a universal standard, a Metric System for anthropology and philosophy. Just as we take our Time from the stars, we can also take our Tune. Alan Leo concludes "Surely, it may be argued, a study which arouses the zealous espousal of those whose outlook on life is so various, must merit the attention of all thoughtful people?"

[The symposium begins with the following introduction and conclusion by the editor Alan Leo]

Some time since, at a meeting of the Astrological Society, the above subject was taken for discussion and papers were read or speeches made expressing the opinions of various members present. To the listener, the most striking feature of this evening's discussion was the wonderful diversity in point of view exhibited by the speakers, and the difference of the methods by which they sought to show the utility of Astrology.

This is illustrated in the following more or less haphazard selection from the papers which were read. The heading given to each paper is merely intended to be indicative of what seems the point of view of its author, who must not be supposed to have laid claim to the title -- or even challenged attention to it -- with which he is here furnished and for which the present writer is solely accountable.

Surely, it may be argued, a study which arouses the zealous espousal of those whose outlook on life is so various, must merit the attention of all thoughtful people?

The Recluse

I intend in the few words I have to say regarding the value of Astrology to the world to consider this value only from the time point of view. Obvious is it to all that no idea is so inseparably bound up with Astrology as that of time. The science itself is one of "times and seasons," and for that reason I suppose it and its votaries have in the past been always associated with Saturn. Now from the Saturnian standpoint waste is a sin, and waste of time perhaps one of the deadly sins. Herein lies the reason of Astrology's appealing only to those who have some share of mental development, who have attained some degree of maturity through having profited by the lessons time has to teach.

Now the idea of making the best use of one's life would undoubtedly make a strong appeal to any member of the class I have just mentioned. This, of course, can be accomplished not only by the non-waste of, but by the most economical use of one's time. But this ambition, although a marked characteristic of Saturnian natives, is certainly not confined to them. Speaking broadly, this desire is universal and is to be found in a greater or lesser degree in all men.

Allowing this, I maintain there is yet to be found a study that will so effectually aid man in achieving this end as Astrology. For Astrology can define for every man his limitations, can give him sure and certain knowledge of the ways in which he is already developed, as well as point out the times that will best repay an expenditure of effort in any given direction.

Presuming veneration for Astrology to be universal, the science would confer in the first place an enormous benefit upon all those natural guardians of our children -- their parents. With the knowledge of his child's tendencies and distastes, every parent would have it in his power to train him in such a way that not only during the period of childhood but in manhood also his life could be of the highest utility.

No comment need be made upon the value of this knowledge to the individual himself. It would be a boon inestimable.

Having seen, then, how the native himself and those most intimately connected with him can receive the greatest possible benefit from Astrology, it follows as a matter of course that all with whom the native has any dealings must also be helped in the best way possible by him; and this not only by what I will call his negative influence -- that resulting from merely coming into his environment -- but very positively. For inasmuch as a man is making a good use of his life, using his time economically, so will he positively endeavour to make it possible for all men with whom he comes in contact to emulate him.

Here some may object, -- because they have considered my phrase "best use of one's life" to mean that which brings immediate and personal benefit, apart from the consideration of that which is due to others, -- and say that the most economical use of one's time would be (if Astrology be all that we claim it is) to use our knowledge of the science in gaining the best possible results for ourselves at the expense of others not similarly equipped. This however from the most utilitarian point of view would be anything but making an economical use of one's time. For each man who has made a profound study of the science has discovered that that which makes the Solar System a Universe, a cosmos and not a chaos, is not only the existence therein of law and order, of a series of developments which have been planned, -- the real knowledge of which

plan it is the aim of Astrology to teach, -- but mainly that there is but One Life which binds and harmonises all those varying expressions or manifestations with which Astrology deals. Thus he has learned that as each man is only part of this One Great Life or Self, the best possible use of a given period of time will be to benefit not only one but many of these parts.

So we see that Astrology is valuable from the time point of view because it not only enables the individual to use his time economically but gives him the chance of aiding his brothers to do likewise, thus not only forwarding his own development but aiding in the evolution of the race.

The Philosopher

The value of Astrology to the world is as the value of Astronomy. In the same way that Astronomy serves the world by accurately computing years in advance the varying states of the ocean tides on which the material welfare of a people so intimately depends, in the same way that it measures the "flow of time," the length of the year and the duration of the Seasons; so can, and indeed so does, Astrology enter into the Service of Man. For the fate and fortune of a man and of a people -- the life tides as one might call them -- are but in principle the course of the Moon in the Nativity; and to gauge such for years ahead is to disclose the conditions on which the fortune will be borne. For the Moon is ever the Great Promittor ruling the tides of Fate, and the Ship of Fortune may not enter the harbour of prosperity where the tides are contrary. "There is a tide in the affairs of men which taken at the flood leads on to fortune." The ebb tide in a people's affairs cannot admit a lasting or material fortune; and just as a ship must wait the condition of the tide before crossing the bar, so must a man's affairs wait on the tides of Fate. And to know the moment of change in the tide is as important, nay as imperative, to the commander in Life's barque as to the captain in the Ship of Commerce. The loss of a tide is the loss of a fortune, the loss of an opportunity.

Astrology thus essentially belongs to the man who is assuming control of his own destiny, who is seeking to navigate his own ship of fortune in contradistinction to those who are relying on the Pilot of Providence and are content by prayer and supplication to have their barques navigated for them. It essentially belongs to the man who is seeking to steer his own course by working in intelligent co-operation with Nature instead of by fumbling a confused way in ignorance of Her Laws, or impotently relinquishing the lead to Another. "Help nature and work on with her; and nature will regard thee as one of her creators and make obeisance. And she will open wide before thee the portals of her secret chambers, lay bare before thy gaze the treasures hidden in the very depths of her pure virgin bosom." (*Voice of the Silence.*)

To such, Astrology is as the compass to the mariner, the inestimable values of which priceless instrument do not in any wise outrival in measure or importance the value of Astrology to the world.

The Student

It seems to me that every one is born into this world for a certain definite purpose, to strengthen or develop a special line of character, to gain some particular experience or to master some special failing; these are matters directly appertaining to the native and probably of the first importance. The effect one individual may have upon the community in which he is placed, and the evolution of that part of Nature's work which constitutes his environment, is of course yet another aspect.

The primary use of Astrology to the world would therefore appear to me to be the enlightenment and insight it is undoubtedly capable of affording to the native of a horoscope, upon these fundamental and all-important questions. Without it he only has his ordinary sense perceptions, his reason and intuitions, all of which in the ordinary way are probably (in the majority of cases) very deceptive -- owing to the bias of personal colouring and the influence of the ever-present desire nature. He may get help by example or by advice from others, but all this is necessarily working more or less in the dark, and often proves to be a case of "the blind leading the blind" -- his conclusions being necessarily based chiefly upon effects and externals instead of causes and internal observations.

A very good analogy may be drawn from the evolution of the modern steam engine, which may now be said to have attained its maximum of efficiency or its nearest approach to the theoretically possible perfection. I think it is safe to say that this perfection could never have been attained without the aid supplied by the invention of the Indicator Diagram. This piece of mechanism was capable of producing on a roll of paper a diagram representing the exact condition, in action, of all the invisible causes inside the cylinder of the engine which enabled it to work -- it was in fact a picture of the very life forces and their condition as they flow through the body of the engine. All the faults in the engine were thus discovered and brought to light and their correction dealt with accordingly.

Now the horoscope of a person is just such an "Indicator Diagram" of his forces and his working mechanism (though possibly a good deal more besides), and with it the world may surely improve itself in the most direct way -- as it has already done with its steam engines -- by studying its "Indicator Diagram," or in other words the horoscope.

The Scientist

"Delusive ideas are the motives of the greatest part of mankind, and a heated imagination the power by which their actions are incited the World in the eye of the Philosopher may be said to be a large madhouse."

If we accept the view of the world taken by Mackenzie the value it will place upon Astrology, or even whether it places any value at all upon the teachings of our science, is a matter of but little importance. I purpose however to take the word "world" with a different signification -- that of "Man as a microcosm."

As Emerson says, "Build therefore your own world; as fast as you conform your life to the pure idea in your mind, that will unfold in its great proportions." Now in proportion to the light thrown by Astrology on the path, so is its value to the world; and it is a personal equation how much of this light each individual is able to perceive on his way along the path.

The human mind when enlightened may be likened to a crystal cut in the form of a prism and polished, by which some of the varied components of the single ray of Divine Wisdom cast upon it are made visible in their separate beauty like the colours of the spectrum; and clearness of definition will depend upon the purity of the crystal and the fineness of the polish. In our present mode of manifestation it is given to few to see the pure white light, the majority must rest content to remain in the darkened room and see only the component colours cast in a band upon the screen. Is it not then the sacred duty of those advanced minds who are designed to act as it were as prisms for mankind ever to keep the material within them pure, and its surface polished, so that no distorted

image of Eternal Truth may be presented through them whereby their less favoured fellow beings may be deceived?

Even as a ray of sunlight may be refracted into many colours the comparative beauty of which is a matter of taste, so the ray of Wisdom coming to us through astrology manifests under different aspects, the relative utility of each being similarly a matter of opinion.

Many arguments might be brought forward in favour of the utility of natal, pre-natal, horary, and medical astrology, and the claims of that branch which is engaged in the investigation of the Physical Foundations of our science will not be without its supporters; but in the limited time at my disposal I feel I must endeavour to emphasise the utility, and I would almost say the indispensableness, of the teachings which have been so ably expounded in the Western World by our esteemed President and his gifted helpmate under the title of Esoteric Astrology.

To man in his present stage of evolution, chained like Ixion to the wheel, Esoteric Astrology gives a clue which may assist him to guess the riddle of the Sphinx, and it will surely aid him in following that portentous precept "Know thyself."

Those who have made some little progress along the path will appreciate the difficulty of expressing in terms of the physical glimpses of what lies beyond the veil, but I venture to suggest a simile: -- an amoeba is an example of primitive life, a mere living plasm, a tiny and apparently quite unorganised mass of protoplasm, which moves about and seizes particles of nutriment by protruding self-made tentacles called pseudopodia. I am not aware whether it has been observed that these tentacles can be protruded by the animalcule at every point on its surface, or only at definite places, but it is probable that only certain spots are designed for this purpose, while if this protoplasm is endowed with any sense of awareness, however rudimentary, of the external world, other parts of its surface will be adapted for receiving stimuli in the nature of sensations however vague. Now in the present stage of evolution, man is endowed with vehicles other than his physical body, but at present those intended to enable him to manifest on the higher planes of being are more or less rudimentary and await development, while any stimuli affecting them from these planes produce little more than merely faint adumbrations of reality; in fact any of the vehicles of the average man for manifestation on a higher plane will appear to the intelligent beings dwelling therein to be as rudimentary as that of the amoeba appears to us.

Now is it not possible that the horoscope gives us a picture -- a radiograph as it were, -- of our vehicles with all their pseudopods and sensitive points, which will show us in what directions we are best able to develop, and from whence dangers are most likely to assail us? If so, there is a great lesson to be learned from astrology, and "He that hath ears to hear, let him hear."

The Palmist

It is not yet two years since I first saw a map of the heavens and began to investigate the science of Astrology, and when I had mastered the rudiments I halted; I thought was it fortune telling, and asked myself had I any right to continue? But I felt there was something of much more value than that in this science, and one night it was shown to me, so plainly, what I now feel to be the true mission of Astrology; and I realised how by its aid could be seen the weakness and strength of the self, and how all manner of difficulties, trouble and even criminal acts could be avoided or overcome, if only the right

suggestion could be given at the right time, so as to aid the spirit to understand how to control its weakness and to follow its highest promptings. Surely, I felt, a science that can do this is of the greatest good to the world, and to be an Astrologer or an Evangelist to help others up the hill of difficulty or out of the slough of despond, to help the weak and guide the faltering -- to show the weary not how to bear the burden but how to lose it, to point out the straight path, the way of Truth, Love and Duty -- this seems to me to be the duty and privilege of the astrologer. I therefore look upon Astrology as a religion, showing us all that is highest and best, making us tolerant of others, teaching how to control that which is harmful, and how to benefit by that which is good.

The other day a person said to me: "I was told I should die at 43, do you think I shall?" I said: "No, but you had a very serious illness then. But see, there is a small faint line which shows that you would recover." The answer was, "I am now some years past 43, but I did have a serious illness at that time."

You will be thinking: What has this to do with Astrology? But I think you will understand my point; if our own vibrations are not refined and pure then we may miss those small faint lines (or vibrations) and that may make a lot of difference, for we cannot tell when once such vibrations are set going what may be the final result.

The Wayfarer

The value of Astrology to the world can only be truly assessed by men and women who have made a diligent study of it. All real and zealous students are fully convinced of its value to them, and hence they feel a desire to give that knowledge to others. All true knowledge can be divided into two parts, theoretical and practical. Now Astrology has its practical side as well as the theoretical, and it is its practical side which would be sought by most people. The knowledge of ourselves which we can get from a study of our horoscopes may be turned to a very useful account, for we must not forget that "practical Astrology" has a reference not only to mere physical affairs and events -- which is about all that some would-be astrologers can see! -- but that it has a bearing upon one's development of character. In short it has a practical teaching for the unfoldment of spirituality, and MODERN ASTROLOGY has often rightly emphasised the idea that Character is Destiny.

We can easily see that a knowledge of anatomy and physiology has been useful, and therefore practical, in laying a sure and strong foundation upon which to build a system of hygienic science. So in like manner can the teachings of Astrology be utilised to form the foundations of a spiritual science.

As far as we can judge, what is it that the world needs? It seems to me that it still needs emancipating from its crass materialism, the thralldom of the senses, and leading to a point where it can catch glimpses of a life that is higher, fuller and richer than what it has hitherto known.

It is knowledge that is required -- Self-Knowledge. It has been said that "Knowledge is power" and that "Knowledge puts an end to pain." Where can this knowledge be obtained? There has been, and is now, plenty of knowledge of a kind, and many systems have been tried and found wanting -- Science, Politics, Religion, and so on. Science in the past has largely emphasised the material side of things; the so-called religious teaching has for the most part been mere emotionalism and divorced from real knowledge. What is wanted is a harmonious combination of knowledge and devotion.

A new spiritual wave is sweeping over humanity and is manifesting itself in various ways. I take it that the chief vehicle for its expression is modern Theosophy, and I feel with others that to fully complete it Astrology is required. The two are helpers or handmaids; strictly speaking they cannot be divorced. It is the spiritual and higher aspect of Astrology that I am pleading for and not merely the material side, for although of course we cannot do without that side, yet it has in the past been pursued to the neglect of the other.

Astrology, in my opinion, stands or falls with Theosophy. And in what way, it may be asked, can Astrology help Theosophy? In Theosophy we have the gist of the Teachings of Spiritual Science, the principles that govern the Real Man, and the Spiritual Universe and the Laws of the Kingdom of Heaven. Theosophy teaches that the Egos in manifestation are at different stages of evolution or at different spiritual levels; and hence if the teachings of Theosophy are to be of any real practical value they need to be adapted to the varying stages of evolution of the Egos who are to be taught. Now I think that in Astrology we may be able to find the clue to this and so adapt spiritual sustenance to the particular needs of the individual.

If Astrology is to be of real use in the world we, as a Society, should always seek to place it on as high a platform as we can, seek to ennoble it and purify it. We are the astrological pioneers. We are trying to bring it before the world. Its value, too, as regards its service to the world will be determined by the kind of people into whose hands it falls. It would, no doubt, be beneficial to the world at large if scientific men, governments and rulers espoused it. For we read that amongst the early races of the world the kings who were deputed to rule over them were Initiates and probably were real astrologers; and so at the present day why should not kings and rulers who preside over the destinies of nations have the counsel of astrologers as of old? The study of the true Astrology fosters tolerance, sympathy and forbearance with the faults and weaknesses of others with whom we may be connected, and no doubt this tolerant feeling might be secured between nations and countries if kings and rulers were to utilise Astrology as a national guide.

The Practical Man

It is, I believe, impossible at the present moment to estimate the value of Astrology to the world, for the reason that that value is at present undeveloped. By "value to the world" I understand the value to that great corporation of common, yet often apparently conflicting, interests known as "mankind"; and by "value" I mean the sum and extent of its possible utility.

The value of a new invention or discovery, like that of a newly born child or a freshly-struck deposit of gold, is a problematical quantity which can only be estimated after time and experience have shown its true worth. As long as the invention remains a mere laboratory or lecture-table experiment, as in the case of the electric telegraph, its value may appear to be *nil*; but once brought out into the field of action, it soon proves its worth. At first it may even excite ridicule, as did Galvani's experiments with the frog's legs: he was dubbed "the frogs' dancing-master" for his pains; but the man who is confident in the truth of the science he upholds cares little for the ridicule of the unthinking. Few things have been more derided than Astrology, unless it be Spiritualism, yet the despised table-rappings have led to the formation of two powerful societies, the S.P.R. and the T.S., both of which now substantially confirm the truth of the main contentions of Spiritualism, and have secured for their pronouncements a respectful hearing before the whole world.

If we would prove to mankind the value of a new idea, we must in the first place develop its capacities. This can only be done by giving it a chance to show its value -- by putting it to the test of use and leaving it free to develop and reveal its powers. Radium might have remained a laboratory curiosity, but that it was observed that it had an effect on the skin and tissues; each succeeding application of its qualities revealed its value more plainly, until scientific men could form an estimate of its worth. So with Astrology: the first thing to be done to estimate its value is to bring it into practical and general application, and then its true position as an instrument of human progress will be made more and more manifest.

It is true that I have been comparing Astrology with new discoveries; whereas in reality it is of unknown antiquity. So is the idea of constructing a flying machine; but in practical matters we often have to admit that the real discoverer of a new aid to human progress is the man who harnesses it, puts it to work, and develops its practical value. Has the practical value of Astrology in human affairs ever yet been brought out, tested, and demonstrated? For individuals, this has often been done; but the very fact that this question is now being discussed is sufficient to prove that its full value to the world is still in question -- not perhaps in our minds so much as in the opinion of the world at large. If we can demonstrate its value to the world in any one respect, we shall no doubt find other values, which will reveal themselves as it comes more into use -- values which perhaps we ourselves do not altogether foresee.

And how are we to bring out its value to the world? I have referred to the work of two societies in placing before the world the value of two distinct yet connected ideas: the finer faculties of the human soul and its survival of bodily death. I feel assured that there is no more effectual way of vindicating before the world the claims of Astrology than by the efforts of an organisation like the Astrological Society, which not only gives to Astrology a standing among the subjects of scientific knowledge and investigation, but can contribute powerfully to bring it forward as a matter for general acceptance, by systematically setting to work to demonstrate its value, not only to individuals, but to the world at large.

The Onlooker

The value of Astrology to the world is its value to the individual, plus something more. It supplies impersonal criteria of virtues and of weaknesses, and these are of use to the individual in aiding him to regulate and improve his conduct. In this respect the gain of the individual is the gain of the world. But the value of Astrology to the world is something more than the collective gain of individuals; for the world' as a whole gains, and gains enormously, from the adoption of a universal standard. We have an object lesson in the gain of science since the introduction of the Metric System. And Astrology will prove the Metric System of anthropology and philosophy.

Students who have approached the ancient myths know that Astrology is the master-key to unlock them all. Like a solved cryptogram the foolish-seeming sentences suddenly become luminous with meaning when the clue is found. Just such a clue lies behind the seeming-foolish trivialities and tragi-comedies of everyday life, and Astrology provides it.

At present, humanity is like an orchestra each instrument of which plays its best perhaps, but without being in tune with the rest. The difference in pitch may be trifling, but it is cacophonous in the aggregate. Astrology furnishes the *diapason normal* to which if all those warring sounds were tuned, sweet music might at once ensue. This is a

dream of the future, perchance; but as we even now take our Time from the stars, why should we not eventually take our Tune also?

Are scientists undercover astrologers?

Some astrologers think so

Ivan W Kelly and Geoffrey Dean

Abstract -- Some supporters of astrology claim that various areas of science are really astrology in disguise. For example an astrological principle is that "celestial-terrestrial correlations exist", therefore any area is astrological if it involves things like biological clocks, bird migration, bee navigation, weather and earthquakes, as well as notions such as the Gaia hypothesis and Grand Unification theories in physics. But such things are irrelevant to what astrologers actually do. To describe them as astrological is to claim that modern astrology is scientific when in fact it is quite the opposite. In effect the claim tries to obtain support for astrology on the cheap. To paraphrase what Winston Churchill said of Mussolini, "Astrologers want Napoleon's victories without fighting Napoleon's battles." Are scientists undercover astrologers? Most definitely not. It may have been true in the Middle Ages but not today. 45 references.

What's in a name?

Some astrologers and sympathetic defenders claim that scientists are often engaging in astrological research under new labels. Some examples:

Vaughan (1996a,b) says that such scientists are "intellectual land grabbers" who are "usurping entire conceptual frameworks originally developed and held by astrologers", and who are then claiming as their own their "discovery of what astrology has always known." Landscheidt (1989:7) says "most scientists do not realize that their findings confirm fundamental astrological ideas." Cornelius, Hyde and Webster (1995:166) say that astrology includes "electro-magnetic fields in the solar system, the ancient metal-planet affinities, and the statistical demonstrations of the Gauquelins." Erlewine (undated) says that studies on lunar activity, especially those involving geomagnetism, are consistent with astrological tradition. West (1991:312) says that if astrology cannot be disconfirmed then "a new branch of science may well take root", calling itself anything but astrology even though it involves "nothing but astrology."

The reasoning behind such claims is detailed best by Vaughan, so her comments will be the focus of what follows. Vaughan is the militant astrologer whose debunking of skeptics (Vaughan 1998) claimed that skeptics are ignorant, biased and misinformed. Her claim was disputed by Kelly (1999), who showed that Vaughan considers only misinformed critiques of astrology, never informed critiques, which are numerous and devastating. Her wordy, rambling rebuttal (Vaughan 2000) receives an extended reply in Kelly (2000a).

How scientists are supposedly usurping astrology

According to Vaughan (1996a) scientists and other academics have been usurping astrology by rewriting history and by not admitting the astrological basis of their ideas. As a result "astrological language is already being depleted and supplanted by scientific terminology: we are being dispossessed of our astrological principles."

What are these astrological principles that scientists and other academics are supposedly usurping? According to Vaughan (1996a,b) a basic astrological principle is "celestial-terrestrial correlations exist." Therefore any area is astrological if it involves things like biological clocks, bird migration, bees orientating themselves by the sun, fractal geometry, planetary patterns that correlate with anything terrestrial (weather, earthquakes, human behavior, animal behavior, the stock market). It is also astrological

if it involves theoretical ideas such as the Gaia hypothesis, morphic resonance, and grand unification theories in physics. Similarly, Landscheidt (1994) includes patterns of plant growth, sunspot cycles, long lasting weather patterns, and daily cycles in animal metabolism, under the astrology label.

Vaughan (1995) says these scientific labels are "plagiarized astrology, pure and simple, and [astrologers] should feel free to quote [such research] when discussing correct astrological prediction." Furthermore, they "are not simply new names for what astrology has known all along, they are also scientific proof that astrology works"; therefore, despite academic talk of astrology being dead, "many astrologers think we should be celebrating a revival", even though the revival is being absorbed by these revisionist "territorial grabbers" (Vaughan 1996b).

Here the basic astrological principle "astro correlations exist" is like arguing that a basic principle in marine biology is "watery life exists", therefore anything involving water is by definition marine biology, like gardening, or cooking, or lifesaving at pools. Obviously this is a poor argument. Instead we need to ask "is gardening, cooking, etc relevant to what marine biologists actually do?". In this case the answer is No. Similarly we need to ask "is bird migration, fractal geometry, etc relevant to what astrologers actually do?" Below, we show that again the answer is No.

How can scientific research be seen as astrology?

Vaughan provides three arguments for seeing scientific research as astrology, namely history, as-above-so-below, and similarity, but none are persuasive. Her arguments are as follows:

(1) History. Originally astrology consisted of natural astrology (the forecasting of natural phenomena such as tides and eclipses), and judicial astrology (the judgment and prediction of human affairs such as wars). That is, astrology had a foot in two different camps, namely physical science and divination. So Vaughan (1996b) argues that from the earliest days "astrologers were also astronomers, meteorologists, and mathematicians", therefore astrology has original land titles to these areas. But Vaughan fails to point out that natural astrology was absorbed by science in the 17th century, so that judicial astrology is "the only meaning of astrology since end of 17th C" (OED 1991 edition). To argue otherwise, as Vaughan does, is like arguing that chemistry is still alchemy, or psychology is still natural philosophy, or that much of science is still philosophy and theology. But it just ain't so.

(2) As-above-so-below. Vaughan says astrology involves "as above so below", so it involves anything terrestrial-celestial. But this fails because, as in (1), it tries to revive an obsolete natural astrology as modern astrology. Indeed, many astrologers flatly disagree with Vaughan, arguing that astrology deals with symbolic connections, not physical connections, so (2) fundamentally misrepresents astrology's core beliefs. For example, Negre (1998) argues of physical links that "by no means should they be confused with astrology", while Guinard (1997) argues that such links could never explain "the [astrological] transformations which occur at another level of reality" or support "the understanding of a birth-chart."

(3) Similarity. Vaughan says that chronobiological explanations are similar to astrological explanations, for example stellar effects on bird navigation are similar to those claimed by astrology on people (Vaughan 1996b). But they are not similar. Birds use stars in real time like street signs, which is nothing like people supposedly acting out their lives

according to stars fixed at birth. Thus the latter "provide the physiologist with none of the usual electrical, mechanical, hydraulic, or biochemical variables to record and analyze" (Wheeler 1990:82-83, see also Hughes 1999 on sensory exotica). To link chronobiology with astrology is not plausible.

The implausibility of Vaughan's three reasons is further revealed by comparing the procedures and achievements of astrology with those of the supposedly usurping research, as follows next.

Procedures: Science vs astrology

The scientific study of celestial-terrestrial correlations is described easily enough. It is what the relevant scientists actually do, which in broad terms is the same as in any science -- they test ideas against empirical data and against competing ideas (Pennock 1999, Sober 1999). For example, the idea that birds navigate by the stars can be tested in planetariums where stellar positions and visibility can be controlled at will. Ideas that are disconfirmed are either modified or replaced by others, which are then examined and tested in turn. In other words the ultimate arbiter of success is nature herself.

Similarly, we can examine what astrologers actually do, both in their practice with clients and in their ideas given in astrology books. In broad terms, astrologers make judgments from birth charts. No chart, no astrology. But here the arbiter of success is not nature but personal experience -- if it seems to work then it does work. What could be more reasonable? In fact it is quite the opposite, simply because experience can be unreliable. In the 19th century phrenology was all the rage because it seemed to work, but we now know that phrenology is totally invalid. By relying on experience, thousands of phrenologists and their clients had been led astray. The same is happening in astrology.

We can now see the huge difference between the procedures of science and astrology. Science is evidence-based, astrology is experience-based. Science relies on nature, astrology relies on analogy and mythology (eg Mars the red planet indicates blood, anger and war). Science thrives on criticism, astrology drums critics out of the corps. As a result, astrology has nothing to do with reliable ideas tested against nature, and everything to do with unreliable experience.

Astrologers generally ignore this unreliability, which nevertheless is more than enough to explain astrological claims (Dean et al 1999, Beyerstein 1999). That is, astrology delivers nothing that cannot be explained by non-astrological factors. This conclusion is confirmed by decades of research into astrology, which has found nothing commensurate with astrological claims (Dean et al 1996, Dean et al 2000).

To put it another way, if the scientific study of celestial-terrestrial correlations can be considered "astrology", then one expects more than the banal nonspecific claim that "celestial-terrestrial correlations exist." One expects astrologers to provide testable explanations along with fruitful approaches to research. But in astrology such suggestions are entirely absent (read any astrology book).

Indeed, astrology lacks even the resources to provide such approaches. Thus appeals to analogy and mythology have gotten nowhere in solving problems for astrologers (Kelly 1997). A few astrologers recognise this, for example McDonough (2000:1) points out that the confusion of chart factors now on offer is "Because there has been no way to toss anything out."

As a result, astrology has been reduced to a mixture of factions, each of which supports its own claims with testimonials and self-serving non-threatening "studies" instead of stringent research. In any case, how would stringent research actually be used? Astrologers do not tell us how a factual discovery would explain the disagreement between astrologers on mostly everything (eg on which zodiac, house system, planets, aspects, to use), or how it would be incorporated into astrological practice with clients. Indeed, astrologers rarely incorporate astrological research findings into their work, let alone celestial-terrestrial research findings.

In short, in terms of procedure, "what astrologers do" is about as different from "what celestial-terrestrial scientists do" as one can get. Vaughan's argument to the contrary may have been relevant to what some astrologers were doing in the Middle Ages but not today (see Brackenridge 1980 for a brief history of scientific astrology).

Achievements: Science vs astrology

Astrology had once motivated astronomers such as Kepler, albeit not others such as Galileo. But for the last three centuries its influence on academic disciplines has been entirely absent. Birth charts did not help in discovering Uranus, Neptune, Pluto, asteroids, quasars, and black holes; or circadian rhythms, solar flares, geomagnetic disturbances, biological clocks, human geomagnetic effects, and bird navigation; or fractal geometry, the Gaia hypothesis, morphic resonance, and grand unification theories, despite the claim that all of these are astrology. Nor could they when astrology lacks the component essential to such discoveries, namely the critical testing and improvement of ideas.

In short, astrology since the 17th century has been spectacularly unfruitful in guiding our inquiries into nature. Which is why scientists and philosophers ignore astrology except for historical purposes, or for the insight it provides into the formation and maintenance of unwarranted beliefs. The reverse is also true. No astrology book cites celestial-terrestrial discoveries to support specific claims like Mars is aggressive, or that opposite sun signs are compatible (or not compatible). Nor do they consult Wolf numbers or geomagnetic indices as part of a chart reading. And for a good reason -- such areas are simply irrelevant to what astrologers actually do. In effect, in labelling parts of science as astrology, Vaughan is claiming that modern astrology is scientific, when in reality it could hardly be less scientific.

Finally, there are pragmatic reasons for rejecting Vaughan's claim. First, if astrology is so marvelous, if scientists are indeed dabbling in "what astrology has always known" (Vaughan 1996b:13), why aren't astrologers publishing in *Nature* and *Scientific American* and scooping the field? Vaughan (1998) says the answer is lack of staff, labs, and research grants. But who needs these things when horary astrology will supposedly answer any question? And there are plenty of even yes/no questions to be answered -- is nature supersymmetric, is the cosmological constant really constant, does supergravity theory describe nature (Johnson 2000). If, as many astrologers claim, astrology is The Map to reality, answering such questions should be child's play.

Second, if scientific research is so marvellous and so relevant to astrology, why does it play such a blatantly non-existent role in the daily practice of astrologers?

Usurping is normal

The usurping by modern science of previously unrelated areas is quite normal and is not unique to astrology. In the 1960s psychology was "constantly being annexed by other

sciences -- biochemistry, biology, genetics, biophysics, physiology, neurophysiology, and so on" (Scriven 1964:164). Four decades later the annexing shows no signs of stopping. Thus much of neuropsychology has been lost to medicine, much of social psychology is being re-examined by evolutionary psychology (which is closer to biology), and so on. While psychologists may be unhappy with such annexes, we do not find them complaining that the annexes are still psychology.

Usurping is normal because new approaches from other fields can uncover new ideas about old problems, so the problems and their labels shift to where they can best be solved. In astrology this has already happened, where advances in relevant areas (astronomy, psychology, statistics, research design) and a decisive technology (home computers) have answered all the important questions about how and why astrology works (Dean and Kelly 2001). So astrology is not a mystery any more. In the unlikely event that important questions still emerge, the same thing would happen -- they would be examined, then annexed by the relevant discipline, and answered in ways not limited by appeals to analogy and mythology. Any complaints by astrologers would be regarded as ludicrous. The following additional comments can be read separately. They enlarge on some of the topics mentioned above.

Additional Comments

Astrology is not a scholarly discipline

Astrology is completely unlike a scholarly discipline. In astrology, testimonials from astrologers and clients are the Gold Standard against which everything is evaluated; they over-rule the findings of studies, no matter how well conducted. If a study does not confirm what an astrology book says, then the study is in error, not the book. The dependence on testimonials is illustrated in *Astrology in the Year Zero* (Phillipson 2000), where astrologers say things along the following lines (the excerpts have been paraphrased):

"Let me tell you about the amazing thing I did last week. The client had a daughter who suffered from headaches, so I looked at her birth chart and correctly identified the source of the headaches as a liver disease. And all without seeing either the mother or daughter" (p.71). "A man wanted to buy a ship. The horary chart had a Moon-Pluto conjunction in Scorpio on the IC, with the Moon applying, and I just knew that the bottom of that ship was rotten. Which it was" (p.54). "A woman lost her shawl. Her chart showed it was in a French restaurant a couple of doors away from her home" (p.71). "I looked at her birth chart and noted that Saturn and another planet were thirteen degrees from the cusp of the 4th house. I asked if she was raped by her father when she was 13, and she was" (p.64). "The astrology showed that it would rain all day, which it did" (p.71).

In the astrological literature such stories are taken at face value. They are assumed to be meaningful and to provide powerful evidence for astrology. Interestingly, such a credulous attitude conflicts with the everyday experience of people in other areas. Thus we all know that stories and testimonials can be exaggerated, that they tend to improve with the telling, and that essential details can be left out. In science, stories and testimonials would merely be an incentive to conduct careful follow-up studies, but in astrology they are considered to be the end product, self-validating, error-free, and above criticism.

Negative studies are not simplistic

The astrologer McDonough (2000) argues that the problem with negative studies is that they are simplistic, testing one factor at a time. He says that studies should "consider the combined effect of multiple factors to get good results." But this is an inaccurate and out-of-date assessment. It did tend to apply back in the 1960s, when organized research was just getting underway and had to start somewhere, for example one of the early projects of the newly formed Astrological Association in Great Britain was to look at the sun signs for 7000 doctors. But even then people like Vernon Clark were looking at the whole chart, getting away from isolated factors, and the trend has continued ever since. Today, the researcher who focuses on single factors like sun signs would be considered almost an anachronism, the Gunther Sachs's of this world notwithstanding.

In any case, as Eysenck and Nias (1982:31) argued, if single factors have the meaning claimed in astrology books, they should be confirmable in large enough samples. Especially when astrologers claim that daily experience confirms these meanings. For example in Phillipson (2000) we endlessly read claims like the following:

"the Midheaven in the chart for the time a trophy horse race begins will describe the winner" (p.57). "Venus and Neptune create an artist" (p.66). "when I had Mars at an angle, I knew I was going to have a very hectic day" (p.81). "she works frenetically (she has Moon square Mars)" (p.93).

If an astrologer can experience the meanings of isolated factors so easily, why would they suddenly become beyond reach when researchers study them? Pluralism in astrology hinders more than it helps

There are a variety of very different astrologies around the world as well as factions within each. Thus several astrologers in Phillipson (2000:186-7) argue that "different systems of astrology (such as Western and Vedic) may claim to be different fingers pointing at the same Moon", which means that "the complexity that can appear to astrology's critics as evidence against it, is -- from this perspective -- inevitable."

On this view, the different astrologies are different human responses to one complex transcendental reality. But this is more puzzling than helpful. What is the transcendental reality that is the analogue of the "same Moon"? And how do such astrologers know when they have it?

Furthermore, given the fundamental differences that supposedly underly the different worldwide astrologies, it would be deeply problematic (perhaps unintelligible) to claim that they are all talking about one reality (see Kelly 1997:1057-8). If each worldwide astrology reduces to a different fragmentary view of one complex reality, it would seem to contradict the cherished self-understanding of each. See Schellenberg 1997 and Hick 1997 for more on the problem of religious pluralism.

Examples of "research" produced by astrologers

McDonough (2000) notes that astrological theory offers little help in distinguishing between techniques that work much of the time, some of the time, or little of the time. So he suggests that astrologers need better qualitative research to set up hypotheses that can be examined on a larger scale by quantitative (statistical) studies. It sounds good, but we suspect that astrologers in general will not be interested, see below under "Astrology could not be scientific and stay in business".

As an example of the non-threatening "research" produced by astrologers, consider two articles published in the August/September issue of *The Mountain Astrologer*, which are typical of their type:

- In Paone's (2000) "Weather watches and warnings for August-September 2000", some of the predictions (which are mostly of storms) are testable while others could mean anything ("severe thunderstorms if moisture is available" p.39). But there is no concern with actually following-up the claims, or with reconsidering what should happen if the claims were untrue. One might well ask, if astrology can predict a chaotic system like weather so well, why does the author not give a tally of hits and misses for his previous predictions? Why not challenge weather forecasters to beat astrology's accuracy? Evidently it is more comfortable for astrologers to have their heads in the clouds than their feet on the ground.

- In Markin's (2000) "The Astrology of Natural Disasters", the argument reduces to selecting a disaster and then finding something in the chart that fits, when the real question is whether the authentic chart fits better than some other chart. Without controls the exercise is pointless, so why bother?

Consider also the research of Cunningham (1999) who went through an astrology data bank, extracted public figures sharing Venus-Neptune contacts, and looked for relevant themes in their biographies. Not surprisingly, nothing is uncovered that could possibly require a rethinking of basic premises. This is because looking for confirmation is always successful when one is dealing with symbolic associations; that is, we can always find some connection between any two symbols, as when astrologers accidentally fit a client to the wrong chart and nobody notices. Such studies cannot fail. Again, the real question is whether charts with Venus-Neptune contacts show more Venus-Neptune themes than charts without such contacts, but such questions are almost never considered by astrologers including Cunningham. In any case the answers, if unwelcome, are without effect because astrologers always have ways to explain them away, for example the outcome was atypical or it was contradicted elsewhere in the chart.

Scientists were not doing astrology under another name

Vaughan (1996b) says some early scientists in the area of cycle research acknowledged that they were doing astrology. She says that in the 1960s and 1970s the journal *Cycles*, published by the Foundation for the Study of Cycles, "overtly recognized astrological cycles in weather, stock market, etc ... [but later] they stopped using the A-word almost completely. They were practicing Astrology but calling it something else, and this is what's at the crux of recent developments"

But this is incorrect. The Foundation for the Study of Cycles (FSC) was set up by Edward Dewey in 1940. In 1931 he had been hired by the US Dept of Commerce (later he became their chief economic analyst) to try and find the cause of the 1929 Great Depression. Over the years he talked to many economists and was not impressed by them. He also talked to scientists and became aware of cycles in business, wildlife, on the sun, and so on, many of which seemed to have the same length and turning points. What caused such synchrony? The problem had to be approached on a broad front. Hence the formation of the FSC.

Dewey (1971:168) in his book *Cycles: The Mysterious Forces that Trigger Events*, which summarizes the findings of the FSC up to then, puts it rather differently from Vaughan: "My investigation of a possible connection between planetary cycles and earthly cycles, if

I should ever have time to make it, would have nothing to do with astrological beliefs. It would have nothing to do with birth dates and other mumbo jumbo. It would concern electromagnetic or similar forces in the universe that might affect weather and various life processes, including human beings 'in the mass'" The astrology connection claimed by Vaughan did not exist.

Internal consistency in astrology means nothing

Internal consistency is viewed by Vaughan (1999a) as providing plausibility to astrology. She says "Astrology has a highly complex internal order such that the individual symbols and meanings all make sense with regard to each other. We can see this consistency in the planetary rulerships. Mars rules Aries -- an aggressive planet rules an assertive sign. Jupiter, the biggest planet, rules the most expansive sign, Sagittarius." Further "We can look to ancient mythology to confirm these associations. For example Pluto was the Greco-Roman god of the Underworld, so his hidden nature fits with a rulership of Scorpio."

More revealing than what Vaughan says is what she does not say. Planetary rulerships are a contentious issue in astrology, as are most astrological ideas, because astrologers are unable to agree on the correct system, see previous comment on pluralism. Instead there are various competing systems, all defended by considerations of coherence. The obvious (and only) way to choose between them, namely by empirical tests, is seldom considered. Why have threatening tests when you can have non-threatening arguments?

Furthermore, Vaughan's perceived consistency is superficial. The relation between "aggressive" and "assertive" is different from that between "biggest planet" and "most expansive sign" -- behaviourally, being aggressive and assertive are similar, but being big is a physical attribute, and being expansive is a metaphor. But such loose analogies are common in astrology.

Astrology could not be scientific and stay in business

Could astrology be scientific? Most certainly, since many astrological ideas could be tested against competing astrological ideas, against other symbolic perspectives such as numerology, and against competing ideas in the social sciences and biology. But this would require a change of epic proportions in astrological practice.

First, it would require that astrologers replace their dogmatic attitude that astrology is in some sense true by definition, with an open-minded attitude in which the truth of astrology has to be established by proper testing as in any other discipline. Second, it would require them to abandon appeals to analogies, testimonials, and unreliable experience. Third, because careful research has failed to find any astrological claim that cannot be explained by non-astrological factors, it would likely require much of astrological tradition to be abandoned.

The last is discussed by Dean et al (2000), and is further illustrated by Harrison (2000), who points out that traditional astrological connections with health persisted in British medical circles well into the 19th century, but were eventually abandoned when scientific viewpoints proved to be more fruitful. Even if astrological effects were to be supported, their effect on people is likely to be trivial compared to other influences on people. Which is why Bagley (1999:32) says that at best "astrology can only offer partial explanations of human motivation and behavior", and Ertel (2000:70) says "I suspect [other] variables are too numerous to leave much room for additional astrological contributions."

Clearly, the logical consequence of adopting an evidence-based astrology instead of an experience-based astrology would be a huge restriction of astrological claims, and the elimination of much astrological practice with clients. Unsurprisingly "most astrologers are completely unmoved by the results of all the research findings and statistics" (Cornelius 1998:4). Or as Kelly (2000b) puts it, "Vested interests 1, scientific integrity 0."

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Astrologer attacks researchers

A tedious but typical interchange

Abstract -- In 2001 the British astrologer and teacher Dennis Elwell wrote four long articles attacking this website's researchers, their views, their results, and especially what they say in the Phillipson interview available on this website. Elwell wants to restore the importance of astrology. He claims that the researchers are hostile to astrology, and that his attack was so decisive that no response was possible. Article by article, the researchers summarise Elwell's attacks and their response. They argue that Elwell's approach to astrology cannot be taken seriously because he fails to apply safeguards to rule out artifacts, alternate explanations, and self-deception. Elwell denies this. He argues that his own personal judgement is sufficient, and if thousands of scholarly studies suggest he might be fooling himself then they are simply wrong. He claims the researchers have no idea how to properly test astrology. But when they ask him how it should be done, he generally evades the issue, so the debate is spectacularly unproductive. Nevertheless it does provide a typical example of what researchers have to endure, for Elwell is not the first astrologer unable to specify improvements to research when challenged. Includes an option to visit the original interchanges on another website (total 90,000 words, reading time 5 hours).

The British astrologer Dennis Elwell disagrees strongly with the views of researchers given in the interview in Garry Phillipson's *Astrology in the Year Zero* pages 124-166, and in the expanded interview on this website. Formerly a newspaper journalist, Elwell has been involved with astrology for more than fifty years. Since 1983 he has been a full-time astrologer and teacher, and his concern has been to restore the importance of astrology. Elwell produced four long articles critiquing the researchers, their views, and their results, as follows:

1. The Researchers Researched: A Reply to the Cynics (April 2001)
2. Scholars versus Scribblers (May 2001)
3. Concerning ubiquity, evidence, and hard hats (June-August 2001)
4. Memo to the Careful Ones (September 2001)

The researchers (Dean, Kelly, Mather, Smit) responded by inserting comments point by point into his articles. Each interchange averages 10,000 words of article and 13,000 words of inserted comments. The result is a long, tedious, but typical example of how astrologers respond to informed criticism -- by unsupported assertions, smokescreens, evasion, and name calling, but rarely by being helpful.

[Click here](#) to see Elwell's articles with the researchers' inserted comments.

This will take you to Garry Phillipson's website where the articles are stored. To read the articles and comments will take about five hours. The following summary, prepared by the researchers, takes 15 minutes and you stay on the astrology-and-science website.

Introduction

In the interview we noted how half a century of systematic research had not supported the grandiose claims of astrology, how astrology was experience-based rather than evidence-based, and how reasoning errors and other artifacts explain why an experience-based astrology could be totally false yet still seem to work.

Our statements were not made lightly. Every social and natural science stresses the need for safeguards to rule out the reasoning errors and other artifacts that arise when

relying on experience. Human reasoning processes alone are the subject of thousands of studies and dozens of scholarly books. But when safeguards are applied to tests of astrology the results show no hint of effects that are useful and replicable. It seems that astrology runs on artifacts, the same artifacts that have led people to believe in countless experience-based but false or problematic ideas such as phrenology, psychoanalysis, bloodletting, numerology, and biorhythms.

Nevertheless Elwell says our picture of an artifact-based astrology is wrong. So we now expect him to cite well-conducted studies where artifacts can be ruled out. If a meta-analysis of the studies shows that astrology delivers useful effects, ie to the extent claimed in astrology books, our picture would have to be abandoned. Although our own meta-analyses of such studies have been negative, maybe Elwell can do better.

But Elwell merely refers again and again to his experience, and to after-the-event analyses, as if the problems associated with experience-based astrology and after-the-event astrology did not exist. He also attempts to refute isolated studies, usually naively, as if his own poorly-designed studies were somehow unproblematic and the collective weight of evidence was of no consequence.

How not to conduct a debate

A further obstacle is Elwell's style, which is marked by unsupported assertions, ignorance of science, and abuse in lieu of scholarship. For example whenever he says X is crucial, he typically fails to explain it, or resorts to jibes, so readers have no clear idea of what X is about and no clear way of deciding whether X is a reasonable point. His strategy is to find fault but never suggest improvements, to brush aside or ignore what doesn't suit him, and to bury everything else in torrents of words. In other words to be as unhelpful as possible. There is no attempt (like ours below) to list issues concisely to facilitate discussion, or to summarise the arguments to facilitate progress. Our most common reaction to his unhelpfulness is "Elwell does not tell us", meaning "why should anyone believe this?".

In what follows we look briefly at Elwell's articles, at why the absence of safeguards makes his case implausible, and at his response to the issues we have raised. We repeatedly challenge him to specify tests that would disconfirm his ideas, but he repeatedly fails to do so. He behaves like a fundamentalist whose dogmatic views make debate impossible. For convenience his four articles are referred to as Elwell-1, -2, -3, -4.

Summary of Elwell-1

The Researchers Researched: A Reply to the Cynics

Elwell-1 disagrees with our view that astrology runs on artifacts. His own view, based on "over half a century of absorption in this subject", is that astrology can be seen everywhere. He then attacks our integrity and our position. He deals with artifacts by denying their relevance. He also denies that tests of astrology need safeguards such as controls, which he dismisses as mere deviousness. He makes no attempt to see if other astrologers would use the same chart factors or make the same interpretations as himself. In short, Elwell claims his own personal judgement is amply sufficient. If thousands of scholarly studies suggest he might be fooling himself, just as phrenologists and their clients were fooling themselves, then those studies are simply wrong.

Note how the source of the disagreement between ourselves and Elwell could hardly be clearer. Unlike ourselves, he rejects the need for safeguards, so he has no grounds for ruling out artifacts, alternate explanations, and self-deception. At which point Elwell's case for astrology becomes implausible and cannot be taken seriously.

The rest of Elwell's article is equally disappointing. He presents no new arguments for astrology, only unsupported assertions. He tells us we are doing it wrong but not how to do it right. He tells us astrology should be tested on its own terms but not what those terms are. Negative studies are dismissed as sloppy but much sloppier studies (if positive) are automatically accepted. Depending on the situation, astrology is either astonishingly obvious or very difficult to prove. He does nothing to show that his way of measuring astrology's success are valid, and never considers alternate explanations for that apparent success.

Summary of Elwell-2

Scholars versus Scribblers

Elwell-2 continues to attack our integrity and our position with the same mix of unsupported assertions and ignorance of science. He does make some interesting speculations on astrology, for example that it is a sort of World Wide Web where the cosmos "is constantly downloading information", or a macrosience where "every phenomenon and every item of data is referred to something larger and more inclusive." But how could such speculations be tested? What do they predict? How are they useful to working astrologers? How would we detect errors in the downloading? Elwell does not tell us. He continues to reject the need for safeguards, so his case remains implausible.

Summary of Elwell-3

Concerning ubiquity, evidence, and hard hats

This is the longest of Elwell's articles and the least abusive. He continues to reject the need for safeguards as a matter of course. He rejects the use of controls because they are not always possible (which does not explain his failure to use them when they are possible), and because replication is better. He argues that astrological knowledge "had been in place for thousands of years, and controls had not been necessary for its formulation. It was reached by careful observation, confirmed by replication. ...replication can hardly be dispensed with". Which misses the point (artifacts can replicate), so his case remains implausible.

As an exercise, Elwell notes how well President Kennedy's Sun in 8th house fits his life and assassination. But he fails to note how the fit is negated by Kennedy's Venus and Jupiter in the same house.

In another exercise, Elwell looks at the charts of helmet collectors Kelly and Tagliavini, finds repeated significators for German iron helmets, and argues that such hits are irrefutable evidence for astrology. But his repeated significators are not actual repeated factors but different factors whose symbolism can be made to fit. Also, although Elwell is a non-collector of helmets, we find that his chart contains even larger numbers of helmet-collecting significators. This suggests that his significators (and by extension his astrology) are urgently in need of re-evaluation.

Note Elwell's approach -- look at charts after the event, find factors that fit symbolically, and conclude that astrology is proven. But there is a wide choice of events, each event has a wide choice of charts, and each chart has a wide choice of factors. So the number of possible comparisons is effectively without limit. Given such an enormous choice, we should expect to find amazing after-the-event fits purely by chance, and their absence would be more surprising than their presence.

Note the problem -- a hit means little unless Elwell applies safeguards to show that it cannot be explained by after-the-event selection. Worse, if a hit does not occur, Elwell argues that the test is inappropriate, or that the cosmos does not necessarily use our concepts, which points are conveniently forgotten should a hit actually occur. Either way, his strategy is to praise positive studies no matter how flawed and reject negative studies no matter how well conducted. No wonder Elwell sees astrology everywhere. He fatally ignores the relevant literature such as Diaconis & Mosteller, *Methods for studying coincidence*, *Journal of the American Statistical Association* 1989, 84, 853-861.

So Elwell-3 changes nothing. Neither does Elwell-4, see next section.

In an earlier now-deleted version of Elwell-3 entitled "Validation: The Essential Issues", Elwell made a couple of extra points that deserve comment. (1) The cosmos is "constantly downloading information" which astrology tries to decipher "not always with conspicuous success". Because the cosmos is never twice the same, the result is a series of one-offs, which makes testing difficult. But how can he know this if testing is so difficult? Elwell does not tell us. (2) "Astrology sits uncomfortably in the current scientific paradigm", so we should be asking what it would mean for science if astrology were actually true. But as far as we know, astrology involves nothing not explainable by non-astrological factors, see later, so contrary to what Elwell says it actually sits very comfortably in the "current scientific paradigm". So Elwell's question is premature. It would be like asking what it would mean for science if the earth were flat.

Summary of Elwell-4

Memo to the Careful Ones

This is the last of Elwell's four articles. It returns to the same mix of abuse, attacks on our integrity, errors, evasion, fundamentalism, unsupported assertions, and ignorance of science that made his earlier articles so tedious and unproductive. Nobody who is genuinely interested in debate would behave in this way.

Elwell-4 proceeds by criticising existing research, not by suggesting better ways of research, which here is the only thing that matters. Any competent researcher could do this in a few hundred words. But Elwell's total of 41,000 words have left us none the wiser. Eloquence, maybe, substance, no, lies, yes. For example it is simply not true that we urge "abstracting single factors from the totality", and we have pointed this out every time he argues this way, which is all the time. Clearly Elwell is neither listening nor does he want to listen.

Elwell-4 adopts much the same approach to validation as Elwell-3 -- look at charts after the event, find factors that fit, and conclude that astrology is proven. No matter that we have repeatedly stressed how after-the-event astrology is too self-selective and too problematic to mean anything, and how it needs safeguards if these problems are to be avoided. Elwell's response to problematic examples is to ignore the problems and to

carry on providing problematic examples. The parallel with dogmatic fundamentalism could not be clearer.

Elwell-4 does introduce the useful idea of using Venn circles to show how chart signifiers may or may not overlap. One circle contains all the factors that could indicate X, a second circle contains the factors in a given chart, any overlap shows the factors indicating X. But Elwell fails to note how the number of factors in the first circle, compared to all possible chart factors, has to be comparable with the incidence of X in the population. For his example (X = helmet collecting) his chosen signifiers are around 10,000 times more numerous than they ought to be, so they are hugely implausible.

In the same vein, Elwell says he expects to find a signifier of X in the chart of an X person, but the same signifier in another chart does not necessarily mean the person is X, because "in other people the same planetary combination can signify a range of other things". This is not the traditional view, which sees X as always meaning the same thing but being affected by the rest of the chart. Note the problem -- if X does not necessarily mean what it is supposed to mean, we can never find out what it is supposed to mean (which would of no use anyway), nor could we ever test it. All we have are tokens of meaning that we can use any way we like to make convenient "interpretations" after the event to suit our purpose. At which point the whole idea of astrology becomes problematic from beginning to end.

It gets even worse: Suppose we have that circle containing all the factors that could indicate X. Overlapping it we have several charts. Which ones are actually X? Elwell says we cannot tell just from the overlap. So how CAN we tell? Answer: by asking. If any of the circles are X, astrology is proven. If they are not, astrology is still proven. To Elwell this is astrology. To us it is out-of-control silliness.

This leaves Elwell's response to the issues we have raised. He says most of the issues "have at least been touched on", which implies (wrongly) that the touching-on was helpful, and "I may be able to fill in any gaps in what follows here", which gaps he then proceeds to ignore.

Elwell's response to important issues

(1) How can astrology be both obvious and difficult to prove?

Elwell-1 says that producing good evidence for astrology is "virtually impossible", yet if you are receptive enough (whatever that means), "astrology will continually astonish you." So we are supposed to believe that astrology is both obvious and very difficult to prove. How can this inconsistency be resolved? Elwell's articles do not tell us.

The nearest we get is in Elwell-2: "Either the astrological is everywhere, or it is nowhere. The question has been asked, if it is everywhere, why is it so difficult to test? It depends what tests you think are appropriate." He implies that experience is an appropriate test, which leaves us none the wiser -- all believers cite experience to support their beliefs, hence the need for research to decide between conflicting beliefs. The nearest we get to an answer is "Unlike new vaccines, astrology can be exhaustively investigated in straightforward ways", which seems at variance with the above "virtually impossible."

Elwell-3 adds that "everywhereness does not guarantee ease of access." For example oxygen is everywhere, but this was unknown until the 18th century. Elwell is here redefining everywhere to mean "everywhere but not visible" (so direct testing will be a problem) whereas the everywhere that applies to his astrology means "everywhere because we can see it at work" (so direct testing should be easy). In other words this is obfuscation, characteristic of the pseudoscientific approach, rather than the open debate of the truth-seeker.

(2) What tests should we be applying?

Elwell-1 says our research efforts were bound to fail because we were proceeding in the wrong direction with a set of false premises. So we now need to know what the proper direction for research is, what the proper premises are, and precisely what tests we should be applying to these premises. Elwell's articles do not tell us.

In Elwell-2 the nearest we get is: "This research needs to be done on a case study basis, because situations never repeat themselves exactly." But Elwell's notion of a case study excludes the kinds of safeguards seen as essential in any social science case study.

Elwell-2 then says you look at the situation, you look at the chart, you notice a match, and voila, astrology is proven. But it is easy to find a match between almost any chart and any situation. In effect this is the wrong chart issue, which astrologers in *Year Zero* pages 118-119 see as very worrying, ie if wrong charts work as well as authentic charts then what price astrology?

So a match proves little, and we already showed above how this argument is implausible. It is like saying "this person has arms and legs, therefore astrology is proven." What matters is not the existence of a match but whether the match is usefully better for authentic charts than for control charts. Since Elwell rejects the use of controls (which are essential for assessing results), he has no way of finding out. The problem of course is that half a century of testing has consistently failed to find a useful difference.

Elwell-2 does say that "the fit is generally so knife-edge tight that chance becomes the least likely explanation." But a tight fit does not necessarily mean anything. The astrologer Alexander Marr routinely achieved a very tight fit (average orb only 2.5 minutes), nevertheless it was close to that expected by chance, see *Recent Advances* pages 174-176. The moral is clear: Unless we make calculations we are in no position to draw conclusions about probabilities.

Elwell-3 adds nothing useful, see (6) below.

Elwell-4 proceeds as if none of the above points had been made. For example he says "the number and complexity of the factors involved makes probability calculations absurd", which completely ignores the last point above. We want details of the tests we should be applying, not vague speculations, but this is all that Elwell provides. He suggests testing mundane claims (how? he does not say), and ideas that astrologers have found to work (like what? he does not say). Similarly Elwell agrees that matching tests "could be instructive", provided the approach gave a positive result (an approach like what? he does not say). Notice how negative results are not instructive!

(3) Sun signs

Elwell-1 would have us believe simultaneously that sun signs are too complex to test yet

are so simple that every day they can be observed to work. How can this inconsistency be resolved? Elwell's articles do not tell us. The nearest we get is in Elwell-2, which stresses that a sun sign's true nature is not a trait but a dynamic, an inherent urge to do things in a particular way. For example "Aries represents a self-starting, urgent, forward-directed push, which disturbs the settled equilibrium." But how does Elwell know this? How could we test whether Aries has this push more than other signs? He does not tell us.

Elwell-2 says the Aries dynamic differs from Aries traits such as assertive, which could arise in other ways such as Moon in Aries or a prominent Mars. Similarly you can meet Sun in Aries people "who would not be described as assertive ... yet all the time they are ineluctably carving out a path for themselves." That is, they cannot escape their path-carving urges. In short, Sun in Aries is path-carving. Forget traits, think of dynamics, and all will be well.

But we must all path-carve in some fashion in order to survive, so the only way to tell a genuine Aries from pretenders is if they have Sun in Aries. Which is like saying Aries people have arms and legs, therefore astrology works. Elwell makes this muddle even worse by accepting that tropical Taurus (inertia) is the same as sidereal Aries (push), so their instinctive urge is simultaneously stop and go. Elwell does not explain how this is possible, nor how he can know all of the above if signs are too complex to test, which is where we came in.

There are two further problems with Elwell-2: (1) Gauquelin pointed out that a profession "expresses the pressing need to fulfil oneself in a particular way of life or activity", which seems very close to Elwell's idea of a dynamic. If sun signs represent dynamics, then Gauquelin's tests of eminent professionals should show sun sign effects. But they do not. (2) If the twelve sign-dynamics were real attributes of people, they would shine through in factor analyses of human behaviour. Large numbers of such analyses have been reported, but there is no hint of any twelve-fold pattern.

Elwell-3 alternates between condemning sun sign studies and advocating them, leaving us none the wiser. Elwell-4 adds "the qualities denoted by the Sun will be evident only to the degree that we attain some position in which we can shine", which seems to say they will be evident only to the degree that they are evident. It is hard to disagree.

(4) Issues ignored by Elwell

Below are issues from our reply to Elwell-1 but which he has so far ignored:

(a) Elwell-1 questions the authenticity of our yardsticks. So what are the authentic yardsticks that Elwell uses? How does he know they are authentic? Elwell does not tell us.

(b) He accepts that only the whole chart will do, but he also accepts that something less than the whole chart will do. So at what point will decreasing wholeness not do? Elwell does not tell us. The nearest we get is "In fact you can do astrology without a zodiac."

(c) Elwell refers to connectedness. But how do notions of connectedness lead to claims that Scorpios are secretive, that Saturn signifies bones, that the birth moment is the significant one, and so on? After all, quantum theorists talk of connectedness but not of

secretive Scorpios. So why those claims and not some other claims? Elwell does not tell us.

(d) Elwell notes that our reality is not all it seems. But if our reality is not all it seems, how is this evidence for astrology? Elwell does not tell us. Perhaps what-he-believes-is-evidence-for-astrology is not what it seems. Next is one of Elwell's own issues:

(5) Why the impasse?

Elwell-1 says the impasse is due to different viewpoints. Astrologers look for connections, whereas the scientist "demands an isolated part, which bereft of its connections may be meaningless." But the scientist does not demand an isolated part. Much of modern science is interested in connections and arguably always has been, Newton's theory is a good example.

Elwell-2 adds "In the end people will believe what they want to believe, and the reason may lie less in the facts than in their own personality." So much for his claim that astrology is based on observation. In any case this does not apply in science, where challenges to tradition and dogma are the norm.

Elwell-3 says we "opt for a route that imposes criteria which are arguably at variance with the subject matter." But our tests included routes suggested by astrologers, so the supposed variance is minimal.

Elwell-4 repeats Elwell-1, saying our "thought process ... is to exclude" while his "includes more and more". But we do not exclude. We have strongly promoted studies that ask astrologers to look at the whole chart, and we continue to welcome fresh ideas and approaches from anyone interested in impartial enquiry.

Elwell's argument boils down to science vs astrology, where the supposed reductionism of science is made to seem incompatible with the supposed holism of astrology, thus elevating astrology beyond criticism. No matter that the argument is irrelevant to such basic issues as whether authentic charts work better than controls, or whether astrologers actually agree on what a chart means. In short, the argument is pure smokescreen. Elwell is only one of many astrologers seemingly unable to see past their own smoke. As *Year Zero* says on page 181, "criticisms of science (no matter how valid they may be) do nothing to prove astrology."

The real explanation for the impasse is Elwell's unwillingness to use safeguards, his evasion of crucial issues, his automatic acceptance of positive studies no matter how flawed, his automatic rejection of negative studies no matter how well conducted, his ignorance of science, his unsupported assertions, and his unrelenting unhelpfulness. He thinks that seeing a match between chart and person or event proves astrology, as if artifacts did not exist, and if you object he responds with name calling and abuse.

Does this reflect a genuine interest by Elwell in bridging a gap? We think not. We came to these exchanges in good faith but were not met in kind. Indeed, his articles are an insult to serious research and to the idea of constructive debate. No wonder there is an impasse.

(6) Towards overcoming Elwell's impasse

Elwell says we are making the wrong tests, which is why we see astrology nowhere and

he sees it everywhere. In (2) above we had asked what would be the right tests, but Elwell did not tell us. So we asked him to provide the following information in Elwell-3:

- (a) Details of one or more tests capable of confirming astrology.
- (b) Details of the results he would accept as confirming astrology.
- (c) Details of one or more tests capable of disconfirming astrology.
- (d) Details of the results he would accept as disconfirming astrology.
- (e) Names of people we can ask for opinions on Elwell's abcd replies.

What could be simpler? So we had high hopes, but in fact Elwell-3 provides very little. On (a) the nearest we get is a suggestion that we look at Sun signs, which is precisely the sort of isolated-factor test that he previously condemned us for making; and a vague suggestion that we test astrology by looking at charts after the event to see how well they fit, as usual without controls, as if the fatal problems with this approach did not exist. On (b-e) Elwell is effectively silent.

Elwell-4 cites our asking for details of tests that would confirm or disconfirm astrology, which leads us to expect an answer, but he then sidetracks to anywhere but an actual answer. As already noted, Elwell repeatedly promotes the "test of experience", where the finding of a match between situation and chart proves astrology. He is claiming that the match cannot be explained by non-astrological factors. As he is the claimant, he (not us) has to show that his claim is valid by controlling non-astrological factors. But he does not do this.

As we have repeatedly stressed, and Elwell has repeatedly ignored, what matters is whether an authentic chart fits the situation better than a control chart. But as we say on page 142 of *Year Zero*, "Half a century of research into astrology, using techniques incomparably more powerful than those available to the Babylonians and Greeks, has failed to reveal effects (or at least effects commensurate with astrological claims) beyond those due to ordinary causes such as errors in reasoning." That is, astrology fails to work once safeguards are applied to rule out non-astrological factors (we give examples of this in our detailed response to Elwell-4). Elwell disagrees, but since his astrology is beset by non-astrological factors every inch of the way, and since he rejects the use of safeguards, his arguments cannot be taken seriously. This was the case at the end of Elwell-1 and it is still the case. His four articles and 41,000 words have counted for nothing.

An independent test of Elwell's ideas is summarised later in the website article Artifacts with a capital A. It makes the same mistakes as Elwell does, but more clearly, so they are more easily seen.

Conclusion

Elwell has been fairly challenged to specify tests that meet his requirements, and to amend his own approach to include safeguards, but he does not respond. Depending on how it suits him, astrology is either astonishingly obvious or very difficult to prove, period. He presents no new arguments for astrology, takes no precautions against faulty reasoning, evades crucial questions, is unaware of the many ways where he can go wrong, does nothing to rule out artifacts, and turns a blind eye towards unwelcome evidence. He then proceeds as if none of this matters. When we object, he responds with name calling, ridicule and abuse. We ourselves could easily answer our own questions directly and concisely. So it seems that Elwell either has no idea how to test his ideas, or the risk of having his beliefs exposed as delusion is too great.

Critical comments on Valerie Vaughan's *Re-bunking the Debunkers*

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July 2000

An expanded version of an article in *Skeptical Inquirer* 23(6), 37-43, Nov/Dec 1999

Abstract -- The US astrologer Valerie Vaughan is a prominent debunker of articles critical of astrology. Her usual ploy is to ignore the many informed critiques, dismiss the rest as uninformed, ignore negative evidence, and promote the rest as huge support for the grandiose claims of astrology. In other words she manages to behave exactly like the worst of the critics she condemns. When these deficiencies were pointed out in a response to an earlier Vaughan article, her reply (which is the article reviewed here) again failed to address informed critiques, again ignored negative findings, and again overstated the support from supposedly positive findings. Her article is better referenced than is usual among astrologers (Vaughan has a Masters degree in Information Science), but otherwise it adds nothing to the debate. 25 references.

My analysis (Kelly 1999) of astrologer Valerie Vaughan's (1998) debunking of skeptics led to a wordy, rambling rebuttal in Vaughan (2000). The central issues regarding the status and evidence for astrology were not confronted, whereas most of her response sidetracked to the meaning of "astrologer", criticism of CSICOP, lack of funding for astrologers, qualifications to research astrology, name calling **Note 1**, and misinterpreting statements and projecting them onto critics as "logical fallacies" **Note 2**.

Memo to reader: Notes need not be referred to as they occur. They can be read more conveniently, and without loss of relevance, as a whole at your leisure once the main text has been read.

Vaughan's earlier debunking article (Vaughan 1998) in *The Mountain Astrologer* criticized debunkers for being uninformed about astrology. In response, I pointed out that her article did not address informed critiques (Kelly 1999). In *Rebunking the debunkers* (2000) she again did not address this issue. There exist many informed critiques of astrological tenets such as Dean and Mather (1977), Eysenck and Nias (1982), the critiques of Michael Gauquelin, along with a large number of articles in *Correlation*. These informed critiques are nowhere examined by her, and are generally ignored by the astrological community.

Positive and negative research into astrology

Vaughan (2000) says the negative findings on astrology are the product of biased, uninformed debunkers. Properly conducted studies, we are to infer, would provide only positive results. Further, she says articles by debunkers cite the same negative studies from their own camp (CSICOP), and ignore the "original astrological research by Michael Gauquelin or John Addey, [and] the astrologically-informed studies of Percy Seymour, Patrick Curry, and John Anthony West". This really takes chutzpah. First of all, most of the negative research cited, or alluded to, in Kelly (1999) was published in the astrological research journal *Correlation*, and *Recent Advances in Natal Astrology* (Dean & Mather 1977) a book which was encouraged and sold by the Astrological Association of Great Britain.

Second, Vaughan's proposed "astrologically informed studies" do not provide the support she misleadingly tries to convey to her astrological readers. Many of Gauquelin's findings

were negative concerning the claims of classical astrology (regarding zodiac signs, planetary aspects, and the whole horoscope), and his (very weak) positive findings on planetary configurations at the birth of eminent professionals were inconsistent with the grandiose claims found in astrology books (see Kelly 1997:1039-40). As the astrologer Lois Rodden (undated) points out:

It must be stated that even if one accepts the Gauquelin plus zone results, they fly in the face of traditional astrological understanding of the weakness of cadent houses and have no practical value for consulting astrologers.

Percy Seymour is interested primarily in the Gauquelin research and attempts to explain it with speculative sunspot related magnetic disturbances. One might well ask, if solar disturbances of the geomagnetic field are of astrological relevance then why is it that sunspot numbers, known for centuries, have not long ago been integrated into birth charts? It is also of relevance that Seymour does not put the emphasis on date of birth that astrologers do.

John Addey contended that astrologers writing in magazines like *The Mountain Astrologer* are doing it wrong. Addey hoped to unify astrology on the basis of his theory of planetary harmonics. Traditional astrology regards planets as related to each other in a horoscope when they are at particular angles to each other (such as 0, 60, 90 and so on). Addey believed that astrologers should, instead, view planets as having cyclic effects around a circle. Here both positive and negative halves of each circle would contribute to a continuous degree of relationships. Consequently, Addey found fault with most of tradition unless it was reinterpreted in terms of harmonic wave functions. Finally, Patrick Curry is a historian and not a researcher, and neither is West a researcher. Neither Curry or West have published research studies examining astrological claims. West wrote a survey of evidence for astrology with the same blind eye to negative results shown by Vaughan (see *Astrology strikes back* on this website under Book Reviews).

The nature of astrology

As with many astrologers, Vaughan's writings are never clear regarding the nature of astrology. At times she tells readers that scientific approaches are irrelevant or peripheral to astrology. At other times, we are told the opposite, indeed, that scientific research has provided proof of astrology. For example, in Vaughan (1998) we read, "here are a few reasons why the scientific method cannot be applied to astrology" and astrology is a "non-scientific endeavor". She even goes as far as to say, "Analyzing astrology with the tools of science is as inappropriate as trying to measure consciousness with a spoon" (Vaughan 1998). Similarly, in Vaughan (2000) we find, "The point is (and it cannot be repeated too often), the scientific viewpoint is one way of observing the world, and astrology is another". **Note 3**

In the same article, Vaughan (2000) then seems to give science a limited contribution to astrology: "When the scientific approach is used with astrology, there must be a clear understanding of the limits of scientific analysis." These limits seem to be conveniently forgotten when Vaughan finds any indication of scientific evidence for astrology, so in Vaughan (1996) we are told West's book *The Case for Astrology* provides us with "experiments that have *proven* the validity of astrology" and "perhaps the best known *proof* of astrology lies in the voluminous files of Michael Gauquelin" (italics mine). These are strong claims indeed! No caveats or reservations regarding the scientific method are expressed here. **Note 4**

Further, Vaughan (1995, 1996) considers all sorts of empirical correlations as evidence for astrology. To muddy the waters even further we are told, "And when we are dealing with matters concerned with meaning (such as astrology), other non-scientific tools may be enlisted for more appropriate analysis "(Vaughan, 2000) So, is the "proof" obtained by Michael Gauquelin now inappropriate, or only marginally relevant? And what are these non-scientific tools, and how do they help resolve conflicts between astrologers, or contribute toward separating valid from invalid tenets in astrology? And where are the studies using these tools? We are not told. No wonder funding of research into astrology is a problem.

Lunar studies and astrology

An interesting example of Vaughan's (2000) ambivalence about the relationship between scientific research and astrology is found in her discussion of studies of moon phase and crisis calls. In a commentary on a study on crisis calls in British Columbia by Bickis, Kelly, and Byrnes (1995) she notes, in a after-the-fact analysis, that the days of 5 Nov 1991 (when the Sun, Moon, Mars, and Pluto were conjunct in Scorpio) and 17 and 18 Dec 1990 (when the moon was conjunct a massive alignment of Venus, Uranus, Mercury, Neptune, Saturn, and the North Node in Capricorn) were associated with unusually high numbers of crisis calls.

This is said to be astrologically revealing. But what does this after-the-fact search tell us? We were not warned publicly by astrologers to be careful on these days. Vaughan engages in no exploration of past associations of similar conjunctions with terrestrial disturbances to give credibility to the post hoc analysis. No suggestions are made that other studies on crisis calls be examined, covering the same time period as the Bickis et al study, to confirm the importance of these post-selected days. We are not even told what should have been astrologically expected on these days. Does the astrological symbolism suggest an increase in crisis calls in British Columbia? An increase in calls everywhere?

In the Bickis et al. study, over the first two years (of a three year study) the 10th and 25th days of the lunar cycle were found to have more crisis calls than other days of the lunar synodic cycle. These days 10 and 25 did not show up in the third year of the analysis. However, Vaughan (2000) says that astrologers have warned us about these days of the lunar cycle: we are told that astrologer Jeff Mayo warned about the 3rd, 18th, 10th and 25th days of the lunar cycle, astrologer Erlewine talks about the 10th and 25th days **Note 5**, and the poet Hesiod warns about the 25th day. Apart from internal differences among these sources, for example they differ in subsets of what days are noteworthy, it is not clear that the meaning assigned to these days is the same within the three sources.

For example, Erlewine mentions that the Eastern astrological traditions relate the 10th and 25th days of the lunar cycle to masculine and feminine energies respectively. What follows from this? It doesn't follow that both energies will be expressed in the same (negative) way or in terms of elevated crises. Further, if these two days are of such importance, then one would expect the same days to be prominent in other studies. Vaughan makes no attempt to find out. The reader can examine over 25 studies conducted on crisis calls, and the 10th and 25th days do not stand out in other studies, again suggesting nothing particularly significant about these days.

It seems that for Vaughan, one part of a study is noteworthy if there is a whiff of potential support for astrology, ignoring both the other failed replication part of the

same study, and failures to replicate with other studies. Furthermore, the "support" conflicts with what she and other astrologers say elsewhere, since the two lunar days are isolated "lunar day" factors! Astrologers [see Vaughan (1998)] are continually telling people (especially skeptics) that testing isolated factors is inappropriate since this ignores the complexity of astrology **Note 6**. It seems that for many astrologers, whether isolated factors can be tested or not depends on the results: if the findings are positive, testing isolated factors is appropriate; if the results are negative, the argument regarding the complexity of astrology is brought up to explain them away **Note 7**.

Vaughan's discussion of research on the moon's anomalistic (apogee-perigee) cycle is also noteworthy for what it leaves out or muddies over. Many astrologers have alluded to the moon's tidal or gravitational pull on the earth as relevant to astrology. The classic line by many astrologers (check out astrologers' web sites and popular writings) has been "If the moon can do that to the tides, imagine what it can do to you!" **Note 8**.

Furthermore, many popular "moon madness" theories attribute more undesirable behavior to stronger lunar pull (which occurs at perigee), see for example, Katzeff, (1988) *Moon Madness* and Lieber, (1978) *The Lunar Effect*. One might well ask, are lunar studies of folklore relevant to astrology? Our own research assumed not, and most investigators of lunar relationships with human behaviour do not make a connection between the two, but Vaughan equivocates here.

In Vaughan (2000) she criticizes those who equate lunar studies of folklore with astrology, and asks of the Bickis et al crisis call study "What does this study have to do with astrology?" Indeed, astrology was not even mentioned in the article. Elsewhere, Vaughan tells us otherwise. In Vaughan (1996) we are informed that extraterrestrial-celestial correlations provide evidence for astrology, and Katzeff's (1988) *Moon Madness* is mentioned as providing such evidence **Note 9**. But, in Vaughan (2000), the same type of studies cited in Katzeff are considered tests of "folklore beliefs", and viewed analogous to the sin of considering newspaper horoscopes as serious astrology. (For more on Vaughan's confusions between science and astrology see Kelly & Dean, 2000).

Self-attribution and explanation

Vaughan's (2000) confusion regarding what is involved in providing an explanation for phenomena is evident in her discussion of self attribution. An explanation must tell us why things are like this and not like that. The hypothesis of self-attribution refers to peoples' prior knowledge of astrology influencing their answers to questionnaires or influencing their decisions. Eysenck (Eysenck & Nias 1982) found that his own initially positive results on zodiac signs (published in 1978 with the astrologer Mayo) were found to only hold with individuals with some knowledge of astrology. The self-attribution effect was a very weak group effect, but would account for the similarly very weak effects found in zodiac sign studies.

Since the attribution effect was subsequently replicated in a number of studies, it became a factor that was important to take into consideration in astrological studies where prior knowledge of astrology could confound the findings. Therefore, studies not controlling for this factor could have results that were ambiguous. Self-attribution cannot be considered a speculative flaw (as Vaughan claims), in studies that do not control for prior knowledge because it has already been shown by Eysenck and others to be a serious competing explanation in such studies. The importance of considering self-attribution was also emphasized by Gauquelin (1983:134-136), who told readers, "If astrology is potentially a science, then it demands extra caution in field research. One

must never lose sight of the possibility of alternative explanations, as the scientific jargon has it, and this involves finding out whether positive results can be accounted for logically and simply, quite apart from any astrological law."

The self-attribution hypothesis would not be a competing hypothesis where prior knowledge of astrological tenets was unlikely, as for example, with studies of asteroid or orb symbolism, or on topics associated with signs that study participants would be unlikely to know (and this could be independently checked). Vaughan, on the other hand, criticizes the notion of self-attribution by saying that it could contaminate all studies and surveys. Indeed, it may be one factor among many, that influence people's beliefs. Some other factors may be age, gender, religion, educational level, socio-economic status, ethnic background, and so on. Social psychology and sociology are interested in exactly these kinds of influences.

When people are tested for their beliefs in studies unrelated to astrology, Vaughan asks if people suddenly drop beliefs related to astrology. Of course not, any more than they drop their religious beliefs in studies unrelated to religious topics. The questions about self-attribution Vaughan raises have been known and discussed by social scientists for over a century. Vaughan seems to be under the mistaken impression that sun sign self-attribution is a very powerful effect that can really subvert all studies. Its relevance is important when sources of belief are considered, and especially when astrology itself is the topic of investigation, just as in studies examining what people know about learning disabilities one should examine prior sources of knowledge such as media exposure on the topic.

Vaughan (2000), still on the topic of self-attribution, says "how will we be able to tell whether someone is truly an extravert or just another person who thinks he's one because he knows his Sun-sign?" Well, it must be repeated again that self-attribution is not the only factor, nor even a strong contributing factor, to people's beliefs about themselves. Whether one considers oneself an extravert will be influenced by many sources of information, such as: first hand experience in the company of others (do we enjoy the company of others and spend a lot of time interacting with them), verbal feedback from others ("You are very outgoing"), by comparisons of our behaviour to that of others, and so on. Our view may also be influenced by our knowledge of the characteristics associated with our sun sign, or by readings in numerology, palm reading, or psychology (prior knowledge can be checked here as well).

Unfortunately, this reasoning of Vaughan's can boomerang back on astrologers in a more virulent way. Vaughan suggests the explanation of self-attribution is an all-round excuse trotted out by skeptics whenever positive findings emerge. This is really ironic. We know of situations where self-attribution does not apply, and we can determine the strength of any attribution effect relative to other contributions to behaviour.

Now let us ask similar questions of astrology: What are the limitations of astrological explanations? How strong are astrological contributions to temperament and behaviour? Are there situations where astrology does not apply to humans? Do astrological factors interact with psychological, sociological, and heredity factors? Or perhaps both psychological and heredity phenomena are considered manifestations of an all encompassing, underlying, mysterious astrological or symbolic reality? (And if the latter, how could we show this, and could we ever find out otherwise?)

On the perspective which seems to be prevalent among writers in astrology magazines like *The Mountain Astrologer*, the astrological worldview is all encompassing and related to everything that happens. In *The Mountain Astrologer* (described on the web site as "widely acknowledged as the best English-language astrology magazine in the world today"), astrologers relate every mishap, calamity, and happy event, in both their own lives and those of others, to planetary configurations. From this metaphysical perspective, whatever happens is almost by definition, consistent with the astrological symbolism. While such self-sealed systems and their resultant stagnation may be popular in many segments of the astrological community, debate and change characterize disciplines elsewhere.

Who should research and write on astrology?

A recurring theme throughout Vaughan (2000) is the issue of who is competent to conduct research on astrological claims, or even write about astrology. In the first two pages of Vaughan (2000) she tells readers that the possession of appropriate research skills and training in astrology are required to conduct research. She mentions that while astrological institutes do not require research skills, astrologers may have learned these skills elsewhere. A central issue is why conduct research at all if it makes no difference to astrological theorizing or practice? Has Gauquelin's or Addey's research had any impact on astrological practice? Where do articles in *The Mountain Astrologer* or *The Astrological Journal* take into account such research findings? Have the reviews of research published in Eysenck and Nias (1982) or Dean and Mather (1977) led astrologers to drop techniques or claims not supported by research? Not at all.

As for the credentials required of those writing about (rather than researching) astrology, Vaughan is less clear, but she asks for "evidence of debunkers actually studying astrology...just as biologists study biology...". She suggests at the end of her article that "passing a certification test in astrology" would be sufficient evidence. Unfortunately this creates problems for the astrological community. Have all the writers in *The Mountain Astrologer* passed certification exams? Are many not self-educated? Cannot debunkers similarly be self-educated in astrology?

She mentions the "astrologically informed studies of Percy Seymour, Patrick Curry, and John Anthony West." Have these "astrologically informed" individuals passed certification tests? In Vaughan (1996) readers are recommended books that provide support for astrology and "should be important additions to the astrologer's library". The authors of these books include Paul Katzeff, Hans Eysenck, and Edward Dewey, none of whom passed astrological certification exams, nor likely studied astrology in any depth, nor were practicing astrologers. Eysenck (the psychologist who emphasized the importance of controlling for self-attribution in astrological research) writes in *Astrology: Science or Superstition?* (one of the books Vaughan suggests to readers):

We [Eysenck and Nias] do not claim to be experts in astrology, and we could not interpret a birth chart with any degree of confidence; but that is not important. Training in psychology and statistics enables us to evaluate evidence for the kinds of statements made by astrologers.

Should Vaughan now remove this book from her suggested reading list? It most certainly seems that, for Vaughan, the honorific title "astrologically informed" is applied utilizing criteria that have no discernable consistency.

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Notes

As already mentioned, these notes need not be referred to as they occur. Instead they can be read more conveniently, and without loss of relevance, as a whole.

Note 1. Critics of her articles are pathologized by Vaughan (2000) as "troubled voices", and those "who didn't like their rigid ways of thinking disturbed." Even astrologers associated with *The Mountain Astrologer* who express views at variance with her own are maligned. The astrologer Brad Kochunas (1999) describes several of my articles as "marvelous" and thought provoking. Vaughan (2000) is outraged, and says, "Mr Kochunas evidently lacks the will or the insight to see through the flimsy arguments of debunkers." Geoffrey Dean, an ex-astrologer and skeptic, is similarly marginalized as a "turncoat" and a "shadow."

She ends her article with "Mr Kelly apparently knows so little about astrology that it is difficult to conduct a real dialogue." Other astrologers see it differently. Nick Campion, a historian and past president of the British Astrological Association, and author of many books on astrology, writing in the March 1998 Astrological Newsletter *Transit*, says, "Unlike many skeptics, Ivan Kelly is well-informed." Further, over the last decade all three editors of the astrological research journal *Correlation* have asked me to be on their editorial board. Would the top journal researching astrological claims, owned by astrologers, ask uninformed people to be on its review board?

Note 2. Vaughan (1998) complained that astrologers receive no funding for research, unlike those in other disciplines. My response (Kelly 1999) was that astrologers need to incorporate research courses into their training institutions, since "astrologers generally have no training in how to conduct or evaluate research and therefore could not do it even if they had funding." Vaughan (2000) rephrases my statement as "Since astrologers have no research training, they will therefore never be able to perform research even if they had funding." (my italics). Note how dropping the word "generally" and adding her own "never", changes the original sense of the statement. By adding further assumptions of her own, she manages to pull off some remarkable inferences from her revision of my statement.

Another example: Vaughan (1998) accuses skeptics of scientism. I respond (Kelly 1999) by pointing out that labeling people does not mean that one can a priori dismiss their arguments without examination: "Even if scientism were typical of debunkers, they could still be right about astrology. After all, human history is full of rakes, bounders, racists and sexists, all arguably as disreputable as disciples of scientism, who have nevertheless sometimes been right about some things." One might think of sexists like Schopenhauer, and racists like David Hume. Or those like Descartes who thought animals were non-sentient machines. However, by ignoring the word "disreputable" in my quote, and deliberately misrepresenting it, Vaughan (2000) infers the following howler: "he has evidently suggested some approval of racists and sexists, as well as their affinity with debunkers like himself." Such inferences belong in a Monty Python argument skit or a Seinfeld episode

Note 3. Vaughan, at times, seems to view astrology as an alternative worldview to science. She often uses the term "paradigm". But can astrology be considered a paradigm? There is a paradigm when practitioners in an area reach agreement over fundamental matters, including agreement on theory, instrumentation, and appropriate

methodology for solving problems and investigating the world (Kuhn 1970, 1977). Where is such a consensus within the astrological community?

Paradigms can, moreover, unlike astrology, eventually be undermined from within by the accumulation of unsolved anomalies, and from without by replacement by more successful paradigms. Certainly Kuhn did not consider astrology an alternative paradigm. In the case of astrology we seem to have schools of astrology, each consisting of their own set of non-negotiable dogmas. Entering the new millennium, astrology is a caldron of conflicting voices with little agreement on anything, the nature of astrology itself is in dispute, and its relationship to science is unclear (see Kelly 1997; Cornelius, Hyde, & Webster 1995, pp. 140-145). At best, after several millennia, astrology can now be considered to be in a pre-paradigmatic state.

Note 4. In addition to the purported empirical support, Vaughan (1996) states that there is also theoretical scientific support for astrology: "Some of the greatest scientific minds have shown that time-travel and other conditions necessary for UFO's and intuitive arts like Astrology are theoretically possible. Yet scientists continue to deny that astrology has any validity." Vaughan's jump from "theoretically possible" to "has validity" is a non sequitur. Further, if time-travel is a necessary condition for the plausibility of astrology, then problems in the notion of time-travel also reduce the plausibility of astrology [See Grey (1999) for a discussion of some of the conceptual and metaphysical difficulties with the idea of time- travel].

Note 5. An examination of the data provided by Erlewine (no date) cited by Vaughan indicates that both have misrepresented the findings. Vaughan (2000) writes, "This particular lunar cycle [synodic cycle] has also been discussed in a recent article by astrologer Michael Erlewine, who points out its relationship to cycles of geomagnetic disturbances. He notes scientific studies showing that the 10th and 25th days are important days in the cycle of Polar Cap Absorption, and how this correlates with the significance attributed to these same days by ancient Eastern astrological traditions."

Erlewine (undated) says, " The Kp-geomagnetic index varies with the lunar phases. When the moon is less than 3 = degrees from the plane of the eclipse, geomagnetic activity reaches a mimimum during the 2nd lunar quarter and a maximum during 3rd lunar quarter....There is also a minimum in the Kp-geomagnetic index during 2nd quarters when PCA and Forbush decreases re at a maximum. It has been suggested that at 2nd quarter the moon may least disturb the geomagnetic field, which is, at that time, most active. There is a sharp rise in the Kp index just prior to full moon and continuing into third quarter."

However, an examination of the Bell and Defouw (1966) article referred to by Vaughan and Erlewine show that it is not so straightforward. The plot in Figure 1 of their article indicates the position of maximum magnetic influence clearly shifts with lunar declination. To complicate things further, the lunar declination varies each month from just over 5 Deg N to 5 Deg S, with a period of approximately 27 days. In addition, the Kp scale is defined within general geophysics on a kind of logarithmic scale. As a consequence of this logarithmic definition, the "sharp rise in the Kp index" is extremely small compared to the magnetic disturbances during the solar induced auroras; not to mention the magnetic influences (geomagnetical and technological) depending on how and where you live.

If effects related to Kp and geomagnetism should have any astrological relation, astrologers should discuss not only the geographical latitude and longitude itself, but also allude to the magnetic latitude and longitude when constructing a horoscope (the present magnetic north is actually placed in Northern Canada, and as a consequence, people in the Northern USA have a relatively higher chance of observing auroras than people living at the same geographical latitude in Europe). How many astrologers do this?

[If crisis calls and astrology are related to geomagnetic activity, as suggested by Vaughan and Erlewine, why did astrologers not give us advance warning before 13 March 1989, when a most powerful solar eruption, followed by Polar Cap Absorption, high Kp values, and widely visible auroras, caused power failures/blackouts in parts of Canada and Sweden? Unfortunately this event happened on day 6 in the lunar cycle -- a day not mentioned in the extensive list of Vaughan's astrological bad luck warning days. One of the greatest PCA events recorded also happened on 13 March 1989, parallel to a magnificent aurora display that was observed as far south as the Caribic].

Finally, modern research indicates the PCA events mentioned by Vaughan and Erlewine are not related to lunar factors, but instead related to phenomena (eg active sunspots) on the sun (see Ranta, et al. 1993). PCA is absorption of radiosignals according to modern research (Ranta, et al. op cit), during periods of high solar energy (eruptions). The Solar Proton Events, may ionize our upper atmosphere, thus imply the absorption of HF and VHF signals in the upper atmosphere: "Solar energetic particles events produce a particular type of disturbance called Polar Cap Absorption (PCA) that lasts up to days. The deep ionization produced by the solar protons also alters the path taken by the waves reflecting from the ionosphere" (see <http://www.nas.edu/ssb/spwpt5nw.html>).

Note 6. Within classical astrology, lunar influence depends on which house the moon is passing. These houses are related to the daily motion of the earth. For example, Abraham Avenarius says, "The moon in the 8th house will give misfortune -- that is to say, heavy headaches -- mostly with a tragic end" (cited in Moberg 1969:3). But concerning the astrological houses, the moon will pass ALL houses during 24 hours. [For birth charts, astrological theory says that if someone is born with the Moon in 8, then the psychological and practical consequences going with this position apply all the native's life. But Vaughan is alluding to lunar days in regard to astrology here.]

Another factor of astrological significance may be the passage of the moon within the zodiac signs. As Moberg (1969, p.38) says "moon within Gemini implies a deformed, disfigured, ill dressed person", however, typically this takes more than two days. A few classical works on astrology emphasize a bad influence when the moon is "burned", that is, too close to the sun., a new moon: "Moon burnedmeans the native will get a short life..." (Moberg 1969:31). Strictly speaking, the total duration of burned out ranges from -6 Deg to -16' -- and again -- from +16' to +6 Deg. However, these intervals affect all together slightly less than half of the last day, and less than half of the first day within the lunar month. So in general, the notion of lunar day should not be of much interest to astrologers.

Note 7. For example, in Vaughan (1998) both debunkers and scientists who investigate the claims of astrology (and have the audacity to obtain negative results) are flayed for oversimplifying astrology, that is, by testing only isolated factors in their studies. On the other hand, when Gauquelin tested isolated factors such as the diurnal position of Mars at the birth of eminent athletes, or Smithers looked at sun sign in relation to occupation

in the 1984 Manchester Guardian, Vaughan ignored this "flaw" and claimed the studies supplied support to astrology! It is the result that counts for Vaughan.

Note 8. Apparently such astrologers don't know that the strength of tides is directly related to the size of the bodies they work on. So their line should be: If the moon does only that to a relatively static ocean, imagine how small its effect will be on a person that is five million times smaller and is usually in motion.

Note 9. Vaughan equivocates between different definitions of astrology. At times astrology is viewed as anything involving celestial-terrestrial correlations, at other times, astrology involves an entire worldview tied to symbolic associations and mythology. For example, the durability of astrology is used by Vaughan (1996) as an argument in its favour as follows: "the 'principles' of medical science are changing all the time, whereas the astrological premise (that celestial-terrestrial correlations exist) is much more stable and has withstood thousands of years of change in the practice or interpretation."

Notice the easy slip between astrology defined in the wide unspecified empirical sense (astrology = celestial-terrestrial correlations) to the impression that somehow this supports astrology in the larger Grand narrative sense (involving claims like "Hard Saturn-Neptune contacts in a natal chart indicate a predisposition toward depression"). Note also the implicit assumption in the durability argument that astrological knowledge has been cumulative over the centuries with additional information (e.g. on newly discovered planets, etc) conserving basic ancient insights and elaborating on them. Interestingly, the whole notion of paradigm that Vaughan uses quite frequently, is at variance with notions of cumulative knowledge over time (Kuhn 1970). Further, where are the arguments or studies that demonstrate that modern astrology is more successful than ancient astrology?

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Star Wars

Astrologers react to negative findings

Geoffrey Dean and Ivan W Kelly

Abstract -- Astrologers were predictably outraged by the negative findings reported by Dean & Kelly (2003) in "Is Astrology Relevant to Consciousness and Psi?" *Journal of Consciousness Studies* 10 (6-7), 175-198, a long scholarly article of 24 pages and 85 references. Tests of time twins and of astrologers had showed no support for astrology. Conclusion: The possibility that astrology might be relevant to consciousness and psi is not denied, but such influences, if they exist in astrology, would seem to be very weak or very rare. When the media picked up and distorted the findings, it led to the biggest media frenzy on astrology for 2003. By 2005, according to Google, the article was being cited on several hundred websites. Two things make the frenzy of particular interest. First, its focus is not your everyday sun sign astrology but the serious astrology of conferences and consulting rooms. Second, the frenzy brought out some of astrology's top defensive guns, allowing you to judge how well they perform when confronted by scientific findings. Astrologers in general reacted with name-calling, getting it wrong, and never citing compelling evidence to support their claims. The top guns (newspaper astrologer Jonathan Cainer, pineal expert Dr Frank McGillion, maths teacher and astrologer Vladimir Gorbatsevich) did little better. Nobody noticed that the two sides might be talking about different things (facts versus benefits) which are not mutually exclusive. It seems that media interest in astrology generally destroys any hope of informed debate. Appendix 1 gives an abstract of the JCS article. Appendices 2, 3, and 4 give Dean and Kelly's response to the main points in the Cainer, McGillion, and Gorbatsevich critiques.

The special June/July 2003 issue of the prestigious *Journal of Consciousness Studies* was devoted to parapsychology, It contained twelve long articles, and the issue as a whole received praise for its balanced approach from *New Scientist* (13 September 2003 "authoritative and accessible"), and from Amazon ("serious and responsible"). But what caught media attention was the article entitled "Is Astrology Relevant to Consciousness and Psi?", a scholarly article of 24 pages and 85 references by Geoffrey Dean and Ivan W Kelly, which one astrology website later described as "Dean and Kelly rehashing old and flawed research hype". It led to the biggest media frenzy on astrology for 2003. By 2005, according to Google, the article was being cited on several hundred websites.

Two things make the frenzy of particular interest. First, its focus is not your everyday sun sign astrology but the serious astrology of conferences and consulting rooms. Second, the frenzy brought out some of astrology's top defensive guns, allowing you to judge how well they perform when confronted by scientific findings.

Content of the JCS article

Dean and Kelly start by quoting various astrologers on how a successful birth chart reading requires some kind of psychic ability, where the chart acts like a crystal ball. If this were found to be true it might require a re-assessment of present theories of consciousness, so it deserves study. But a large-scale test of 2101 persons born on average less than five minutes apart found no hint of the similarities in personality or behavior predicted by astrology. So if astrologers (as opposed to astrology) can predict personality or behavior better than chance, as they claim to do, it might be evidence for psi.

But meta-analysis of more than forty controlled studies found no evidence that astrologers perform even marginally better than chance, even on basic tasks such as predicting extraversion (basic because according to astrologers it is one of the easiest

things to see in a birth chart). They did not even usefully agree on what the birth chart indicates. More to the point, astrologers who claimed to use psychic ability performed no better than those who did not. Dean and Kelly cautiously conclude "the possibility that astrology might be relevant to consciousness and psi is not denied, but such influences, if they exist in astrology, would seem to be very weak or very rare". See Appendix 1 for an abstract of their article. The article itself can be found at <http://www.imprint.co.uk/pdf/Dean.pdf> (case sensitive).

Distortion by the media

Normally this cautious non-link between astrology and psi might have passed unnoticed. But it was picked up and distorted by the *Sunday Telegraph* London, 17 August 2003 ("Astrologers fail to predict proof they are wrong"), and was duly copied or quoted around the world from Brazil to Finland. It was distorted because Dean and Kelly's focus was psi and consciousness, not the merits of astrology (which they had already covered, favourably, in other articles), which merits also feature elsewhere on this website for example in *Case for and against astrology* under Adroit Utilities. The result was a frenzy of misleading headlines and reports such as "Is astrology bunk?" (*Daily Mail* London, 18 August 2003), "Research paper rubbishes astrology" (*Hindustan Times* India, 17 August 2003), and "Who will put their faith in the stars?" (*Sunday Herald Sun* Melbourne, 14 September 2003).

Outrage by Indian astrologers

Regardless of the distortion, astrologers were predictably outraged and uninformed. They declared that negative results are by definition due to ignorance or hostility. Especially outraged were Indian astrologers. One said in emails "it is only a study by some crazy white b's. They do not have any brain". Another said "Most probably these two guys are unemployed". Another said "if you really want to test astrology ... the only place where the research can be justified is here in India" (where presumably men are Men and astrologers are Astrologers).

Perhaps the most notable response from India was "Astrology is Science, not Rubbish" (*India Express* 25 August 2003), where Dr Raj Baldev "who is considered an authority on the subject of Astronomy, Astrology, Cosmo-Mathematics and Metaphysics" (he has a website www.occultastrology.com offering "The perfect gift. Occult Horoscope by post. Only \$6.95") said Dean and Kelly had made "an abominable mistake that can never be pardoned". He explained that ancient Hindu astrology "is a complete science" where even one million billionth of a second "makes a lot of difference". So it is ridiculous to believe that people born a few minutes apart should be similar. (Measuring birth times to a million billionth of a second implies that the position of shadows cast on ancient sundials was routinely read to better than a hundred millionth of the diameter of an atom. Even at night. Should we believe it?)

Views of Western astrologers

Western astrologers did not hesitate to give opinions without having read the article. In a Melbourne radio interview, Brian Clarke from the Australian Federation of Astrologers explained how there was more to astrology than sun signs, so all was well (in fact the Dean and Kelly article had nothing to do with sun signs). In *The Guardian* London, 19 August 2003, astrologer Neil Spencer noted how astrology can "send arch-rationalists into fits of self-righteous indignation" (like his?), how the article lacks details (not true), how it ignores the positive results of Vernon Clark and Gauquelin (not true), and how the "Magi Society [an international society of astrologers based in New York] ... still has to receive a riposte to its statistical challenges" (one is in *Skeptical Inquirer* March-April

1997, see the update *Astrology Really Works!* on this website under Book Reviews). He ends with "Astrology is not a science but a symbolic, allusive language" (boo to Dr Baldev), as if that somehow excused its failure to deliver on testable claims, to which the sociology website www.butterfliesandwheels.com replied, "Oh that old ploy".

The most orchestrated response came from the AA (UK Astrological Association), which in 2000 had refused to publicly declare its position on sun signs despite overwhelming evidence for their invalidity (see *Response to an invitation* under Sun Signs). The AA president Roy Gillett accused Dean of seeking to "discredit astrology". The AA website www.astrologicalassociation.com accused Dean and Kelly of having a "tortured imagination" and "defensively closed mindsets" that "deny astrology an even-handed debate", to correct which it then gave "a balanced response" via two reports that together "comprehensively dismiss these outrageous and disingenuous claims".

Jonathan Cainer's report

The first report, which originally appeared in the *Daily Mirror* London, 18 August 2003, was by "world renowned astrologer Jonathan Cainer". Cainer has his own astrology phonelines, and according to the *Sunday Times* London his estimated income of 2.2 million pounds a year puts him among the top 150 UK earners. Cainer begins by complaining that it cost him 15 pounds to download the article, whereupon he was suspicious the moment he saw the authors' names (refutation by name-calling?), claiming that Dean deliberately misunderstands what astrologers do (Dean is a former astrologer and understands very well what astrologers do).

Cainer then drops a series of clangers -- personality tests are "dangerously unreliable" (not these ones), "most scientists hate astrology" (most have better things to do), the tests covered ages only up to 23 (so Cainer rejects phonenumber callers aged under 23?). His most notable clanger was "Once again, it turns out to be an experiment rigged to make astrology look silly" (in fact it was the AA who proposed the experiment in the first place, not in a moment of weakness but in a well-researched eight-page proposal prepared when the subjects were seven years old). He ends with "And some scientists claim to have a truly open mind" (like his open-minded behavior towards negative findings?).

Cainer's piece was later featured in a double-sided insert page in the *Astrological Journal* 45(5), Sep-Oct 2003, as a response to Dean and Kelly "announcing to the world media 'new' research 'showing' astrology is not 'true'!!". See Appendix 2 for Dean and Kelly's response to Cainer's main points.

Frank McGillion's report

The second report was by "leading author and academic Dr Frank McGillion", a consultant to the astrological research group at Southampton University, who is said to find the article "essentially flawed and well below expected academic standards". McGillion proceeds by quibbling about definitions without providing his own definitions, dwelling on side issues without explaining their relevance, citing unspecified "evidence" without supporting references or arguments, and generally declining to act the way he tells Dean and Kelly to act.

He says a focus on consciousness and psi "might seem less relevant ... than the authors appear to consider" (the call for papers required it), he dislikes "the citation of names of non-scientists in formal scientific papers" (so how to give astrologers' views without citing astrologers?), and he says editing such psi papers "is a demanding task for the

non-specialist" (one editor was world expert James Alcock). At the end he generously allows that "there is much here that astrologers can learn from" (so Cainer was wrong to call it "a load of rubbish"?). Nevertheless conspicuously absent is a description of what Dean and Kelly did and a critique of their results (refutation by censorship?). McGillion later provided updates that notably failed to fill the gap, see below.

Claims of credibility are clearly not helped when the AA, which calls itself "one of Europe's leading astrological organisations", can see these two reports as "a balanced response" and "even-handed debate".

Other responses from astrologers in 2003

Other astrology websites uncritically recycled the reports almost verbatim. For example www.astrology.co.uk said Dean and Kelly were "manipulating results ... using self-fulfilling personality tests ... selecting data to fit results", and dropped new clangers such as implying the average birth interval was one day (it was less than five minutes), and asking "who says astrologers are psychic?" (answer: the astrologers and surveys quoted). Another website said "Dean and Kelly are known to be opponents of astrology", as if seeking evidence was an act of heresy. Similarly, in *The Mountain Astrologer* for Dec 2003, the American astrologer Gloria Star (without reading the article) said "the research itself appears to be significantly flawed".

Without exception the astrologer responses boiled down to name-calling, getting it wrong, and never citing compelling evidence to support their claims. Even serious media outlets adopted this distortion. For example in the New Zealand *Listener* (4 October 2003), in an article subtitled "a recent study claims to debunk astrology once and for all" (not true), astrologers and skeptics are seen as being permanently locked in "trench wars" and "long feuds". Furthermore, serious studies are seen as attacks on astrology, researchers are seen as debunkers, and astrologer quotes such as "you will never get a correlation that is significant, because we are dealing with individuals", are seen as an adequate response to a negative meta-analysis that involved individuals. So "In the end, you either believe or you don't" (yes, why have tests when you can have shouting matches?). In the end readers receive only titillation for the hard of thinking. Such outlets never notice that the two sides might be talking about different things (facts versus benefits) which are not mutually exclusive. It seems that media interest in astrology generally destroys any hope of informed debate.

Later, in the January/February 2004 issue of *The Astrological Journal*, AA President Roy Gillett added "Of course it is easy to answer the Dean/Kelly/Randy/'CSI COPS' (and all other) criticisms", presumably as easy as misspelling Randi and CSICOP, but he conveniently omitted to say how. Most likely he meant more of the same getting it wrong.

Subsequent astrologer responses in 2004

In *Correlation* 22(1) 63-67, 2004, the AA's journal of research in astrology, McGillion presents an update of his website report. In it he claims the JCS article ignores relevant literature, is wordy, vague, illogical, factually incorrect, poorly researched, poorly edited, with imprecise definitions, nonsensical statements, loose terminology, fallacious reasoning, much unnecessary speculation, and much unnecessary material. So he is "not convinced it makes any meaningful contribution to consciousness research". Evidently McGillion thinks the article and the entire JCS issue is (or should be) about consciousness research, not parapsychology. His focus is consequently wrong from the start.

Inexplicably, McGillion fails again to mention the aim of Dean and Kelly's article, their results, their conclusion, or their discussion of artifacts and hidden persuaders. He does not even mention the word *parapsychology*. The result is a series of glaring irrelevancies, like criticising a restaurant menu without once mentioning food.

Dean and Kelly pointed out the above omissions in a letter in *Correlation* 22(2), 62, 2004. But McGillion's response (pp.63-64) did not rectify them. He still said nothing about the aim, methods, results, or conclusion of Dean and Kelly's article. He still said nothing about what astrology can deliver, what the most promising areas are, and what if anything is wrong with the present negative evidence. Instead it was more glaring irrelevancies, for example arguing that the topic could not be parapsychology because "It's the *Journal of Consciousness Studies* for goodness sake!". See Appendix 3 for Dean and Kelly's point-by-point response to a selection of McGillion's irrelevancies.

Subsequent astrologer responses in 2005

In 2005 the ISBA website featured a critique by Russian maths teacher and astrologer Vladimir Gorbatsevich. Unlike McGillion he manages to mention the actual results, but dismisses them as "erroneous" on the grounds that the birth data were inadequate and the measures were invalid. But the data and measures were essentially no different from (and were in fact generally better than) those used by astrologers, so by his argument the claims of astrologers can also be dismissed as erroneous. Unfortunately the author seems unaware of this fatal flaw. He also supports his arguments by generally misrepresenting what Dean and Kelly say, by ignoring the results of relevant research, and by never indicating what measures he would accept instead, which of course does nothing to advance the debate. See Appendix 4 for Dean and Kelly's response to Gorbatsevich's main points.

Conclusion

Evidently the AA, Cainer, McGillion, and Gorbatsevich do not like awkward facts. But what they present as counter evidence are essentially arguments by distortion and innuendo, not arguments by experiment or informed reason. In short, they fail to advance the debate and have thus done astrology a disservice. Whatever we may think of astrology, it deserves better than this.

Appendix 1. The article by Dean and Kelly

"Is Astrology Relevant to Consciousness and Psi?" *Journal of Consciousness Studies* 10 (6-7), 175-198. Available online at <http://www.imprint.co.uk/pdf/Dean.pdf> (case sensitive).

The article occupies 24 pages (over 13,000 words) with 4 tables and 85 references. Contrary to what the AA says, it does not set out to disprove astrology, and other than a single application to newspaper horoscopes the word *nonsense* does not appear. Nor do synonyms such as *rubbish*. The first half looks at the views of astrologers on consciousness and psi. The second half looks at the relevant evidence.

Abstract -- Many astrologers attribute a successful birth chart reading to what they call intuition or psychic ability, where the birth chart acts like a crystal ball. As in shamanism, they relate consciousness to a transcendent reality that, if true, might require a re-assessment of present biological theories of consciousness. In Western countries roughly 1 person in 10,000 is practising or seriously studying astrology, so

their total number is substantial. Many tests of astrologers have been made since the 1950s but only recently has a coherent review been possible. A large-scale test of persons born less than five minutes apart found no hint of the similarities predicted by astrology. Meta-analysis of more than forty controlled studies suggests that astrologers are unable to perform significantly better than chance even on the more basic tasks such as predicting extraversion. More specifically, astrologers who claim to use psychic ability perform no better than those who do not. The possibility that astrology might be relevant to consciousness and psi is not denied, but such influences, if they exist in astrology, would seem to be very weak or very rare.

Appendix 2. Critique by Jonathan Cainer

Cainer's critique originally appeared in the *Daily Mirror* London, 18 August 2003. The AA says Cainer "makes several important scientific points about the limitations of the conceptual foundation and research procedures of the Dean/Kelly article." Cainer's main points are shown below with a response from Dean and Kelly (D&K):

What a load of rubbish. Geoffrey Dean gave some personality tests to volunteers. He then asked some astrologers to predict how shy or outgoing those volunteers would turn out to be. So far, so good. But in questionnaires like this, people are notoriously naughty. They will tend to say what they think makes them sound good. So liars will describe themselves as honest, show-offs will say that they really do not seek attention and bigots will call themselves fair minded. Such "tests" are dangerously unreliable as many observers, in the last 18 years, have been at pains to point out.

D&K: Psychologists have been aware of this for considerably more than 18 years. So the test used avoids such problems. In fact astrologers themselves have used such tests in their published research.

Dean and Kelly though, don't care. They just gleefully report that the astrologers got it wrong ... because they described what the subjects were *actually* like instead of predicting how they might try to paint themselves in the personality test.

D&K: Not so. The astrologers failed to usefully describe what the subjects were *actually* like. In fact to avoid ambiguity only the most extreme subjects were used, and the required judgements (of extraversion and emotionality) were chosen because astrologers had rated them as easy to see in birth charts.

The study contains another old chestnut involving time twins. They looked at the lives of 2,000 people all born in early March 1958. They grouped each of these up into pairs and sought similarities between their levels of intelligence, anxiety, weight and height.

D&K: And over 100 other variables, all said to be shown in birth charts.

They didn't find many. This, they say, disproves astrology yet again. It sounds impressive till you realise that the pairings were made arbitrarily, without any cross-referencing to the wider group.

D&K: Whatever that means. In fact the pairings were made successively, first of births close in time (less than 5 minutes), then of births further apart, then of births further apart still, and so on up to births 48 hours apart. There was nothing arbitrary about it.

Astrology predicts that similarities should increase as the births get closer in time. But there was no noticeable effect.

The "tests" were performed only at the ages of 11, 16 and 23.

D&K: This makes sure that the characteristics are stable. But so what? Astrologers (and especially JC) are not noted for restricting their services to people over 23.

And *all* the participants were Piscean. Hardly a fair test of the whole zodiac!

D&K: But a fair test of Pisceans and factors other than sun signs. Will JC now have disclaimers in his Pisces phone line? But fair tests of the whole zodiac have been made many times, always with negative results, see the articles on this website under Sun Signs. JC should have disclaimers in *all* his phone lines.

Once again, it turns out to be an experiment rigged to make astrology look silly, whilst cheekily claiming to be extra fair.

D&K: Actually it was the AA itself who proposed this test in 1965 when the time twins were only 7 years old. It was a well-researched proposal of 8 typed pages entitled *Proposal by the Astrological Association for the investigation of the basic astrological hypothesis*, the hypothesis being that birth data "have important implications for the personality and life history of the native". Specific variables are identified, predictions are made, and the statistical tests are spelt out. Was the AA rigging everything to make astrology look silly? Why was the AA happy with age 7 when (according to JC) even ages 11, 16 and 23 are suspect? JC does not tell us.

This though, is nowhere near as wicked as their next trick which involves testing astrologers for clairvoyance! Most astrologers claim no such power. Why would we go to all the trouble of calculating an accurate map of the sky ... only to let our minds go blank and say the first thing that comes into our heads?

D&K: Our focus was not clairvoyance but intuition. Evidently JC does not know the difference. We quote leading astrologers, all of whom say that intuition is required for the best readings. Some non-astrologers, eg Freud, have said the same.

Ah, say Kelly and Dean, "But some astrologers *do* claim to be psychic." Sure guys. And some scientists claim to have a truly open mind.

D&K: Sure Jonathan. Like your open-minded behaviour towards negative findings?

The sorry truth though, is that most scientists hate astrology with a vengeance.

D&K: Actually most scientists have better things to do than bother with astrology. After all, over the past few centuries it has made no useful contributions to science or philosophy, and seems quite unlikely to.

Academics who ever dare to remotely suggest a finding in favour of astrology have their work torn to shreds, their lectures met with howls of derision and their grants mysteriously "cut off".

D&K: Not so. Dean gives talks to skeptics around the world, and routinely includes the case *for* astrology, but has never experienced howls of derision. If JC himself has met howls of derision, readers can see why. Give the AA 0/10 for seeing this as "a balanced response".

Appendix 3. Critiques by Frank McGillion

According to the AA, Dr Frank McGillion in his initial response of 21 August 2003 shows that "conceptually, structurally and in detail the Dean-Kelly ideas on astrology and their highly-selective supporting research are essentially flawed and well below expected academic standards." But in this and his two subsequent updates, McGillion never mentions the aim of Dean and Kelly's article, their results, their conclusion, or their discussion of artifacts and hidden persuaders. This is a bizarre way to write a critique! The collective result is a series of irrelevancies. Examples from McGillion's first update in *Correlation* 22(1), 63-68, 2004 are shown below with a response from Dean and Kelly (D&K):

A male non-scientist put a flea on a table and told it to jump. It did. He pulled its legs off and, again, told it to jump. It didn't. His conclusion? A flea with no legs is deaf. I open with this salutary tale because, in my view, the [Dean and Kelly] paper contains similar inaccuracies of logic and rationale that undermine the conclusions drawn from the data and arguments presented.

D&K: Inaccuracies like what? Despite FM's five pages, readers are left none the wiser. For example a key rationale (performance of astrology vs performance of astrologers) is not even hinted at.

The overwhelming impression I had after reading it was of reading lots of material I had no need to read for the authors to reach the conclusion they do.

D&K: FM fails to say what the conclusion was and how the unspecified material was irrelevant. How can impressions that might not be shared by others, on matters that are not revealed, be a legitimate part of a critique?

The authors appear to studiously ignore those parts of the literature that do appear to support certain astrological claims.

D&K: Claims like what? How are they supported? FM does not tell us. But if we do ignore parts of the literature it is because they are irrelevant to our topic.

(page 176) "We know that brain processes are related to consciousness, the difference between being awake and asleep." To me, this is an extremely unhelpful definition of consciousness that undermines the value of the paper from the outset.

D&K: So what? The term "consciousness" is not unclear to most people, and astrologers talk about it without insisting on definitions. And our definition has not the slightest effect on our results. In any case the term "consciousness" is not applied to people when they are asleep. Only if someone is awake do questions and theories about states of consciousness arise.

The paper's major omission, in my view, is to fail to cite mainstream work that clearly suggests that the planets (as the ancients understood them) affect us both physically and phenomenologically.

D&K: The call for papers required us to focus on psi, not on purported effects of planets on the pineal gland. Again, omitting this stuff has not the slightest effect on our results and conclusion. FM is here ignoring the failure of research to find anything in astrology not explained by hidden persuaders, so he demands a causal explanation. It is rather like arguing that a flea without legs must be deaf.

I am not convinced it makes any meaningful contribution to consciousness research, but I am convinced that the sources referred to are selective and not fully representative of the subject matter discussed.

D&K: As required by the editors, the focus was not consciousness research but parapsychology. So FM's comment is like complaining that a study of cement mixers makes no contribution to cooking with wine. Given that the AA asked FM to respond to our findings and defend astrology, why does he opt for irrelevancies? We want to know what astrology can deliver, what the most promising areas are, and what if anything is wrong with the present negative evidence. But FM does not tell us.

McGillion's 2nd update

When we mentioned the above points in a letter in *Correlation* 22(2), 62, November 2004, FM duly replied (pp.63-64). But inexplicably he continued to not mention our aims, methods, results, and conclusions, opting instead for more irrelevancies. Some examples:

I still think the phrase "death in general", cited in the footnote of page 183 of the *JCS* article, is ambiguous. My dictionary defines *general* as "relating to the whole, or to *most*" [my italics]. To me, a truly inclusive statement is one like, "All astrologers are liars, said the astrologer".

D&K: This could hardly be more irrelevant. Especially as the footnote does not contain the cited phrase.

I still find the authors' definition of consciousness unconvincing. I simply don't consider it comprehensive enough. Am I really wrong in thinking that dreaming, for example, is an altered state of consciousness?

D&K: FM raised this point before, and our response still stands, namely: So what? Our definition has not the slightest effect on our results.

Finally, and for the record, I offered my comments to IK before they were published, but he declined, adding "it should be great fun all around". It has been, and highly informative too.

D&K: What IK declined was an invitation to debate irrelevancies. He preferred a proper academic exchange on the actual issues, which should also be enjoyable and therefore great fun. For some reason FM did not offer his comments to GD.

Appendix 4. Critique by Vladimir Gorbatsevich

Statistics versus Astrology? From www.businessastrologers.com/Research.htm
The main points are shown below with a response from Dean and Kelly (D&K):

The aim of this article is an attempt to discredit astrology on a basis of "empirical researches".

D&K: Our aim was clearly stated and was not to discredit astrology but to examine its relevance to psi and consciousness. As we have stressed elsewhere, there is more to astrology than being true or false, so it makes no sense to claim that our aim was to discredit astrology.

Now let's talk about the basic contents of that article. Initially, it describes a standard method used when attempting to refute astrology, using researches of twins.

D&K: It is more a standard method used by astrologers (eg John Addey, Joe Goodavage) when attempting to confirm astrology.

First of all, a birth time difference of just 4 minutes can lead to the disappearance or appearance of aspects from one or more planets to the angular points of the horoscope. Therefore there is typically a real astrological difference between the charts of twins.

D&K: Obviously any non-zero difference in time will lead to a non-zero difference in charts. But do all the characteristics of a person change after 4 minutes or just some? John Addey considered the same problem and concluded that "the tendency for similarities to appear in the lives of those born on the same day must remain strong". To imply (as VG does) that just a minute or two changes all the characteristics would mean that any birth chart not timed to within a few seconds would be more or less useless, which view any working astrologer (especially those like Cainer) would have to disagree with. VG cannot have it both ways.

Secondly, psychology is not yet an exact science, and you cannot yet measure the precise characteristics of a person using tests or interviews. And there is actually no good reason for using the results of standard psychological tests to judge any other areas of knowledge, such as for instance astrology.

D&K: So what should be used instead? VG does not tell us. More on our tests later. Notice how astrology is said to be knowledge. How does VG know this?

It has been proven that there is no direct correspondence of the IQ characteristic either with thinking or with intelligence in general.

D&K: A huge literature shows otherwise. Whatever one may think of IQ, it consistently emerges as the single most important measure in determining the general course of a person's life.

Aggressiveness (or anxiety and so on), can this be defined as an objective characteristic? No, this is only an artificial parameter. It can be ranked, but to measure it is a mistake. Teachers and parents ratings, I can only describe these as very erroneous data.

D&K: Again, a huge literature shows otherwise. Also aggressiveness, anxiety, and so on, and teacher and parent ratings, are precisely the things that astrology books have always used to show how well birth charts match the person. Why should these things suddenly become "very erroneous" when used by non-astrologers?

My comment to their conclusion is the following. The authors used mainly artificial parameters for their research. What is IQ? It is not a measure of intelligence, it is something else. That means you cannot use it for unequivocal judgement of a person's characteristics.

D&K: How does VG know this? In fact each of the measures we used are supported by an extensive literature, sometimes a huge literature, and their general validity and reliability are well-established. They may not be perfect but they are adequate for the purpose. The author's argument would hold only if their validity and reliability were generally zero, but this is not the case. As for IQ, the author doesn't know what he is talking about, as will be apparent to anyone who cares to check the journal *Intelligence* or books such as Kaufman & Lichtenberger's *Assessing Adolescent and Adult Intelligence* (2nd edition 2002) that give a history and evaluation of attacks on IQ together with neuropsychological correlations and IQ assessments based on thousands of studies. Indeed, in 2003 the American Psychological Association noted that "Standardized intelligence testing, now almost 100 years old, has been called one of psychology's greatest successes". So one could say that the long-repeated denial of seeing IQ in a birth chart is one of astrology's greatest failures.

Another remark. Psychogenetic research reliably reveals a number of factors (including some which are connected with intelligence), which are significantly correlated for twins.

D&K: VG is referring here to identical twins, not time twins. The reason we didn't mention identical twins is that astrology is concerned with time twins. Indeed, from astrology's point of view, two babies born within two minutes of each other in the same location should show more similarity than identical twins born 4 minutes apart.

For example, for twins there are extremely similar encephalograms (especially in infantile and at senile age), and also features of a facial mimicry. At these researches it was taken into account, whether or not the twins lived together, and, if they lived separately, when the separation took place, as well as taking into account a number of other important factors. But our two authors have chosen not to bother with such details.

D&K: Nor do astrologers (read any astrology book), so we used things they do bother with. After all, had we used say facial mimicry in infants, VG could have claimed we addressed things no astrologer addresses, so our findings could have been dismissed as irrelevant to real astrology. Furthermore the same "psychogenetic research" shows good correlations between genetics factors and VG's supposedly invalid factors like IQ and extraversion. He cannot have it both ways.

This article further on discusses another theme, which has been very popular among the skeptics of the recent years, tests of astrologers.

D&K: And just as popular among astrologers (of the 54 tests to date, about half were by, or encouraged by, astrologers). Notice how VG is consistently one-sided in how he

presents things, as if balance must be abandoned at the slightest hint of outcomes unwelcome to astrology.

The authors tell about the results of more of their research: about astrologers using an astrological chart to try to predict such parameters, as N (neuroticism) and E (extraversion). The obtained result: astrologers do not hit absolutely, there are only casual coincidences. In fact there is no such universal characteristic as extraversion. There is Mercury in Aries (or in Gemini or in Leo and so on), Venus in Aries, Mars in Aries, the Moon or the Sun in Aries, all this gives us various kinds of extraversion.

D&K: How does VG know this? What measures did he use to demonstrate these different kinds? On such crucial points he does not tell us.

Therefore it is impossible to measure extraversion as it is done in psychology. It is a methodological mistake. On the basis of an erroneous method, it is possible to refute almost everything. As it is done by the authors of this article to astrology. Alas, for the role of serious critics of astrology they do not aspire adequately. Using mathematical methods is no help, if the data used is artificial.

D&K: As explained in our article, E and N were chosen because they are among the most major and enduring of known personality factors. Thus they emerge from personality and laboratory tests of all types, even those without E and N in mind; and they are found in all cultures including non-Western cultures. Furthermore they are visible in ancient personality descriptions such as the four temperaments (which match the astrological elements fire, earth, air, and water). No wonder that, when asked, astrologers rated E and N as easy and moderately easy to discern in birth charts. VG needs to read our article more carefully.

Astrology as religion

The spiritual dimension of astrology

David Hamblin

From his letter in *Astrological Journal* 32(6), 406-407, 1990, with later postscripts.

Abstract -- The author, a former Chairman of the UK Astrological Association, spent much time testing astrological claims but found no evidence in their favour. Eventually he gave up reading birth charts but retained his interest in astrology. He argues that the spiritual dimension is a necessary part of human existence, and that for many astrologers, astrology is a religion rather than a science. It enriches their lives (and the lives of their clients) in the same way that other people's lives are enriched by Christianity. So why not allow astrologers to practise their religion in peace rather than constantly press them to turn it into a science? Even if astrology isn't really "true", it is still a wonderful thing, a fantastically complex and beautiful construct that draws our attention to the heavens and makes us aware that we are a tiny yet still significant part of the universe. Most astrologers are affected by this, and have a quality of beauty in themselves.

It seems to me that the reason why many astrologers are reluctant to take part in research is that they expect, and fear, that the research would come up with negative results. When I first came into astrology from an academic background I was very keen on research, and I spent a great deal of time doing little research projects on my own, trying to prove (to my own satisfaction) a correlation between particular astrological factors and particular personality traits or occupational characteristics. The pattern was always the same: for the first fifty (or maybe a hundred) charts I would seem to be coming up with very exciting results, but as I increased the size of the sample the effect would fade away, until by the time I had looked at (say) two hundred charts there would be no correlation whatsoever.

After many experiences of this kind, I began to find astrological research a pretty depressing activity, and my enthusiasm for it became blunted. And, in the end, my enthusiasm for astrology became blunted also. For a long time I had tried to convince myself that astrology was valid in spite of the lack of research evidence, and that the need was for better tests. If astrology was true in the way that astrologers claim that it is true, then the simplest and most unsophisticated piece of research would be able to demonstrate a correlation between (for instance) Ascendant sign and personality traits. Since these correlations have not been demonstrated, it is plain that astrology does not work in the way that most astrologers say that it works, even if it may possibly work in some other way.

Hence, for the time being, I have given up astrology.

And yet I want to add a rider to this. There are of course many people (including many scientists!) who are Christians, in spite of the lack of historical evidence that Christ rose from the dead and the lack of research evidence for the efficacy of prayer; and the same applies for the adherents of other religions and spiritual movements. Maybe Geoffrey Dean would urge Christians, as he urges astrologers, to be constantly looking for better tests. But I believe myself that the religious or spiritual dimension is very necessary for the enrichment of human existence, and that the development of this dimension necessitates the acceptance of (or belief in) certain truths which have not been (and cannot be) scientifically demonstrated. For many astrologers, astrology is a religion rather than a science: it enriches their lives (and the lives of their clients) in the same way that other people's lives are enriched by Christianity.

This is, for me, completely acceptable, and I can admire and respect these astrologers who adhere to astrology in spite of the lack of scientific evidence. In fact, from this point of view, my own rejection of astrology begins to look like a very naive thing, comparable to the way in which, thirty years ago, I turned away from Christianity because God had not answered my prayers and because I could not see any "evidence" that God was good. Maybe I have turned away from astrology simply because it does not seem to be the best religion for me at the present time.

Of course, if we see astrology as a religion, we need to be on guard against astrological "fundamentalism", in the same way as we may want to oppose Christian or Muslim fundamentalism (for instance, the literal belief that God made the earth in seven days, or the belief that Salman Rushdie must die in accordance with God's word in the Koran). I see astrological fundamentalism in the belief held by certain astrologers that the stars govern our every action and that we are at their mercy. Such excesses must always be opposed, on ethical, not on scientific, grounds. But, if these excesses can be avoided -- and in the absence of any evidence that astrology does anyone any harm -- why should astrologers not be allowed to practise their religion in peace, rather than being constantly pressed to turn it into a science?

Postscripts

Ten years later, in Garry Phillipson's *Astrology in the Year Zero* (2000 p.122), David Hamblin made this further comment:

Even if it isn't really "true", astrology is still a wonderful thing, a fantastically complex and beautiful construct, which draws your eyes up to the heavens and makes you aware that you are a tiny and yet still significant part of the workings of the universe. Most astrologers, I believe, are affected by this, and have a quality of beauty in themselves. The annual astrological conferences that I attended were wonderful experiences because of the quality of the energy and the sheer excitement generated by the exchange of astrological ideas.

And then in 2005, especially for this website, this further comment:

After all, what would happen to astrology if it was proved beyond doubt that there is a connection between planetary positions at a particular time and events on Earth occurring at the same time? It would be taken over, not only by science, but by politics and big business. It would become part of the "system" from which so many of us long to escape. It would do great harm, because of the way in which it would be used by unscrupulous people in search of profit and power. It would lose its magic and its capacity to inspire. How much better that it should remain one of those things (like life after death) that are never proved but remain tantalizingly possible, elusive, just out of reach, offering glimpses of a universe that lies beyond our ordinary experience.

Astrology between religion and science

An abridgement of *Astrologie als Religion und "Erfahrungswissenschaft"* (Astrology between religion and "experience-science") by Gustav-Adolf Schoener, REMID, Marburg 2002. Dr Schoener is at the Department of Religious Studies at Hannover University and is noted for his interest in astrology. It is based on the English translation by Shane Denson at www.esoterica.msu.edu/VolumeIV/astrology.htm, which has 19,200 words including a bibliography of 66 items (43 in German) and 80 footnotes.

Abstract -- Astrology assumes that all of nature including the planets has a spiritual essence linked by analogies and sympathies. It claims to provide a spiritual interpretation of the world based on scientific knowledge about planetary positions. That is, it wants to be religion and science at the same time. The absence of convincing scientific support for astrological claims makes it difficult to see astrology except in religious terms. Religious scholarship does not consider whether an idea is true or not. It considers only whether people hold such ideas, and the effect of those ideas on their experiences. Thus the mysterious ideas of astrology can be viewed in the same way as the ideas of life after death, purgatory, karma and reincarnation. The article also briefly describes the influence of Theosophist and Jungian ideas, and the importance of astrology in the history of religions. With 12 in-text references most of them in German.

Insofar as it views everything as involving powers from beyond, astrology is a religion. All events in the cosmos and on earth are linked by an invisible bond. But astrology is also very sober and science-like. It divides the heavens into exact geometries. So its religious understanding of the cosmos is based on exact scientific calculations -- a double nature well known to scholars of religion.

The classical philologist Franz Boll said it concisely: "Astrology wants to be religion and science at the same time; that marks its essence" (*Stern Glaube und Sterndeutung: Die Geschichte und das Wesen der Astrologie*, Leipzig 1931, page 72).

Early astrology

Astrological ideas formed in Mesopotamia, Egypt, and ancient Greece, and then spread westward. During this early period astrology coagulated into a fixed world view that recognised gods in the planets and signs, whose existence was proven by comparing life on earth with the movements of the sky. Astrology saw man, nature and cosmos as one single accord that worked by the principle of analogy and sympathy.

In this way, an entire system of analogous relationships between the heavenly bodies and the things on earth was established, and makes up the world view of astrology today. It assumes that all of nature has a spiritual essence through which the analogies work. Those who today cannot believe in this essence are unable to take astrology seriously. Conversely, those who do believe in this essence have good prospects of accepting at least the world view of astrology.

Such thinking continued through the Middle Ages and beyond. Thus in the 17th century the ancient planet gods remained in the beliefs of most people and were seen as responsible for good and bad harvests, for war and peace, for sickness and recovery, and so on. When accepted by one-God religions such as Judaism, Christianity, and Islam, these planet gods were understood as instruments of the one God.

Modern esoteric astrology

First of all it must be said that, in the 18th and 19th centuries, astrology disappeared from recognised science and recognised Christian theology. Nevertheless in the late 19th century, in esoteric circles, principally the Theosophical Society founded in 1875, astrology experienced a revival. The TS was concerned to make known the esoteric

doctrines contained in all religions and to speak against modern natural science, which was seen as incomplete because it disregarded the spiritual powers at work in nature. All of nature, stones, plants, animals, were once again, as in ancient times, filled with mysterious divine powers. The planets are not just dead, physical bodies, for in them lie living essences which work through them. Or so the TS held.

These views were promoted notably by Alice Bailey (1880-1949), whose book *Esoteric Astrology* explained a certain heavenly hierarchy and revived the astrological world view, and by Alan Leo (1860-1917), whose many works made possible the transition from esoteric astrology to practical horoscope interpretation. Astrology once again claimed to provide a spiritual interpretation of the world while at the same time using scientific knowledge for this purpose. Its ancient concern to be religion and science at the same time was once more achieved.

But the path was also paved for modern horoscope interpretation in the mass media, in which the TS background played hardly any role at all. Today everyone can look up their horoscope for the day or week in a newspaper and check how accurate it is. Except that the descriptions are always too general to allow such a check. Nor do they have any proper link with the calculations of serious astrology.

Modern psychological astrology

In addition to theosophy, the ideas of the psychologist Carl Jung (1875-1961) also paved the way for modern astrology. While trying to decode the symbolic world of our nightly dreams he came across images that also appear in the myths and fairy tales handed down to us. This led him to the idea that the gods of the heavenly bodies in astrology are actually pictures that lie unconsciously dormant in our mind. Thus myths about the war god Mars are actually events that humans have repeatedly experienced and have at some time ascribed to gods. In this way, according to Jung, astrology came about.

Jung, and others such as Fritz Riemann in his book *Lebenshilfe Astrologie: Gedanken und Erfahrungen*, believed that astrology could therefore inform us about the human mind and (very generally) future events. Not because the stars dictate human life, but because the horoscope hints at predispositions that can be followed up in ways unrelated to the stars. It becomes the basis for a psychological consultation. For example Hans Bender, in his foreword to Thomas Ring's *Astrologische Menschenkunde* (Freiburg 1990), notes that "a great number of rational people, among them many psychotherapists, use the birth constellation as a practical diagnostic tool."

However, if the horoscope hints at predispositions that can develop in quite diverse ways, the horoscope and eventual outcome do not necessarily correspond to one another. So how can this correspondence be tested? Most astrologers agree that testing is difficult and may not be possible, but feel that personal experience in consultation verifies the correctness of the horoscope. Due to these difficulties in testing, astrology enjoys hardly any scientific recognition.

But if astrology were to be confirmed by scientific tests, it would mean that human character would depend on the stars at birth, which is contrary to accepted scientific findings. It would require a return to religious explanations. The dependence would not be explained by physical effects such as light or gravitation, but through "living powers" at work in the whole cosmos. It would be a return to the ancient astrology, to an "anima mundi," a world soul, which could explain astrological and magical events.

In short, psychological astrology begins with human experiences and ends by drawing religious conclusions. So it is very close to esoteric astrology. No wonder that the two are often not distinguished at all in modern astrology.

Empirical astrology

Recall how Franz Boll held that astrology wants to be religion and science at the same time. Empirical astrology is thus the third path which astrology takes in the twentieth century.

For example in his book *Astrologie als Erfahrungswissenschaft* (Leipzig 1927), the German astrologer Herbert von Klockler investigated 5000 horoscopes for special astrological correspondences of accidents, crimes, and also particular talents of painters, poets, and lawyers. He found slight effects that did not definitely confirm astrology, so in scientific terms they were of hardly any value.

More comprehensive tests were carried out in the 1970s by the French psychologist Michel Gauquelin. In general, astrological claims could not be confirmed. He did find slight effects but again they did not definitely confirm astrology.

More recently an investigation into lunar effects by the biologists Klaus-Peter Endres and Wolfgang Schad in their book *Biologie des Mondes: Mondperiodik und Lebensrhythmen* (Leipzig 1997) found that some plants and animals showed no connection with moon phases, while others did show a small connection in their growth or reproductive behavior but not consistently -- for some it was only at full moon, others only at new moon, and still others only at waxing or waning quarter moon. So even this study hardly helps horoscope interpretation.

Astrology and Christianity

In early Christianity astrology was generally rejected because it was a heathen practice and the new religion (Christianity) no longer needed it. But there also existed a positive attitude, largely because many of astrology's symbols were already common in some currents of Judaism and flowed quite naturally into Christianity. In the Middle Ages the church allowed a "natural" astrology that gave information about weather or found application in medicine, but condemned as a heathen faith "judicial" (judgment-passing) astrology for individuals.

Today astrology still believes in many planet gods who are at work in the cosmos. So astrology has no problem in recognizing one Creator God (as in Christianity) who created this cosmos. But it is not so simple the other way around.

Today church views on astrology, whether Roman Catholic or Evangelical, could hardly be more diverse. They vary from mocking rejection and serious warning of its dangers, as in the Pope's 1993 Catechism, to serious occupation with it, as in theologian Christoph Schubert-Weller's book *Sprecht Gott durch die Sterne?* (does God speak through the stars?), which sees astrology as a medium for psychological insight.

Where does astrology stand today?

Religious scholarship does not consider whether a religious idea is true or not. It considers only whether there are people who hold such ideas, and the effect of those ideas on their experiences. Thus the mysterious ideas that astrology teaches can be

viewed in the same way as the ideas of life after death, purgatory, karma and reincarnation.

Modern astrology has to date received little attention by religious scholars, but most see modern astrology in the context of western esoterica. Thus for Christoph Bochinger it gains currency in the expectation of a "New Age" (*"New Age" und moderne Religion*, Gutersloh 1994), while for Antoine Faivre (*Access to Western esoterism*, New York 1994, and *Esoterik im Uberblick*, Freiburg 2001), and Wouter Hanegraaff, (*New Age religion and Western culture: esotericism in the mirror of secular thought*, Leiden 1996), modern astrology is a part of western esoterica.

Currently, the most widespread form of astrology is the popular one which presents itself both in daily newspapers and in special esoteric periodicals. It often contradicts concrete experience so clearly that every serious foundation must be denied. It is obvious that this popular astrology is hardly interested in a serious explanation or investigation be it religious or empirical.

As for seriously practiced astrology, we can say that it strives collectively toward a synthesis between "science," "personal experience," and "religion," which makes it difficult to see it collectively as any one of these. But for individual astrologies the distinction is clearer. Moreover at some universities in South America, Asia, and Africa (for example, in Cairo) and also at the University of Riga in Latvia, astrology is being taught, if only because its importance in the history of religions is being rediscovered.

As Franz Boll says, "The most important thing about the history of astrology is that it shows the connection between peoples with better clarity and irrefutability than is achieved anywhere else. Perhaps in astrology alone have East and West, Christians, Muslims, and Buddhists understood one another without difficulty" (ibid page 58).

Guinard's *Manifesto*

A massive exercise in pseudoscience

Arthur Mather

Abstract -- Patrice Guinard's *Manifesto* is a statement of 42,000 words based on his 1993 PhD thesis at the Sorbonne, about how astrology provides meaning despite being rejected by educated people, and why it deserves not to be. His central idea is that the planets resonate with our psyche leaving the results in our minds as unspecific symbols and archetypes. So astrology has nothing to do with science or religion or philosophy. It is a psychic phenomenon that has evolved with humanity and should be accepted as part of our nature. Unfortunately the *Manifesto* is wordy and unclear. Guinard assumes that astrology as perceived by astrologers has no ordinary explanation, but he is most likely wrong. His arguments boil down to speculations about astrology which he says are untestable. They are bolstered by frequent asides, some insightful, some misguided, some fatally uninformed, and some even self-contradictory. Empirical studies reported by Dean & Kelly (2003) do not support his speculations. In other words the *Manifesto* is a massive exercise in pseudoscience. The answer to the title question appears to be No. Guinard was invited to reply but gave only a brief brush-off response.

Patrice Guinard's *Manifesto* is a statement of 42,000 words based on his 1993 PhD thesis at the Sorbonne, about how astrology provides meaning despite being rejected by educated people, and why it deserves not to be. His central idea is that the planets resonate with our psyche leaving the results in our minds as unspecific symbols and archetypes. It is a psychic phenomenon that has evolved with humanity and should be accepted as part of our nature. On his own website (see below) Guinard notes how the present astrology-and-science website has not "affronter mon Manifeste" (addressed my *Manifesto*). What follows is an attempt to remedy this deficiency.

Required reading or a waste of time?

Guinard's *Manifesto* was translated into English in 1999 by Matyas Becvarov and placed online at <http://cura.free.fr/> with revisions through 2003. It is wide ranging and well documented, with nearly 250 notes and references, many of them little known or hard to find. It is not afraid to be harshly critical of both scientist ("just one more species in the roster of parasites on astrology") and astrologer ("not interested in learning: he believes that he already knows").

In a review in *Correlation* 20(2), Shelley Jordan feels the *Manifesto* represents "some of the most revelatory astrological writing of this current era." It is "an eloquent and sound explanation of the nature of [astrology] and a vigorous polemic against [those who] persecute it." The *Manifesto* "asserts that astrology is [to do] not with events but with states of consciousness", which makes it "an entirely new astrological genre." In the end it is an "epic analysis [that] should be required reading for all serious students or opponents of astrology."

In a response in *Correlation* 21(2), Kevin Hawley disagrees. He notes that the *Manifesto* holds that astrology is "incapable of being examined or tested by material methods, [hence] to get to The Truth we must stop investigating astrology and simply contemplate our navels for the rest of our lives." Hawley concludes "the sheer pomposity and narrow-minded arrogance of the article is truly breathtaking." Indeed, it is "deeply offensive and insulting to astrological researchers ... a non-testable, self-indulgent monologue [that is] a complete and utter waste of time."

What is it about the *Manifesto* that raises such conflicting views?

Unfortunately the *Manifesto* follows the traditional French writing style of long words, long sentences, long rambling arguments, no abstracts, and little concern for readers or their comprehension. It is also thick with unexplained concepts such as astral agency, direct apprehension, imprinting, neural organization, psychic reality, resonance, and respectable research. The end result is a rambling incoherent work so devoid of clear threads that Shelley Jordan's "required reading" can seem like mental torture, if not actually Kevin Hawley's "complete and utter waste of time." My summary appears below with relevant quotes, interspersed with my comments indicated by AM. Guinard's *Manifesto* is divided into two parts.

Part I. Why astrology has been ignored in modern thought

(Start of my summary.) The world is perceived through our senses. The resulting interior world is determined by four astrological structures -- planets (activity), houses (where applied), transits (timing), and signs (quality), each derived from an archetype that seems to be universal. They operate at the interior mental level, not at the level of fact or events or what is concrete. They are part of our evolutionary mental development and should be accepted as part of our nature.

AM: This is just the start of endless assertions, as if asserting was the same as justifying. By asserting that astrology is a purely mental phenomenon unconnected with anything concrete, and (as we shall see) beyond falsification, Guinard has attempted to protect it from anyone who might disagree, such as most astrologers and most scientists. Here we get our first indication that Guinard's approach amounts to pseudoscience, of which more later.

Today we no longer interact with natural psychic reality but increasingly with material substitutes as technology advances.

AM: Guinard devotes many paragraphs to what he sees as the alienating influence of science. He wants a wider world view that recaptures what we have lost. Unfortunately his wider view seems to be unrelated to our present one. It implies that the success and practical achievements of science should be rejected in favour of faith in doctrine. and that tyranny by closed beliefs is preferable to liberation by being informed.

Astrology has no need for science because it relates to psychic states, a different level of reality. It has its own logic, language, and reasoning, which cannot be assessed by experimental science or by the reasoning of philosophers. So there is no causal explanation for astrology. Astrology is not a science (it is not open to falsification), nor a religion (it propounds no specific belief), nor a philosophy (its ideas are not subject to validation).

AM: Guinard is saying that astrology does not conform to the scientific world view; it cannot be tested. He is inviting us to abandon reason and embrace doctrine; to believe what he says because he says so, which is not a gamble that thinking people can afford to take. In fact his claims are not untestable, see later.

Instead astrology arises from the psychic state of the person, ie from the interplay between mind and the four astrological structures mentioned above. The structures are cyclical (moon monthly, sun yearly, planets various) and are "imprinted on the neural

organization, which reproduces the periodic variations of the planets." The planets resonate with our psyche and leave the results in our consciousness as unspecific symbols and archetypes. This process exists in nature and would continue to operate even if there were no astrologers. Astrology gives meaning, a way of better understanding ourselves..

AM: If it gives meaning, then that meaning can be tested. Guinard's earlier claims of unassailability are overstated, a point we might easily miss under his paralyzing overburden of impenetrability such as "Astrology cannot be defined in any domain but its own: the egalitarian domain of the qualitative potentialization of psychic reality." Also overstated are his earlier views about causality such as the following:

In astrology "we shall not speak of influences -- a term which carries a physical connotation" because notions of "the influence of physical forces do not suit it."

AM: Not so, because Guinard repeatedly refers to planetary forces or energies impinging on the psyche. For example "planetary forces translate a person's modes of perception" and "what is a Sign, a House, or an Aspect, if not a variation ... of planetary energies?" Either astrology has some substance and is testable, or it has no substance and is imaginary. If there are forces and energies then by definition astrology is causal and testable. See also next.

Astrology, however, differs in nature from visionary or divinatory practices that rely on psychic ability. It does not work in this way but by the mind directly apprehending the continual stimulation by astral impressions, a "psychic impregnation made by astral agencies." It reveals a reality continually present but does not predict a reality beyond the present, so it is not astromantic. For example in two millennia it "has not predicted ... any major political or cultural event." Its reality is qualitative, not quantitative.

AM: Guinard is saying that astrology does not involve ESP as usually conceived, nor can it predict the future. Indeed he says that even reading the present is an "impractical ideal", see later, which hints at the limitations of a qualitative reality. These limitations will be important to clients in search of health, wealth and happiness, but here Guinard provides only his usual obscurity.

Astrology "requires a reorganization of language and knowledge, a redistribution of mental, social and cultural representations, and, as a consequence, a reevaluation of concepts customarily used in a unilateral sense or in dualistic terms." Thus astrological "reasoning consists of asking oneself *a priori* about the legitimacy of comparison between entities perceived within a single field of application."

AM: Guinard wants us to believe that astrology is a fact of nature and therefore above criticism. But in a rare moment of clarity, albeit only relative, he reveals its true source:

Astrology "assumes ... the existence of resonance and response between the rhythms of the geosolar environment and the psyche. Astrology is a specific form of rationality which admits as a condition *a priori* the structural differentiation of an archetypal matrix. It has recourse neither to experimental reason, nor to faith, nor to discursive reason, but rather to matrix-based [in this case astrological] reason."

AM: This is a circular argument -- astrology requires us to assume it works in a way that is explained by astrology (*a priori* means not based on fact, observation or study but presumed to be true). In other words Guinard is assuming what he seeks to prove. But are his assumptions (which, as I have indicated, are not untestable) supported by the evidence? See Part 2.

Part 2. How denial of astrology manifests in academia

(Continuation of my summary.) Astrology operates in the middle path between the rational and the spiritual. Arguments against astrology fall into four categories -- anti-fatalistic, physico-astronomical, ideological, and technical.

AM: Guinard devotes more than 2000 words to the first, tracing historical arguments from 200 BC, but not in a way that leaves us any the wiser. For example he does not identify the merits of the arguments or whether they decide anything. Nor does he explain what an anti-fatalistic argument is. On the second category he argues as follows:

Acceptance of astrology requires us to accept that psychic qualities are real, are felt emotionally, and arrive from the heavens. It matters little whether our acceptance is based on faith, on theory, or on experience. What matters is that astrology is meaningful.

AM: Here is the *Manifesto* in a nutshell. Guinard sees meaning in astrology and feels that 42,000 words are needed to explain (or impose) it. Once again he is assuming what he seeks to prove -- that astrology as perceived by astrologers does not have an ordinary explanation. Guinard is most likely wrong, see next.

Astrology is attacked not because it is false knowledge or bad metaphysics but because it helps to organise our consciousness and make sense of the chaotic diversity of our awarenesses.

AM: This is hardly a logical reason for attack. The real reason is that the claims of astrology are incompatible with the way the world is known to work. The claims are not the result of convincing experiments by astrologers, and are readily explained by non-astrological factors such as cognitive illusions, wishful thinking, and vested interests. So what does Guinard expect? His third and fourth categories are next.

Attempts to prove astrology are not needed because astrology needs recognition not "confirmations"; concepts not "facts." Statistical tests isolate chart factors from their context. The Gauquelin results confirm what astrologers already know -- that negative results are due to inadequate methodology. Statistics cannot adjudicate the validity of any discipline. So here science is being used as an ideology.

AM: Statistics are not an ideology but a tool, a way of drawing sound conclusions. And how can astrology be so difficult to demonstrate when astrologers are so readily convinced that it works? Scientists and astrologers use essentially the same approach (they look at charts) except that scientists take care to control the non-astrological factors mentioned in my previous comment, whereupon astrology suddenly fails to work. Predictably, Guinard hides this awkward fact by retreating behind a smokescreen of misinterpretation and abuse, see next.

Complicated data manipulations and analyses lead to illusory results that are a caricature of respectable research. If astrology is found lacking, then it is a matter for astrologers to decide, not the presumptuous incompetence of know-alls in lab coats.

AM: Not everyone might agree. Given the failure of astrologers to rectify conceptual problems during two thousand years of practice, see Kelly (1997), there is no reason to suppose they will suddenly improve. People deserve clear arguments instead of the usual obfuscation. It seems that Guinard wants to deny any assessment that is objective and free of vested interests. Such denial is again typical of pseudoscience.

The astro-statistician Geoffrey Dean organizes grotesque competitions for testing astrology on the basis of outdated positivistic assumptions, and concludes ingenuously that the negative results mean that astrology is invalid. Dean and his team have also gone through a hundred statistical tests of astrology, all ending in the pathetic refrain "no significant results." But in a test which required no statistics, four astrologers were able to pick the correct sun sign 8 times in a group of 12 people, which Dean dismisses as either coincidence or telepathy. The impossibility of producing statistical significance in the former has not prevented a significant prediction once the proper instrument is used.

AM: I was co-organiser of these "grotesque competitions" and can confirm that Guinard's descriptions are misleading. For example the Superprize competition offered \$US5000 to anyone who could show that astrological claims were not due to non-astrological factors. Other competitions offered prizes for validating statements taken from leading astrology books. All involved straightforward ideas with no "outdated positivistic assumptions." The success in picking sun signs was later found to be most likely due to cue leakage, again a straightforward process. As with denial, such misrepresentation is also typical of pseudoscience. Next, Guinard leaves statistics to attack historians, sociologists, and eventually even astrologers and their disagreements.

Historians see astrology as an obsolete superstition, whereas it is a body of knowledge arising from a larger world view, an opening of the mind to psychic potential. Sociologists want to know nothing about astrology; they consider only astrology columns and reproduce only the prejudices of the scientific community.

AM: An untestable astrology cannot be a body of knowledge, only a body of belief. The dismissal of justified criticism as "prejudice" is again typical of a pseudoscience. Why should sociologists not consider only astrology columns? After all, such columns are the most pervasive form of astrology, and astrologers do nothing to discourage their use. In such a situation there is little incentive for sociologists to consider other forms of astrology that involve far fewer people.

Astrologers are little better. If astrology really wants intellectual respectability, it must embrace sound research and sound arguments.

AM: Earlier Guinard implied that research and argument were irrelevant. And what if the research is negative, would it be immediately dismissed as "prejudiced"?

As long as astrologers remain incapable of showing academics how their knowledge enables access to human reality, and how they can resolve the endless internal controversies, they will no more be believed than will their discipline be respected.

AM: The same fault seems true of Guinard. As it happens, studies reported by Dean & Kelly (2003) found no evidence of psychic influences in astrology, which is bad news for Guinard's claims.

Astrologers are divided by endless controversies such as the use of ecliptic positions (no planet except the Sun is generally on the ecliptic), or the attribution of Air to Aquarius and the feet to Pisces. Furthermore, by accepting fictitious points such as nodes and midpoints, the astrologer is forgetting that his model must reflect the real world. His model defies synthesis because a global reading exceeds the capacity of both astrology and the mental faculties. Nor is it possible to include the person's social, cultural, familial and mental background. "This is why the astrological reading of human reality must remain an impractical ideal."

AM: This is conspicuously at odds with what most astrology books tell us. For example Charles Carter, the leading British astrologer of his time, held that the heavens correlate with our minds, feelings, physical bodies, and external affairs. Nothing impractical or unreal here. So Guinard is raising even more disagreements to add to the list. But what should be done about them? Guinard does not tell us.

The history of astrology shows that the discovery of new planets etc leads to changes in astrological ideas. So astrology is not a fixed body of knowledge. It is flexible. Indeed, it "survives, despite its detractors, the transformation of its successive models." (End of my summary.)

AM: Usually in the classic way of pseudoscience -- by ignoring its own failures and problems. On which note the *Manifesto* comes to an end.

My conclusion

The *Manifesto* is an example of how wordiness and misdirected scholarship can give a false sense of profundity. It boils down to speculations about astrology that the author says are untestable. These speculations are bolstered by frequent long asides, some insightful, some misguided, some fatally uninformed, and some even self-contradictory. Guinard's position of untestability allows him to safely attack any contrary view, which is most of them. But his claim of untestability is problematic because by definition the situation cannot then be reliably known by anyone. In fact the results of relevant empirical studies have generally contradicted his speculations. Guinard has made a bold attempt to strike a conclusive blow for astrology against science; but his "epic analysis" amounts to no more than a massive exercise in pseudoscience. Neither does Guinard offer any clear remedies for modern astrology's conceptual problems. Astrology surely deserves better than this.

Guinard's response

My original review was emailed to Guinard in March 2004. I asked for comments. He replied curtly that I had "totally missed his points ... What can be read here is just some remarks issued by a Popperian novice." Further emails asking for details of the points supposedly missed were ignored. Since Guinard promotes himself and his website (when it was active) as champions of serious debate, his response is disappointing. Until he addresses the issues that I have raised, serious debaters might justifiably see his *Manifesto* only as a masterpiece of rambling incoherence that (as Hawley puts it) is "a complete and utter waste of time."

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Dean G and Kelly IW (2003). Is astrology relevant to consciousness and psi? *Journal of Consciousness Studies* 10 (6-7), 175-198. The first half quotes what astrologers say, the second half looks at the empirical evidence. With 85 references. For an abstract, three critiques, and Dean and Kelly's rejoinder, see *Star Wars* on this website under Objections to Scientific Research.

Kelly IW (1997), Modern Astrology: A Critique, *Psychological Reports*, 81, 1035-1066. With 131 references. For an abstract and the full article, see *Concepts of modern astrology* on this website under Applied Astrology.

Excerpts from *The Woolly-Thinker's Guide to Rhetoric*

Abstract -- Satirical guide for astrologers by philosophers. Excerpts from the Butterflies and Wheels website that will be of value to all astrologers, especially those who find logic and science confusing. Includes a guide for woolly thinkers and a dictionary of fashionable terms.

Rhetoric is the art of persuading people that your opinions are more important than facts and critical thinking. Rhetoric is therefore an important skill for astrologers who believe that astrology works. The following excerpts from the Butterflies and Wheels website will be of value to all astrologers, especially those who find logic and science confusing.

The Butterflies and Wheels website is run by British philosophers, is aimed at fighting fashionable nonsense (eg the idea that truth is unimportant or that science is no different from any other belief), and is named after ideas wrongly seen as so inconsequential that their discussion would be like breaking a butterfly upon a wheel.

Visit <http://www.butterfliesandwheels.com> to see the full Guide and numerous comments, articles, and links of interest to critical thinkers.

Excerpts from *The Woolly-Thinker's Guide to Rhetoric*

Be dismissive

Brush people off, especially if they know something you don't. Say things like "Where did you read that, in the TV Guide?"

Claiming is Succeeding

Blur the distinction between claiming to make your case and actually making it. If anyone notices, act surprised and wounded.

Define words in your own special way

Define truth, for example, as hegemonic discourse, or monoculturalism, or Eurocentrism. Define education as privilege. Define science as an arbitrary game, or a social construct.

Develop sudden hearing loss

When your opponent makes a good point, a crushing argument, an incontrovertible case, simply fail to hear. Talk a bit louder.

Do a Procrustes

Make the evidence fit your case. If it doesn't fit, keep pushing and hammering and chopping until it does. No one will notice.

Fly under the radar

Use words that are pejorative to one group and the opposite to the other. "Science" and "scientist" are good for this.

Imply things

Be careful not to be explicit, otherwise your errors will be obvious.

Pretend to be amused

Pretend to find the other person hilariously ineffectual. Disguise the tremor in your voice and the bulging veins on your forehead.

Repeat yourself

If your ideas are weak, keep repeating them. This will convince everyone they must be true, otherwise they wouldn't keep hearing about them.

Use hoorah and boo words

Hoorah words: heart, feeling, spiritual, holistic, instinct.

Boo words: intellect, cold, analytical.

Use obscurity

Generate such a tangled clot of verbiage that opponents cannot be sure you haven't said something profound. As in the preceding sentence.

Vigilance is crucial

(This item added by the astrology-and-science website)

Never let up. Pile the rhetoric higher and deeper. Even a momentary lapse can be dangerous as in the following example by astrologer Neil Spencer in *The Guardian* 19 August 2003: "Astrology is not a science but a symbolic, allusive language, and ... [should be left] to those for whom it is intended: philosophers, poets and lovers." But philosophers might not agree. Or as Butterflies and Wheels said, "Oh That Old Ploy."

Related excerpts from Butterfly and Wheels' *Fashionable Dictionary*

Accuracy. Foolish, Platonic notion that we can get our facts straight.

Bigot. Someone who strongly believes something we don't believe.

Catastrophe. What occurs when asked to explain our ideas clearly.

Empiricism. Absurd notion that observation and measurement are useful,

Enlightenment. Age of. A big mistake but postmodernism will fix it.

Evidence. Best ignored in case it conflicts with our ideas.

Measurement. Futile activity by scientists with nothing better to do.

Mystery. Is beautiful, so the more obscure everything is, the better.

Profound. What to call gibberish after we just published it.

Quantum. A great metaphor for ideas that no one understands.

Reductionism. Reducing something we like to something we don't.

Spiritual. What to call an implausible belief to make it feel good.

Truth. An old-fashioned word, like button-hook, no longer needed.

Zen. The best way to do things. Like just let it happen, man.

Visit <http://www.butterfliesandwheels.com> to see the full Dictionary.

Views of modern philosophers

Mostly bad news for astrology

An expanded version of a summary from *Correlation* 1995, 14(2), 33-34.

Abstract -- In ancient times the Principle of Correspondences (inference by analogy and similarity) was an accepted way of knowing. Philosophy and astrology were automatically compatible. But not any more. In the 17th century the Principle of Correspondences was seen as untenable, and in philosophy today it is dead than dead. Modern philosophy books generally ignore astrology or dismiss it as pseudo-philosophy, invalid and unjustified. A survey of 17 modern philosophers shows they can disagree on the issues that make astrology irrational. But they all agree that astrology is not a source of reliable knowledge although it can be a source of sympathy and support. Includes hints on deciding what to believe. 28 references.

Here the word *philosophy* (from the Greek "love of wisdom") refers to what is carried out in university departments of philosophy. It is essentially argument about wisdom, knowledge, and making rational choices. Not the same as science (investigating how the world works).

Views of ancient philosophers

In the past, in ancient Greece and during the Middle Ages, it was acceptable to draw conclusions from insight and metaphysical logic alone. There was wide acceptance of the Principle of Correspondences, or knowing by analogy, where things similar in some respects are automatically similar in other respects. If the number three has metaphysical qualities, then the third planet had the same qualities. If a planet was named after a god, then it had the same qualities. To know numbers and gods was to know planets. Nothing more was required. Thus the allocation of Aries=head through Pisces=feet was deemed so perfect that no empirical tests were needed. Analogies were infallible.

On such foundations was astrology built. Philosophy and astrology were automatically compatible. Hence the historical importance of astrology.

Not any more. In the 17th century the Principle of Correspondences became untenable. The height of John Smith tells us nothing about the height of John Brown. No longer do we believe with Aristotle that death can occur only at low tide. No longer do midwives open the door to ease a painful labour. We still use analogy as a way of description, as in people running out of steam, and as a guide to investigation, as in sound behaving like waves. But in philosophy the Principle of Correspondences as an infallible way of knowing is dead than dead. So how does modern philosophy view astrology?

Views of modern philosophy books

Modern philosophy books generally ignore astrology or dismiss it. For example *The Oxford Dictionary of Philosophy* (1994), and *The Blackwell Companion to Philosophy* (1996, 2003) ignore it, while *The Oxford Companion to Philosophy* (1995) dismisses it as pseudo-philosophy, defined as "deliberations that masquerade as philosophical but are inept, incompetent, deficient in intellectual seriousness, and reflective of an insufficient commitment to the pursuit of truth" (p.725). Micro-macrocosm correspondences (as in the Principle of Correspondences) are "not justified by argument, but they may have heuristic value as facilitating exploration of what would otherwise be hard to access for investigation" (p.517).

Much the same applies to modern histories of philosophy. For example *The Columbia History of Western Philosophy* (1999) ignores it, while in his *History of Western Philosophy* (1961), Bertrand Russell tends to dismiss it. He notes how in the Hellenistic world "the best philosophers fell in with the belief in astrology" (p.237), how astrology was rejected by Saint Augustine (p.355) and Aquinas (p.450), and how in the Renaissance "the first effect of emancipation from the Church was not to make men think rationally, but to open their minds to every sort of antique nonsense [notably astrology]" (p.489).

Views of modern philosophers

But why do modern philosophers ignore astrology or dismiss it? The answer is simple -- to them astrology is problematic, and not just because it is based on discredited correspondences as discussed above. What follows is a concise summary of (often lengthy) published views:

John Wilson (1963) asks is astrology a science? He argues that a science makes predictions based on an *organised* body of *verified* theories and knows *why* its predictions work, which in total do not apply to astrology. So the answer is no.

Diesing (1971) agrees. If astrologers were scientific there would be active collaboration with other scientists, in the same way that social and natural scientists collaborate in areas like epidemiology and urban geography. But he sees no general evidence of such collaboration.

Feyerabend (1978) compares modern astrology to medieval astronomy. It inherited interesting ideas but makes no attempt to develop them by proper research aimed at improving knowledge of extraterrestrial influences. Instead "they simply serve as a reservoir of naive rules and phrases suited to impress the ignorant." When astrologers are compared with the dogmatic anti-astrology *Statement of 186 Leading Scientists*, "it is interesting to see how closely both parties approach each other in ignorance, conceit and the wish for easy power over minds."

Leahey and Leahey (1988), historians and philosophers of psychology, note that astrology is largely unchanged since Ptolemy. It solves no new problems and has fossilised. Its appeal is not to astronomers, as in Babylon, or to religion, as in the Renaissance, but to pop psychology, or how to de-alienate yourself. It is less a pursuit of truth than a pursuit of happiness. It might look like a science but has none of the threat -- discover yourself (stars take the blame) and be comforted (no vengeful God). No wonder that many people prefer astrology.

Popper (1969) considers astrology to be irrational because astrologers ignore or explain away negative evidence, consider at best only peripheral claims, and make predictions too vague to be refuted.

Kuhn (1970) disagrees with the last because astrologers do not deny that many predictions fail. Instead astrology is irrational because failures are too easily explained away and therefore do not lead to the sort of research necessary for progress.

Thagard (1978) sees this as part of a broader problem, namely astrology is unprogressive and uncritical. Its theories are not progressively improved to rectify unsolved problems, as in mass disasters where people with very different charts come to

the same end. Nor are they evaluated against competing theories, as in psychology or biology, that now cover the same ground. Disconfirmations are simply ignored, as in Gauquelin's work on signs.

Curry (1981) suggests a way of accommodating both Popper and Kuhn. Astrology can be seen as a Lakatosian "research programme" consisting of the fundamental but untestable hypothesis (AASB), auxiliary but testable hypotheses (eg Leos are generous), and a positive heuristic, meaning suggestions about how to proceed (eg avoid isolated factors). He notes that there are two groups of people who find astrological research intolerable, one because astrology is obviously false and the other because astrology is obviously true. As Bertrand Russell remarked, assuming your case "has many advantages. They are the advantages of theft over honest toil."

James (1990) also disagrees with Kuhn. Astrologers do indulge in some research even though it goes nowhere. Instead astrology is irrational because of its fallacious reasoning, insensitivity to evidence, and general lack of scholarship. Even when astrologers rise up "claiming to have swept out their houses ... a cursory look ... reveals the same dreary deal."

Goldberg (1991), a sociologist, disagrees because irrationality is no reason to dismiss astrology. The real issue is "whether it is capable of making predictions that are not predicted by the more mature sciences." The matter can be decided by empirical tests.

Kanitscheider (1991) disagrees because empirical results can mislead due to errors. We should give more weight to theory. But there is no rational theory of astrology. Thus magical correspondences are not known to exist, nor are suitable physical forces -- indeed, as in the astrology of companies, there is no physical entity to act on. However this is irrelevant if people turn to astrology seeking not knowledge but sympathy and support. In other words rational refutation is pointless because "astrology fills an emotional human need ... the motivating force behind astrology has always been a person's need to deal with life." Appendix 1 gives a more detailed summary of Kanitscheider (1991).

Kurtz (1986) notes that paranormal and religious beliefs including astrology involve ignorance of the real causes, and faith in unknown or mysterious causes. "Whether astrology is empirically true or false is not the issue. Whether it works -- or is *made* to work -- by fulfilling a hunger for meaning is of vital significance. ... It reinforces the longing for each person to be, in some mysterious way, related to the cosmic scene over and beyond his comprehension, so that every person's life has some ultimate significance. Herein, I submit, lies the key to the persistence and success of astrology, in spite of negative evidence to the contrary about its truth".

Good (1994), an anthropologist, agrees. For critics the concern is how people can believe in astrology in today's world. But for clients the concern is simply how to gain health, wealth and happiness.

Curnow (2003) notes that such client concerns were as true of the oracles of antiquity as they are of today's sun sign columns. "There is a clear continuity in human concerns over the centuries."

Abel (1976) puts it another way. "I cannot persuade the astrologer that his theory is nonsense (I have tried!); nor can he persuade me that it is scientific; but does this stand-off imply that his predictions are exempt from scrutiny or cannot be appraised on their merits? The Jehovah's Witness and I do not appreciate each other's strong opinion about blood transfusions; but is there then no objective science of medicine?"

Grey (1999) agrees. A pseudoscience like astrology has typically one or more of three failings that distinguish it from a science, namely lack of rigour such as lack of controls, ill-defined concepts that are difficult to test or refine, and appeals to authority rather than to observation. Whereas science depends on challenges and thus advances, pseudoscience rejects them and thus stagnates. Appendix 2 gives a more detailed summary of Grey (1999, 1998).

Grey (2000) extends this to sun sign astrology: "Astrologers have had plenty of opportunity to establish the validity of sun sign astrology via double-blind tests. That they have not done so is most easily explained by the hypothesis that they cannot do so. Sun sign astrology is not knowledge but epistemological hallucination."

Kelly (2000) puts it succinctly: "No astrological body could embrace science and stay in business."

Although the above authors can disagree on which issues make astrology irrational, they all agree that astrology is not a source of reliable knowledge although it can be a source of sympathy and support. The sympathy and support provided by astrology can range from the most trivial pleasure of a sun sign column to the fulfilment of the deepest spiritual longing. As pointed out by Peter Williams (1980), a historian of American religion, "What most people cannot tolerate for extended periods is the lack ... of a larger whole in which all is fundamentally well despite occasional or even frequent breaches of order and justice." A larger whole is what astrology can provide, but not reliable knowledge. So philosophers see it as a hallucination.

Appendix 1. Summary of Kanitscheider (1991)

Bernulf Kanitscheider is professor of the philosophy of science at Justus Liebig University in Germany. Although scholars from other disciplines have discussed the status of astrology, eg the religious scholar Dr Gustav-Adolf Schoener has looked at *Astrology between religion and science* (see this website under Philosophy), Kanitscheider is perhaps the only modern philosopher (as opposed to say modern scholars of religion) to have devoted an entire paper (9 pages) to astrology. It typifies the modern philosophical analysis of astrology.

Rational refutation has not succeeded because "astrology fills and emotional human need. Sceptical arguments impress only a few intellectuals, whereas the motivating force behind astrology has always been a person's need to deal with life."

Analysis usually involves (1) empirical results, and (2) underlying theoretical structure. Empirical results may mislead due to errors, so we are better guided by theory. For example we do not study whether house numbers describe the occupant because numbers and occupants belong to different categories and cannot logically be related. The same applies to astrology. Just as there is no reason to suspect that butcher shops

have identical numbers, so there is no reason to suspect that butchers have identical sun signs. To link categories that cannot logically be related involves severe difficulties.

To start with, known celestial forces can only influence biology. They cannot directly influence traits such as courage and love of adventure.

Suitable physical forces are not known to exist. Since the chart relates to observed positions, not actual positions, the forces travel at light speed just like radiation. But unlike radiation they are unabsorbed by the earth yet absorbed by the fetus, they exist only at birth, they do not diminish with distance, they vary qualitatively according to planet, and they are not swamped by the corresponding emanations from the earth. Furthermore, in the case of companies and ships, there is no physical entity for them to act on.

The quality depends not on the physical character of the planets but on magical correspondences involving their names or essences. Thus "the gigantic mass, or the atmosphere of cold gases, or the density of Saturn" is of no consequence. Instead "it is the god's dark and hoary looks that are responsible for generating stern and cunning men". This might be explained if the names given to planets reflected an essence perceived via the ancients' superior insight into nature, except there is no trace of such superior sources of knowledge. The basic problem is that there is no need for magical correspondences in modern thought because as yet we have observed no phenomena that require it.

Kanitscheider points out that none of the above points are relevant if people turn to astrology seeking not knowledge but sympathy and support. He concludes "It is perhaps easier to swallow the advice of a neighbour when it is disguised as an ancient star belief. If astrology became a life supporting activity, dispensing reasonable advice on conduct, and if it recognised itself as a kind of practical wisdom only in name and through history from stars and planets, then the way would be open for peaceful coexistence between astrology and astronomy."

Appendix 2. Summary of Grey (1999, 1998)

William Grey is senior lecturer in philosophy at the University of Queensland. He is one of the few modern philosophers to have interacted with astrologers (Grey 1994) and to have initiated a national survey of belief in astrology (Grey 1992). In Grey (1999) he compares science with pathological beliefs such as astrology. In Grey (1998) he gives guidance on how to decide what to believe.

Grey (1999) points out that a comparison between science and astrology tells us much about the quest for truth. First, science changes and corrects itself in response to challenges, which is one of its major strengths. In contrast, a pathological belief such as astrology rejects challenges and thus stagnates, which stagnation is then seen as showing that astrology is true.

Second, science has progressively enriched our understanding of the world. Thus we now explain combustion without phlogiston, planetary motion without epicycles, thermal conductivity without caloric fluid, and electromagnetic radiation without a luminiferous ether. In contrast, astrology has not enriched our present understanding of the world. It is a pathological belief system that has outlasted its usefulness.

There is no clear boundary between healthy and pathological beliefs, which can make it difficult to tell one from the other. Approaches such as inductivism, verificationism and falsificationism, have proved notoriously problematic. It is easier to specify the defects of bad science than the hallmarks of good science.

Nevertheless a pseudoscience (and also poor science) is typically marked by one or more of three distinctive failings -- lack of rigour (eg lack of controls, describing rather than measuring), ill-defined concepts that are difficult to test or refine, and appeals to authority (usually infallible) rather than observation. Whereas science depends on challenges, pseudoscience rejects them, seeing them as attacks to be defended at all costs..

Scientific theories are abandoned when there is a better alternative, but the alternative may be slow in coming. Thus phrenology persisted for a century, the idea that bad blood causes disease (hence bloodletting) persisted for many centuries, while the four humours persisted for nearly two millennia. Longevity is no guide to truthfulness.

Trying to tell the future has always been a popular obsession. Invariably it involves the interpretation of a particular pattern (of cards, of stars, of tea leaves, etc) said to encode the future. It presupposes a determinate future, which is an idea open to dispute, and that this future can be known, which is not plausible because it would require backwards causation.

Like aeromancy, belomancy, capnomancy, dactyliomancy, halomancy, ichthyomancy, lithomancy, myomancy, ophiomancy, pegomancy, rhabdomancy, scapulomancy, and tephromancy, most of the future-telling techniques of the past are now unfamiliar, no doubt because they do not work. After all, if the ability to foresee the future existed, it would be such an evolutionary asset that it would necessarily be dominant today. But no such dominance is apparent.

So any belief system that purports to tell the future is most likely pathological. Of course well-behaved deterministic prediction systems (as in celestial mechanics) do exist, but they are special cases, and it is not hard to explain why.

Deciding what to believe?

Grey (2003) explains that deciding what to believe is the subject matter of epistemology, the seeking of rational principles for matching beliefs to evidence. If astrologers say that astrology proves that science is wrong, and scientists say the opposite, what can be done?

First, be skeptical and withhold judgement until the evidence is in. Of course it depends on the belief. We do not doubt the existence of tables and chairs, whereas we doubt the existence of Santa Claus and the tooth fairy. Between these extremes are the disputed cases such as astrology, which is where being skeptical is appropriate.

Second, prefer the ordinary to the extraordinary, and the simple to the complex. This is called Ockham's Razor. If a simple explanation such as elliptical orbits matches the observations, and so does a complicated explanation such as epicycles, the simple one is probably correct. [Similarly the experience of astrologers is equally well explained by the well-known cognitive illusions that foster false belief, and by complicated forces unknown to science, so prefer the former.]

Third, apply Hume's razor to decide whether it is rational to hold a certain belief. Ask yourself which is the more likely -- that the idea is true, or that the evidence for it is insufficient. That astrology really happens as claimed, or that its proponents are deceived by cognitive illusions, so it has a natural explanation.

Finally, be aware that our search for truth can be sabotaged by our love of wonder and by our vested interests.

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Ways of knowing

A swim in the shark-infested waters dividing science and spirit

Geoffrey Dean

A slightly expanded version of an article in *Pulsar* 8, 2-8, Winter 1991-92.

Abstract -- A simplified and nontechnical exploration for the general reader of the divide between science and spirit, and of ways of knowing. Most astrologers claim that astrology encompasses both the material and spiritual planes. The spiritual approach removes doubt because none is possible, which to some people is comforting. By contrast, the scientific approach demands tests and emphasises doubt, which to some people is far from comforting. There are several recognised ways of knowing (intuition, experience, authority, deduction, induction, and science). The trick is to distinguish between knowledge and belief, which are not the same, just as facts and values are not the same. Astrologers tend to look at astrology from a value viewpoint and conclude that it works. Critics tend to look at astrology from a factual viewpoint and conclude the opposite. Beware the difference. 12 references.

Some fools employ all their lives in writing nonsense, and others all theirs in trying to make sense of it.

Anon, quoted in James Wilson's *Dictionary of Astrology* 1819:305

What in astrology turns you on the most? *Practical* matters such as relationships and vocation? Or *spiritual* matters such as potentials and transcendent meaning? Do you soothe your clients with "you have career difficulties"? Or do you sock it to them with "your task is to find your ego -- the father within rather than the father outside"?

Whichever kind of astrologer you are, you probably see other kinds like distant relatives raised on garlic, to be greeted from upwind but never invited to lunch. As one of the other kind hovering downwind, I now invite *you* to lunch, albeit not necessarily yours, for we are about to swim in the shark-infested waters dividing blithe science from blithe spirit. We start from the lush tropic shores of the latter.

Blithe knowledge

To the philosopher, spiritual astrology ("it shows us reality as a whole") raises the same problems as religion ("God is a loving heavenly father"). Namely, does it say anything that could be true or false? For religion, Blackstone (1963) summarises the views of many contemporary philosophers as follows:

(1) When is a statement religious? Answer: When it provides an all-pervasive orientation and an object of devotion, such as "The Lord is my Shepherd".

(2) Are religious statements capable of being true or false? Answer: Many religious statements (but not all) are *intended* to be true or false, such as "it is incorrect to think of God as transcendent". But *in reality* they will not be true or false unless some data could verify or falsify them.

(3) What qualifies as knowledge? Answer: Knowledge must meet three criteria. It must be true (we cannot *know* what is not true), we must be sure it is true (we cannot know if we are unsure), and our certainty must be justified by data obtained via reliable methods (no data = no knowledge). Excluded are systems based on formal postulates, such as Euclidean geometry, which are valid or invalid rather than true or false.

(4) Do religious statements qualify as knowledge? For example "God exists". Answer: Because there is no way of publicly distinguishing this from "God does not exist", the answer is no. To qualify as knowledge it must be supported by reliable evidence. As you might expect, sophisticated theists avoid the kind of statements that, if disconfirmed, would require them to give up their beliefs. For example "if God exists then the world will end tomorrow".

Be safe -- be nonfalsifiable

The above arguments show that between religion and science, as between astrology and science, there can be no conflict provided religion and astrology stick to nonfalsifiable and unverifiable statements. To put it another way, if like Einstein (who was both deeply religious and arguably the most famous scientist of his time) we see science as concerned not with values but with finding out what *is*, and religion as concerned with super-personal values that neither require nor are capable of rational foundation, then conflict between the two becomes impossible.

But it is not that simple! In practice no person uses religion as the ultimate authority for moral reasoning. In reality we pick whatever suits us (like the requirement to love thy neighbour) and ignore the rest (like the requirement to stone adulteresses). So we have some other authority, and that authority is "what most people think is moral", which of course can change over time. Similarly, some religious claims (like angels exist or souls survive bodily death) are also scientific claims that are therefore not outside the domain of science. But such complications do not upset my argument.

Some astrologers do indeed restrict astrology to super-personal values. Like Paracelsus they may be committed to a "metaphysick" or Grand Scheme of Things which happens to be conducive to astrology, yet reject certain of its claims (in this case mundane astrology), just as Hindus can be committed to a concept of God and reject certain claims of Christianity. But most astrologers claim that astrology has the unique advantage of encompassing both the material *and* spiritual planes. For example, Dennis Elwell (1987:4) says "astrology is the best and maybe the last hope of religion, because it offers a meeting-ground for the scientific and religious views of reality, reconciling many of their differences". No matter that both sides show no interest in astrology.

Now for the bad news

Invoking spiritual values does not elevate astrology beyond criticism. Indeed, it may be the death of it. Let me explain.

To start with, an astrologer who seeks spiritual fulfillment rather than truth will usually toss inconsistencies and falsifying data out the window. For example, Gregory Szanto (1985) claims that the astrological symbols in our birth chart help us align our outer physical expression (where we have free will) with our inner spiritual nature (which is set by God) to achieve harmony with the universe. He then claims that only intuition can reveal the inner nature shown by the birth chart. So the meaning must be allowed to rise spontaneously from the unconscious (where he claims meaning resides), for example by using the birth chart as a crystal ball. Note the problem -- there is nothing

here that could be true or false. Worse still, the problem of how to resolve opposing intuitions (which, given that astrologers show no useful agreement on what a given birth chart shows, is the rule rather than the exception) is simply ignored. In these warm enticing waters we have met our first shark.

Spiritual sharks for sale

Those with a taste for shark will find a gourmet feast among the claims of the late Dane Rudhyar, perhaps the best-known proponent of the broad spiritual approach, *spiritual* being the word preferred by him (Rudhyar 1975:49). What follows is largely a condensation of a detailed analysis due to Kelly and Krutzen (1983) and Kelly, Culver and Loptson (1989). Rudhyar's claim comes first in italics, then their analysis:

Astrology deals with individuals, science does not. According to Rudhyar (1936/1970:460), "modern science is obliged to ignore the individualness of every living entity" whereas astrology "deals essentially with the individual". But science does not ignore individuals. In fact a major focus of psychology is the study of individual differences. If a theory does not stop bedwetting, or cure fear of spiders, or identify ability, or help Gladys learn better, then we reject it or revise it. Rudhyar has set up a straw man.

Astrology's truths are not empirical. Rudhyar (1936/1970:459) denies that astrology gives empirical truth, that is, truth which can be confirmed by observation. Thus the birth chart reveals a person's potentials but does not indicate what will actualise these potentials. To paraphrase Eysenck's (1985:195) critique of Freudian theory, this presents us with a difficulty. What if the potentials are merely speculations that are actually untrue? How can we tell? Tests have shown that astrologers generally disagree on what a given chart indicates, so how can we tell who is right? Thus even if we accept astrology as a source of insight, we still need criteria for deciding its truth or falsity -- and none are provided.

Astrology sees man and the universe as a whole. This requires the assumption that it is meaningless to examine any part in isolation. Just as a note has meaning only as part of a melody, so life can be understood only as part of the universe, and astrology "if it is properly used" is the best way of finding your place (Rudhyar 1977). If you disagree, then astrology "is not being used properly". Compare this with faith healing -- if you have faith you will be healed, but if you ain't healed then you have insufficient faith! By invoking holism astrology is thus made nonfalsifiable and is elevated beyond criticism. The impossibility of examining the whole is conveniently ignored. Furthermore, even the supposedly "whole chart" of 10 planets is still a microscopic "part" of the universe of over 10^{22} stars, so by Rudhyar's own argument the birth chart is necessarily meaningless.

Ultimately Rudhyar (1980) defines astrology as being beyond inquiry: "To reduce astrology to a practice susceptible of...[objective analysis] is to me to repudiate its very special character as a discipline of understanding -- a path to broad psycho-spiritual wisdom." This would seem to absolve astrology from any responsibility to establish the truth of its claims. Thus the real foundation of spiritual astrology is that no belief about anything could be false, and its defence against criticism is nonfalsifiability. The problem of course is that, if you believe it is all foolish nonsense, then by its own rules you are right. In the long run the difference between surviving and being devoured by sharks is largely a question of knowing, coming up next.

Ways of knowing

Knowing requires sufficient evidence. When evidence is not sufficient, we can, in order of increasing difficulty and decreasing popularity, either (1) believe, (2) suspend judgement, or (3) try to find out. There are several recognised ways of knowing, as follows:

Intuition (Ideas directly intuited to the mind, traditionally much trusted but highly unreliable, how do you resolve opposing intuitions?). **Experience** (much used but will not indicate how to compute square roots). **Authority** (acceptable only if the source is reliable). **Deduction** (from the general to the specific, if all green apples are sour then this green apple is sour, not a source of new knowledge). **Induction** (from the specific to the general, if this green apple is sour, then all green apples are sour, not infallible). **Science** (the art of looking carefully, not *what* is done but *how*).

If our warm spiritual seas contain too many sharks for comfort, it is little better in the cold demanding waters of science. Let me show you what I mean.

Scientific sharks

The scientific approach developed gradually over many years and has proved to be an excellent method for understanding the natural world. It provides no ethical pronouncements, no alternative religions, just a good pair of eyes and ears. It proceeds by having ideas, testing them rigorously, then fitting them into a coherent overall pattern. The assumptions are events have causes, the relationship exhibits at least some order, and the relationship can be discovered by observation.

If events are beyond observation, they are beyond scientific investigation. This does not mean that events cannot be approached in other ways, eg by introspection. But without independent tests that give them public verification, such approaches carry little weight in science. Life is short, and speculations are ten a penny.

Avid shark watchers will note much in common with the spiritual approach. In each case every detail is seen as part of nature's plan. Many people prefer the spiritual approach because, like instant coffee, it is richer and more satisfying. It removes doubt because none is possible. By contrast, the scientific approach demands tests and emphasises doubt, which to them is as comforting as having their teeth drilled. The sharks here are of a different kind.

Sharks out for a duck

In his account of quackery in twentieth century America, Young (1967: 427) comments "The quack can erect a beautifully logical structure on the basis of one false but plausible premise. Countless intelligent and educated men have missed the premise, admired the logic, and been trapped." Can countless intelligent and educated astrologers be wrong?

A scientist usually tests ideas by conducting an experiment. The results are critically examined by other scientists, who conduct further experiments, and so on, until consensus is reached. The scientific approach thus has three features: it is collaborative, it is impartial, and it is self-correcting. At least in principle. In practice, human fallibility introduces hiccups, but not serious ones. In the long term, as the history of science shows, truth in science has always prevailed over prejudice. This makes science almost unique among human endeavours.

For example, suppose the idea is that astrology is explained by "as above, so below". The questions that a scientist might ask, together with the answers as far as we presently know, would be: Is this explanation correct? (don't know). Is it compatible with existing knowledge? (no). Are there other explanations? (yes). What would prove each explanation wrong? (research). Here the research would consist of tests of hypotheses based on each explanation. The last question is a potent corrective to woolly thinking. But in cold waters the sharks run deep.

Sow the wind, reap the shark

The scientific approach is unlikely to produce results unless the variables are uncomplicated (at least to start with), and the variables can be measured (otherwise it is impossible to keep track of what is happening).

These points apply in the physical sciences, where the behaviour of a gas or a pendulum can be predicted in detail using only a few variables. They do not apply in the social sciences, where countless variables (most of them imperfectly understood) can interact in complex ways, so that the behaviour of a rat or a person is currently beyond all but the broadest prediction. To make matters worse, measurement, control and replication are more difficult, and the mere existence of an observer may change everything.

Despite these difficulties, great progress has been made to the point where systems just as complex as astrology have been investigated with appreciable success. Examples are Freudian ideas and phrenology, whose untestability when they were invented steadily disappeared as methodology improved. So it cannot be claimed that modern methods are inadequate for research into astrology. Imperfect, yes. Inadequate, no. Even sharks are entitled to a fair Trades Description.

Shark lovers unite

Central to our noble natatorial navigations is how we view our experiences in terms of *values vs facts*. If our experience happens to be based on values then facts tend to be irrelevant, because if it feels right then it is right. Thus the idea of Santa Claus is uplifting even though he does not exist. But if our experience happens to be based on facts then values tend to be irrelevant, because it can feel wonderfully right and still be wrong. Thus smoking is harmful even though smokers say it feels good.

The distinction between values and facts explains why some things can be strongly accepted by some people and strongly rejected by others. Thus a certain religious or superstitious idea may be strongly accepted by millions of people because it has value, and equally strongly rejected by millions of others because it has no factual basis. For example Roman Catholics before AD 1000 were forbidden to *believe* in witches flying through the air (= no factual basis), whereas 500 years later they were forbidden to *disbelieve* (= value for increasing power of ruling class). The distinction values vs facts is explored in more detail as subjective vs objective in the *Phillipson interview of researchers* on this website under Doing Scientific Research.

By definition there is only one viewpoint based on facts. But there are many viewpoints based on values -- in principle as many as there are people -- each supported by the slogan "it's true for me!". Those seeking a value viewpoint are thus confronted not with a single neat package but with bewildering confusion.

To a shark trying to decide which restaurant has the best view, the point is not which view is best, but that the views tend to be incompatible. Thus rating an experience in

terms of value will not be acceptable to a shark who insists on facts, and vice versa. The more value-oriented the viewpoint, the less relevant science becomes, because the issue is increasingly not about facts but about values. As we fall flailing between the Scylla of sharks and the Charybdis of sharks, we get one final insight into this conflict of swimming rights by looking at the distinction between knowledge, ignorance, and belief.

Jaws and the meaning of life

For convenience I define knowledge, ignorance, and belief as follows: *Knowledge* = Testable ideas that have been verified (the Earth is round, malaria is spread by mosquitoes). *Ignorance* = Testable ideas not yet verified (there is a planet closer to the Sun than Mercury, meditation helps you levitate). *Belief* = Untestable ideas impossible to verify (angels feel no pain, we are here to help others).

Knowledge is not necessarily more helpful than belief. Believing that we fly in our sleep may make life more meaningful than knowing we do not. Knowledge is not even necessarily more helpful than ignorance, as when ignorance (but not knowledge) is bliss. So if we prefer values to facts, it is not important for ideas to be verified, or for astrology to be scientific -- at least not up to the point where our belief leads us to jump off cliffs. Whatever our preference, constructive debate is unlikely unless we observe two golden rules:

(1) Knowledge, ignorance and belief are not the same, just as values and facts are not the same. Do not parade one in the guise of the other, especially in front of those about to jump off cliffs. Be aware also that each side may have its own perspective on these matters, so watch out for misunderstandings.

(2) Astrologers tend to look at astrology from a value viewpoint and conclude that it works. Critics tend to look at astrology from a factual viewpoint and conclude the opposite. Beware the difference, especially as each side tends to be unaware of the other's viewpoint.

Ultimately the question is whether astrology is to be applied for the good of people, for the good of astrologers, or for the good of sharks. As they used to say on BBC's *Blind Date*, the choice is yours.

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Readers' comments on specific topics

With our response as at July 2007

Abstract -- So far (1) Twelve general comments including suggestions for research. *Indian reader*. Tests are not enough. You need to expose the absurdities of astrology. (But these are already well discussed on this website.) *UK reader*. Try testing quintile and septile aspects. (This fails to consider the whole chart.) *American reader*. Recent studies found a strong effect of month-of-birth on human lifespan. (As did Huntington in 1928.) *Australian reader*. Have you seen Leos that act like Leos? (Yes, and Leos that act like Scorpios, Librans, etc.) *Australian reader*. Is astrology helpful or harmful? (It can be both.) *UK reader*. You ignore things that show astrology working. (Like what?) *UK reader*. Your case against astrology is bigger than your case for. (What are we missing?) *American reader*. You ignore business astrology. (Yes, because it does not allow clear conclusions.) *Argentinian reader*. It is not the purpose of astrology to satisfy scientists. (We agree.) *Indian reader*. Astrology is obviously not useful so why bother with empirical tests? (Why have arguments when you can have tests?) *American reader*. Why don't you test astrology fairly? (Like how?) *Australian reader*. If our view of reality is flawed then the scientific arguments against astrology may also be flawed. (As in jumping off cliffs, outcomes are not changed by our views of reality.) (2) Three comments to which reasoning errors are relevant. *American reader*. Science seems biased against astrology. (The problem lies with astrologers ignoring cognitive biases, ie hidden persuaders. It is easy to produce a persuasive astrology reading by hidden persuaders alone.) *Same American reader*. Do astrologers really ignore other explanations? (Yes.) *UK reader*. Astrology really is a mystery. (Hidden persuaders are not a mystery.) (3) Five comments about astrological forces and white crows. *German reader*. You don't understand the nature of astrological energies. (No need for energies to explain astrology. Hidden persuaders are enough.) *American reader*. Leo Knecht is a genuine white crow. (Details are too meagre for us to be sure.) *UK reader*. Astrology needs a mechanism. (See above.) *American reader*. Astrology needs a force. (See above.) *Same American reader*. Gauquelin's planetary effects demand an explanation. (First remove artifacts.) (4) Five questions from a Swedish radio station. Why did you start astrology-and-science.com? (To show the facts.) Is it important to show facts about astrology? (Yes.) What kind of reactions from astrologers? (Denial or outrage.) How do you look upon astrologers? (They are generally warm and caring.) What impact will your research have on astrologers? (None.)

Where necessary the comments have been abridged to save space.

(1) General comments including suggestions for research

Indian reader. The information you give leaves the reader unclear about why astrology is false. Empirical evidence is not enough to counter the positive experiences of astrologers and their clients. You need to expose the absurdities of astrology. **Reply**. These absurdities such as its internal conflicts have already been well discussed on this website. But we must be cautious -- remember the folly of arguing that no research was needed to prove the absurdity of stones falling from the sky, of continents moving, of matter being mostly empty space, and of man flying by his own muscle power. Furthermore, critics have been exposing the absurdities of astrology since Roman times but to no avail. Astrology may or may not be a crutch, but hearts are not won by kicking away crutches.

UK reader. I suggest testing the brain states of people with a high incidence of quintile and septile aspects. According to the published findings, such people should find it easier to enter such states than others without the aspects. **Reply**. The findings are based on a sample of N=14, which hardly justifies research that, for those who are not neuropsychologists, would be impractical anyway. Furthermore a negative result would be immediately discredited by astrologers as yet another example of failing to consider the whole chart.

American reader. Recent studies have found a strong effect of month-of-birth on human lifespan. **Reply**. The same was found by Huntington in 1928. In any case astrology is not needed to explain the effect.

Australian reader. I would rather find broad evidence for astrology before I dissect its workings. In your research have you seen Leos that act like Leos? **Reply.** Yes. We have also seen Leos that act like Scorpios, Librans, etc. Here the broad evidence is no evidence at all.

Australian reader. After enrolling in a Kepler course I was given an article that explained why astrology is not currently a science but will be in the future, and how we don't know why it works, it just does. But your website shows how astrology will never be a science, which has saved me much time and money. Do you see astrology as helpful or harmful to society? **Reply.** It can be both. Astrology can be helpful because it indirectly puts clients in touch with someone they can talk to. It can also be harmful if clients have to believe in untruths. In 1995 a survey of British schoolchildren aged 14-15 found that most saw astrology as harmless fun; nevertheless more than one-third actually believed in it, and a minority had been led to traumatic occult practices. In 1966 in Japan the annual birth rate dropped by 25 percent due to an extra half million abortions; it was the year of the fire-horse, which is extremely unpropitious for girls. In these cases astrology was anything but harmless fun.

UK reader. People at the recent AA conference in York had the feeling that you had an agenda. Some saw you as having a fixed view which says there is no hope for astrology, so you tend to ignore things that show astrology working. **Reply.** This seems like wishful thinking to offset a lack of evidence, for such a view does not appear on this website. But see next.

UK reader. I have read through your *Case For and Against Astrology*. It does put the Case For, but the Case Against seems too inflated for anyone to accept the arguments as a whole. **Reply.** Perhaps there are simply more arguments against than for. Readers are welcome to suggest arguments for astrology not already covered on this website. (That was in August 2003. So far no suggestions have arrived.)

American reader. You do not examine business astrology. **Reply.** Yes, because as explained under 9.7 in the Phillipson interview, it does not allow clear conclusions. It has in-built practitioners and therefore in-built self-fulfilling prophecies. Thus if it worked, and everyone followed it, it would no longer confer an advantage and would therefore stop working. Two articles on business astrology are online in the link to the business astrologers website.

Argentinian reader. I have doctoral degrees in medicine and psychology and have been in professional practice for 26 years. Astrology is obviously not a science. Its persistence is due to the deep psychological needs of ordinary people that science is obviously not meeting. It uses astronomical concepts as a tool to help people, that is all. But to help people an astrologer must be in contact with the client, so studies that analyse its scientific viability a la Gauquelin are just rubbish. It is not the purpose of astrology to satisfy scientists, but to satisfy the needs of people, so the debate you are pursuing is a complete waste of time. You are trying to establish a new faith where only science is seen as a valid way of approaching the world. **Reply.** Actually quite the opposite, see *Phillipson interview* (including the summary in section 20) and *About site*, where we express views similar to your own.

Indian reader. You should be able to find arguments against astrology without referring to experimental results. Thus after many years of reading astrology books and forecasts, I have noted how sun sign forecasts rarely agree when in fact they ought to agree, and

how readings have to be general if they are to fit. Also if astrology is to explain differences between time twins, and how thousands of people can die together in a mass disaster, it would have to be so sensitive to microscopic differences in birth time that no recorded birth time would be good enough. So astrology is not useful, a point readily arrived at logically without appeal to empirical tests. **Reply.** There are many such arguments, but inconsistency does not necessarily mean everything is in error, any more than an inconsistent pizza recipe means that pizzas cannot exist. Empirical tests are still needed if we are to be sure.

American reader. In response to your exchange with Denis Elwell, I suggest you stop badgering astrologers into predicting the future and stop repeating the mantra that astrologers cannot determine which chart belongs to X. Instead you should for once consider a fair test of the validity of astrological principles and techniques. For example a team of astrologers could read a chart using a technique agreed in advance. The chart would be of a person or event picked by a neutral party. The reading would then be judged by neutral parties against nationally accepted standards specified in advance such as those taught by Kepler College. **Reply.** Nowhere do we badger astrologers into predicting the future. It seems you may have confused this with our concern to avoid after-the-event selection of chart factors, which of course has nothing to do with predicting the future. Furthermore the inability of astrologers to determine which chart belongs to X remains a serious problem. Your suggested test consists of comparing the reading by one technique (the one agreed to in advance) with the reading by another technique (the one taught by Kepler College). This is thus a test of agreement, not a test of validity. But no useful conclusions about validity can be drawn from a test of agreement, in the same way that "yes, we agree that the earth is flat" says nothing about whether the earth is really flat. Furthermore, 25 tests of agreement have already been made, many by astrologers, with negative results, see *Phillipson interview*. What is needed is a new type of test, not an old type of test. Back to you. (That was in November 2001. So far nothing has arrived.)

Australian reader. The major events in my life (a head-on car accident, the death of my son, the end of my marriage, etc) have corresponded almost exactly with major outer planetary aspects, but because of the complex archetypal nature of astrology it is difficult to make specific interpretations in advance. Also, there are limits to empirical research since it fails to include a non-material element, some might say spirit or soul. If our view of reality is indeed flawed then the scientific arguments against astrology may also be fatally flawed. My fervent wish is for people to make their own enquires into astrology, but of course we are not all thoroughgoing enough to devote our lives to this complex subject. **Reply.** We have often heard the complaint that empirical tests are fatally flawed, but when we ask how these supposed flaws can be overcome, the standard response is a deafening silence. Your observation that interpretation is a difficult guessing game is not reflected by the confidence that astrology books show in such matters. And flawed views of reality have no bearing on whether astrologers can usefully match charts to their owners or usefully agree on what a given chart means, in the same way that flawed views of reality have no bearing on the outcome if you jump off a cliff. Numerous thoroughgoing people including astrologers have devoted time to testing astrological ideas, and their individual findings (as distinct from our overviews) are described in *Research Results* on this website under Doing Scientific Research.

(2) Comments to which reasoning errors are relevant

American reader. I have had astrological readings that were precise, specific, on-target, and highly persuasive. That so many well-informed people are willing to take astrology seriously suggests that science has real problems. It seems driven not by a quest for truth but by a desire to suppress a particular worldview. **Reply.** Persuasive readings are the everyday experience of astrologers, which is why they say astrology works. But an evaluation based on experience is what psychologists call *personal validation* and is highly suspect because it encourages the cognitive illusions (reasoning errors) that foster false beliefs. Until astrologers become aware of this, astrology is reduced to clouds in which astrologers see faces and pronounce it miraculous. There is nothing here to suggest that science has problems. Nobody is going to take such an astrology seriously as a world-view, although they may well take it seriously as a social phenomenon. If, like astrologers, you find this argument unconvincing, the next three paragraphs may be painful.

The point is, after a brief practice in using these cognitive illusions, any astute person can deliver readings that are precise, specific, on-target, and highly persuasive (see Michael Shermer, *Psychic for a Day or How I Learned Tarot Cards, Palm Reading, Astrology and Mediumship in 24 hours*, *Skeptic* 10(1), 48-55, 2003). Shermer is no ordinary fake psychic. He is Director of the Skeptic Society and author of many skeptic books. He agreed to perform live before a TV audience even though this allowed him only 24 hours of practice in cognitive illusions and the five techniques (the fifth was psychic reading).

He was given one subject for each technique, all women unknown to him, with no prior contact before the reading. For the astrology subject he used a birth chart downloaded at random from the Internet (it was wrong by 21.3 years and he hadn't a clue what it meant). Yet his unknowing subjects rated his readings as accurately summarising their life and personality. One subject who had been visiting psychics for ten years rated it as the best single reading she had ever had.

Shermer concludes "There is not a shred of evidence that any of this [reading by astrology, palmistry, etc] is real, and the fact that I could do it reasonably well with only one day of preparation shows how vulnerable people are to these very effective nostrums. I can only imagine what I could do with considerable experience. Give me six hours a day of practice for a couple of weeks and I have no doubt that I could easily host a successful syndicated television series and increase my current bank balance by several orders of magnitude. There -- if not for the grace of evolved moral sentiments and guilt-laden scruples -- go I. I cannot do this for one simple reason: it is wrong." (page 55)

Same American reader. You say that astrologers ignore other explanations. But do they? For example there can be many reasons for feeling depressed during a Saturn transit, such as overwork or a lack of exercise, and astrologers would not ignore them. **Reply.** This is not what astrologers are ignoring. They are ignoring the many cognitive illusions (reasoning errors) that foster false belief. See previous reply.

UK reader. I think you are misled and misguided when you suggest that astrology is not a mystery (it is). For example reason alone could never hope to provide accurate astrology. **Reply.** Our point exactly. But reason can assess it, and astrology has been found wanting. Who said cognitive illusions were mysterious?

(3) Comments about astrological forces, white crows

German reader. You seem to not understand the nature of astrological energies. They explain why it is so difficult for astrologers to satisfy the demands of testability. Why couldn't astrology work by time quality? **Reply.** A century of research has indicated that astrology has no effects beyond those due to non-astrological factors. So it makes no sense to go on about astrological energies, whatever that means, in the same way that it makes no sense to invoke the end of the world to explain a power cut. Astrology has not been shown to work, so appeals to time quality are beside the point. For more on time quality see *Phillipson interview*.

American reader. You cite a test of Leo Knecht in which he was right "ten times out of ten". So here is your white crow, which you then dismiss because "the test had none of the features such as controls that we would consider essential today". Science is less to do with impartial testing than with selecting conditions to support preconceptions. **Reply.** The Knecht details are so meagre that neither we nor anyone else can be sure that Knecht is a genuine white crow. Think of the Cottingley fairies -- being sure (as Conan Doyle was) did not make them genuine. You imply wrongly that science has stagnated into a set of arbitrary beliefs resistant to change. In fact science has undergone massive changes whereas astrology has remained much the same since Ptolemy. Ironically your anti-science views are not only misguided, they apply even more forcibly to astrology.

UK reader. I see a physical mechanism as the ONLY way that any change is likely to occur in astrological ideas. If no mechanism is found then I fear your website will last till the next millenium. **Reply.** This problem is echoed in the next comment:

American reader. Is there an astrological force that would make it possible for astrology to work? If the answer to this is no, then the game is over and we can all go home. **Reply.** Astrology does not need such a force. Cognitive illusions alone are sufficient.

Same American reader. Re your statement in *Year Zero* about Gauquelin's planetary effects being too tiny to be of the slightest practical value. This is like being a tiny bit pregnant. The existence of an astrological force, no matter how tiny, must be explained. Can it be accounted for by the present basic forces known by science? If not, then it becomes the white crow you seem so eager to deny. **Reply.** True, but again, no force is necessarily needed. This website (see under *Gauquelin*) explains why.

(4) Questions from a Swedish radio station

To which Rudolf Smit replied as follows (August 2003). The questions and answers have been abridged.

Q: Why did you start astrology-and-science.com?

A: Simple! There are many hundreds of astrological websites that provide a one-sided and highly gullible view of astrology. There are very few sites that show the real facts, and even fewer that are impartial. To help restore the balance I decided to set up a site that shows the facts as they really are, nothing more, nothing less.

Q: Is it important to show facts about astrology?

A: Yes. People are used to demanding facts about most things, from car repairs to

gardening, so why should astrology be excluded? If the facts support the claims, then so be it. But in this case the facts tend not to support the claims.

Q: What kind of reactions have you got from astrologers?

A: They vary from total denial to total hostility. Almost never is there informed debate. We have learnt to accept that astrologers won't listen to informed debate and hence do not wish to see its merit.

Q: How do you look upon astrologers today?

A: Astrologers truly believe in what they are doing. They are generally warm and caring, and have a positive outlook on life. Such virtues are clearly valuable in today's dehumanised society.

Q: What impact do you think the research will have?

A: None whatsoever. Astrology is not a science but a belief system. Believers are not open to evidence that contradicts their beliefs. Astrology will continue to be popular with clients as long as astrologers are good people. Astrology itself does not come into it.

Readers' comments on this website As at July 2007

Abstract -- So far only praise for this website's impartiality and information content. "It is a breath of fresh air to see such an informative site not inspired by financial gain, personal belief or religion."

Some readers just say thank you, for example:

Thank you for this wonderfully informative website. (Australia)
Thank you very much for an excellent website. (Brazil)
Congratulations to your website. It is a great resource. (Hungary)
I want to simply commend you for your outstanding work. (USA)
Excellent. Keep up the good work. (USA)

Other readers explain why they like the website, for example:

Excellent collection of articles for those looking for the truth in astrology. (Belgium)

It is a breath of fresh air to see such an informative site not inspired by financial gain, personal belief or religion. (Australia)

I think the kind of research you are doing is commendable and amazing! Please continue not to let personal views get in the way of presenting the findings of your research. (India)

Your site is refreshingly different. If people who are interested in astrology are barking up the wrong tree, we might as well know about it, and the sooner the better. Your panel includes a number of former astrologers, who know exactly what tests should demonstrate the validity of astrology if there is validity to be found. Your articles don't treat the issue as a foregone conclusion, or as something not really in need of proof. Instead, you apply the principles of scientific inquiry to the question of astrology -- just as one should do. ... I shall enjoy following your site for new insights into the astrology debate from responsible skeptics. (USA)

Discussing anything with an astrology believer seldom leads to a productive exchange. One grows weary of wallowing in endless ad hominem, appeals to ignorance, straw men, non sequiturs, red herrings, fallacious arguments based upon observational selection, and post hoc ergo propter hoc reasoning. Then I came across your site. It was a gold mine, informative and useful, just what I was looking for. Members of my group now quote it extensively to counter those who are still enslaved by superstition and ignorance. (USA)

Congratulations on a wonderful website which I found just a week ago. I have been looking for a follow up of *Recent Advances* (which I own and use since 1980) and the latest on the Gauquelin research. Your site has met my expectations! (USA)

Your website is really very good. It is easy to navigate through and I like the abstracts before the full downloads. I think the organisation of material makes sense and I found it very intuitive. I can't think of what else you could do. (UK)

I've found your website to be incredibly helpful and have cited numerous articles in it. The abstracts for the articles and the references inside are just perfect. (USA)

With great pleasure I am reading through your website. The candor that you [Rudolf Smit] use to explain your personal involvement with astrology is just beautiful. Once, many years ago, one of the world's really foremost astrologers was discussing Eva Peron's horoscope. I pointed out that he was using a birth date nine years different from the real one. He was not surprised at all. One might have expected something like "Oops, what a mistake, I must change it", but nothing of the sort happened. Instead, he told me that it had worked OK for him so far, and never talked about it again. I am very much interested in your work and research, Receive my very best wishes. (Argentina)

Reader's Manifesto

For a new astrology of the soul

Abstract -- In February 2005 we received from a reader in Atlanta GA this manifesto for a new astrology of the soul. It holds that we cannot know about this new astrology unless we have transcended space and time into a superhuman state of consciousness. To ordinary humans it remains unfalsifiable. Nevertheless it leads to falsifiable hypotheses. The best critique received by us before 30 June 2006 could win a rare signed copy of *Recent Advances in Natal Astrology* (1977). However, no critiques were received, so we offer our own.

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We posted his manifesto on this website and offered a rare signed copy of *Recent Advances in Natal Astrology* (1977) for the best critique received by us before 30 June 2006. However, no critiques were received, so at the end we offer our own. [The previously cited websites have been replaced with an indication of their content]

A Ten Point Manifesto of the New Astrology

1. Astrology Is Unfalsifiable. The Theory of Evolution is applicable to the evolution of consciousness.
2. It is possible for a more evolved consciousness to factually ascertain the reality of something inaccessible to others. For instance, a 2-dimensional being would be unable to factually ascertain the full reality of a 3-dimensional sphere. The same would apply to a 3-dimensional being attempting to factually ascertain higher dimensions. However, the orthodox scientific method assumes that all observers are equally evolved in consciousness.
3. Space is an entity, factually ascertainable according to the level of evolution of the observing consciousness. What a 3-dimensional being considers time -- a crucial premise to establish cause and effect relationships in the normal perception of space -- may be different to what a more evolved consciousness perceives as time. [Refers here to a site discussing cause and effect, and the importance of controls in experimental research to rule out alternative explanations]
4. Astrology is a science of spatial relationships among living organisms in the universe, a science factually ascertainable by the those who have transcended the human limitations of space and time. [Refers here to an Alice Bailey/Sai Baba website]
5. Astrology is unfalsifiable (i.e., unrefutable) by the common state of human consciousness, although it can deduce its validity. Only a superhuman state of consciousness can factually ascertain the science of astrology.
6. Human beliefs about astrology are falsifiable statements of astrological premises subject to empirical testing.

7. To date most human beliefs about astrology have been proven wrong by the orthodox scientific method. However, such evidence does not refute the science of astrology.

8. A new astrology has been proposed, an astrology of the soul or esoteric astrology. New planetary rulerships have been revealed as applicable to the more advanced members of humanity. New interpretations of cardinal factors such as the Ascendant, the Sun and the Moon, have been proposed as well. [Refers here to a site for Alice Bailey's *Esoteric Astrology*]

9. Falsifiable hypotheses, derived from this new astrology, may be empirically tested.

10. The intuition will replace -- by inclusion and not by exclusion -- the critical mind for ascertaining the validity of any science. Concepts -- such as necessary and sufficient causes, and predictive power -- will be redefined by an intuitive approach to reality.

Our critique

A new astrology of the soul is proposed based on the esoteric astrology of Alice Bailey (1880-1949). According to the manifesto, the new astrology (whatever it is) is simultaneously nonfalsifiable and falsifiable, and can only be tested if we are in a superhuman state. In other words it applies only to superhumans. The rest of us can relax.

Sun sign columns

History, validity, and an armchair invitation

Geoffrey Dean and Arthur Mather

An expanded version of the authors' "Sun Sign Columns: An Armchair Invitation", *Astrological Journal* 38(3), 143-155, May-June 1996. A slightly expanded version appeared in *FAA Journal* [Australia] 26(4), 40-58, December 1996. An abridged version appeared in *Indian Skeptic* 9(9), 5-12, January 1997. See also their follow-up article "Sun Sign Columns: Response to an Armchair Invitation" on this website under Sun Signs.

Abstract -- Sun sign columns are either forecasts such as "Virgo -- romance improves after the 16th", or delineations such as "Taureans are stubborn" or "Gemini and Librans make beautiful music together". Sun signs are the most visible form of astrology in Western countries, simply because they are easy to commercialise (usually only a birth date is required), so what matters is not validity but whether it sells. Typically half the astrology titles on display in New Age bookshops are on sun signs. According to opinion polls typically one-half of the population reads sun sign columns at least sometimes, but only five per cent take them seriously, so they are mostly seen as entertainment. Nevertheless one per cent read them often and take them very seriously, like horoscope junkies unable to exist without their daily fix. Astrologers disagree violently about the merits of sun sign forecasts -- some see them as valid and good publicity, others see them as nonsense and exploitation. How can astrology be taken seriously when astrologers cannot even agree on such a major topic? Sun sign delineations are less controversial because, unlike forecasts, they reflect astrological tradition. They also tend to be our first contact with astrology. We hear or read what our sun sign is supposed to mean, and to our surprise we find that it seems to fit. But look at the meaning of each sun sign from Aries through Pisces -- *assertive, possessive, versatile, sensitive, creative, critical, harmonious, secretive, adventurous, prudent, detached, impressionable*. The traits are universal. Everyone behaves in each of these ways at various times. No matter what our sign is, it cannot help but fit. Sun signs are a confidence trick, an excellent example of the consider-only-confirming-cases artifact (see articles on this website under *Doing Scientific Research*). The authors look at the history of sun sign columns (a modern idea that began in the 1930s), their popularity (about 1250 of the 1500 newspapers in the USA have daily sun sign columns), how they are calculated (several methods including pure invention), the disagreement between astrologers (four decades of quotes), attacks by scientists (including Richard Dawkins in 1995), problems of testing (many pitfalls), and actual tests including prize competitions (none successful). Sun signs emerge as the most tested and most disconfirmed idea in astrology. Astrologers dismiss the tests as inappropriate, but only if the tests are negative -- positive tests are welcome no matter how flawed. But how can sun signs be difficult to test when astrologers are so readily convinced that they work? Can better tests be devised? To find out, the authors invited several thousand astrologers and two dozen interested scientists to devise better tests. The outcome is described in the next article. The present article ends with abridged examples of sun sign forecasts and delineations.

"As the Sun Sign is generally a major factor in any chart ... surely it is the very best introduction to Astrology?" Letter, *Astrological Journal*, July 1991:262

"Balderdash. I said balderdash. Piffle. Rubbish. Tosh and gibberish. Also twaddle, trash, fudge, flapdoodle, drivel and flummery. I wrote it [a sun sign forecast], so I ought to know. But just because I've put this verbiage in print somebody will believe it." Sir William Connor (Cassandra of the *Daily Mirror*) 1909-1967

Introduction

Sun sign columns purport to tell those born in each sun sign what the day, week or month holds in store for them, such as "Virgo -- romance improves after the 16th" or "Libra -- don't be despondent if not appreciated." In principle they are distinct from sun sign delineations such as "Taureans are stubborn" but in practice they often overlap, as in "Arians are born to win." So both are considered here.

Sun sign columns can be based on techniques such as sign symbolism, planetary aspects judged by sign or by house (where first house coincides with the sun sign), and moon transits. Or they can be pure invention, for example the journalist Jan Moir reveals how "my very first job in journalism was writing horoscopes for a stable of women's magazines. It was the office task always given to the newest recruit because it was so stupid and so easy that even a wet-eared geek like me could do it" (*Guardian*, London 6 October 1994). This explains why many statements have no discernible relation to astrology, as in "the letter E is important this week" and those quoted next.

Sun sign columns are therefore perhaps one part astrology and nine parts style. Thus much of the appeal of the late Patric Walker's columns was due to their humility and their uplifting thoughts worthy of Kahlil Gibran, eg "It is time to live by this principle: peace and tranquillity are worth a thousand pieces of gold" and "Remember that true love, respect and friendship cannot be bought." So columns may attract readers more by style than by astrology. Or as the anti-sunsign astrologer Dennis Elwell puts it, by their capacity for "conveying vagueness with such sincerity that ... followers read their own message into it." (*Astrological Journal* 1996, 38(2), 108)

Nevertheless sun sign columns (forecasts and delineations) are easily the most visible form of astrology in Western countries. They are read by typically half the population, yet among astrologers they remain controversial -- some astrologers see them as valid and good publicity, others see them as nonsense and exploitation. But how can astrology be taken seriously when astrologers show such a major division of opinion over such a basic issue? What follows is a contribution towards its resolution.

History

The start of sun sign forecasts in newspapers

Popular astrology forecasts had existed in almanacs and books long before they appeared in newspapers. For example each year since at least 1850 Raphael's *Prophetic Almanac* has given birthday forecasts for every day (eg 9 September 1889 "Great troubles await thee, thy business will fail") including the fate of the newborn ("a child born on this day will be unfortunate"). And in the 1910s and 1920s people could turn to Cheiro's book *When were you born*. But popular forecasts did not take off until they appeared in newspapers, which beginning is known exactly.

Newspaper astrology columns began in August 1930 in the London *Sunday Express*, just after the birth of Princess Margaret. The editor wanted a story on her birth but with a new angle, so Cheiro (then the biggest name in astrology) was asked to do her horoscope. Cheiro was unavailable, so the job went to R H Naylor, one of his assistants. The result was "What the stars foretell for the new princess" (24 August 1930 page 11). It gave her birth chart and described what certain individual factors indicated, namely her Leo sun sign ("The Princess will share certain basic characteristics common to all people born in the present month"), and her angular Uranus, Saturn and Venus ("these three planets will greatly modify the basic characteristics"), but diplomatically not her close Mercury-Mars square nor her close Venus-Jupiter-Uranus T-square, ending with a general forecast (eg health will be "fairly good", life will be "eventful"). More importantly, under the general heading "And a few hints on the happenings of this week", an equal amount of space was devoted to mundane forecasts (eg "a sudden outbreak of revolutionary activities may be expected in Germany"), and forecasts for each birthday in the coming week (eg "August 27 ... you will find life romantic and interesting", "August 29 ... family difficulties are settled").

A week later, under the heading "Were you born in September?" (31 August 1930 page 7), the *Sunday Express* reported that Naylor's article had aroused "enormous interest" with "many requests" for further forecasts. It then gave Naylor's forecasts for each birthday in September (eg "September 24 ... Lucky for investments", "September 30 ... False pride leads to mistakes"), plus a brief mundane forecast (eg "unemployment may decrease slightly"). This was followed a month later by the corresponding "Were you born in October" (5 October 1930 page 21), then a week later by a new weekly article "What the stars foretell for this week" (12 October 1930 page 19), which was introduced by the editor as follows:

"The *Sunday Express* has received so many letters from readers concerning the recent extraordinary predictions of Mr R.H.Naylor that arrangements have now been made for him to contribute an exclusive weekly article. This article will interpret the astrological portents likely to influence national and world affairs each week. He will give warning advice to City men, racing men, and politicians, and will, in addition, tell you what fate may have in store for you if your birthday should fall during the week."

Thus began a weekly column on "What the stars foretell" that lasted until the 1940s. It generally occupied about a sixth of a page in a 24-page newspaper, with 20-25% devoted to mundane forecasts, and the rest to birthday forecasts (and a brief general forecast) for each weekday, including the best days for buying, selling, entertaining, and playing sports and games. Naylor's forecasts were by birth date, not by sun sign, and the only reference to readers' sun signs began in 1935, when brief delineations of the current sun sign (occupying roughly 10% of the column) were introduced each month under the heading "Astrological Who's Who". So although his was the first newspaper astrology column it was not really a sun sign column. Nor was he the first to produce birthday forecasts, for example each year since at least 1850 Raphael's *Prophetic Almanac* has given birthday forecasts for every day (eg 9 September 1889 "Great troubles await thee, thy business will fail") including the fate of the newborn ("a child born on this day will be unfortunate").

"Naylor and his horoscopes became a power in the land. If he said that Monday was a bad day for buying, then the buyers of more than one West End store waited for the stars to become more propitious. Gradually, of course, every paper published a horoscope and you paid your money and bought or sold from Monday to Friday according to which prophet you followed." (Arthur Christiansen, *Headlines all my life*, Heinemann, London 1961 page 65. Christiansen was then editor of the entertainment section and was responsible for first hiring Naylor.)

More newspapers, then magazines, then books

The main competition came from *The People*, a Sunday newspaper similar in size to the *Sunday Express*, which on 1 October 1933 began a weekly column "Plan with the Planets" by Edward Lyndoe. Its first two appearances were accompanied by this cautious editorial disclaimer:

"If you believe that the planets exercise an influence on your destiny -- well, here's all about it, by an astrologer. He may be able to help you. But don't forget that man is master of his fate. Whatever the planets may say, it is you yourself who control the course of your life, even if you do feel inclined to take a hint from the planets. In short *The People* doesn't believe that planets or fate or anything of the sort can take the place of man's own power to work out his own salvation. But still, here's what the planets say." (1 October 1933 page 13 and 8 October 1933 page 14).

Until the middle of 1935 Lyndoe's "Plan with the Planets" seldom exceeded an eighth of a page in a 20-page (later 24-page) newspaper, after which it slowly increased, peaking at half a page in the middle of 1939. It was divided roughly equally into political forecasts, forecasts for those born on each day that week, and forecasts for each sun sign (described by date not by name), which format was later generally adopted by others. So here was a precursor of sun sign columns proper. Interestingly, Lyndoe began to include sun sign names in May 1935, but he dropped them soon afterwards, which suggests that his readers were not ready for such technicalities.

By 1940 an astrology column with personal forecasts was appearing in every mass-circulation Sunday newspaper, in most women's magazines, and in some daily newspapers such as the *Daily Mail* whose "Fortune Forecasts" column consisted of one-liners like those familiar today, eg "By evening you will have settled your difficulties." Sun sign names were now acceptable, for example Gypsy Petulengro's "Your Fate in the Stars" in the *Sunday Chronicle* and Adrienne Arden's "The Stars and You" in the *News of the World* had personal forecasts labelled by both sign and date, eg "Aries (March 21 to April 20)." In short, astrology columns and sun sign forecasts had become a runaway success.

The success did not immediately flow over into books. From 1932 through the 1950s there was an average of one new sun sign book per year, or half this during the austerities of the 1940s, mostly Naylor's *What the Stars Foretell*. During the 1960s and 1970s the average was still only two if 12-volume works are excluded. The first 12-volume work was *Your day-by-day horoscope and character analysis* published by Atlas in 1960. By 1970 12-volume works had become firmly established. The first issue of *Horoscope* magazine (also published by Atlas) appeared in 1954.

In the USA the first astrology column appeared in 1931 in the now-defunct *Boston Record*, and the first forecasts for each sun sign began in 1936 in the *New York Post* (Penelope McMillan, "Horoscopes: Fans Bask in Sun Signs", *Los Angeles Times* 5 July 1985 pages 1, 3, 18). By 1941 about 20% of the US newspapers on file in public libraries carried astrology columns, and the average newstand carried at least four or five astrology magazines (Bok and Mayall, "Scientists look at astrology", *Scientific Monthly* 1941, 52, 233-244). By 1945 about 150 newspapers had astrology columns, which numbers increased rapidly as astrology became more and more popular, until by 1975 about 1250 of the 1500 newspapers in the USA had daily astrology columns (Paul Kurtz, "Astrology and Gullibility", *The Humanist* 1975, 35, 20).

Popularity of early sun sign forecasts

In 1941 the public opinion survey *Mass-Observation* made a detailed three-month study of astrological beliefs among ordinary people in the UK, and found that "nearly two-thirds of the adult population glance at or read some astrological feature more or less regularly", which is much the same as today. Some of their other findings are no less relevant today even though they relate to war-time conditions:

On levels of belief: "The DEPTH of belief ranges all the way from occasional humorous interest to fanaticism. But after studying hundreds of comments and conversations, it is impossible to doubt that astrology is now a very considerable influence in determining the minor decisions of many private lives, and is an appreciable contributory factor in influencing attitudes to wider, international events."

On the effort required: "Anyone, however apathetic or ignorant, can be in some degree interested, without becoming engrossed, and without taking any permanent, definite or outward stand about anything. And there is no service, even on Sunday."

On the effect of wrong forecasts: "The degree of disillusion ... does not correspond to the frequent errors made. This is largely because people want to believe something good, and get pleasure from expecting something good, even if it doesn't happen."
(More on errors later)

The good news: "Our detailed investigations show (statistically) that astrology asserts a temporary steadying influence. The immediate effect is favourable to morale. Women who believe in astrology tend to be appreciably more cheerful, confident and calm than those who do not."

The bad news: "But the long-term effect is to stress fantasy confidences rather than real ones, and to emphasise the personal interest rather than the common interest. ... At present, the filling of certain psychological needs is being left to the initiative of enterprising journalists and enthusiastic mystics, who are not necessarily concerned with the long-term interests or the spiritual health of the community at large." (all from *The New Statesman* 16 August 1941 page 153).

Later, in a letter to *The Times* 11 June 1942, the pollster added "The numerous errors in astrological prediction do not diminish the confidence of the faithful. ... The astrologer, though generally sincere, is not tied by any of the traditional, ethical responsibilities of the editor, parson, or politician. He may influence, even if only in small ways, millions of people, without having to take responsibility for the result, and up till now without much fear of contradiction or criticism. The revival of such ancient beliefs, and their growth into mass interests among the British public, is symptomatic of the wide decline in spirituality over the past decades. Surely the symptoms need to be diagnosed and dealt with? They cannot much longer be ignored."

The start of sun sign delineations

The beginnings of delineation columns are less easy to identify than those of forecast columns. By 1940 sun sign delineations had crept sporadically into UK newspaper columns, but they had existed long before that. For example they appeared along with planetary hours in the perpetual *Kalendar of Shepherdes* (first translated in 1503 from the French original *Le compost et calendrier des bergiers*), that in various editions circulated widely from the 15th century through the 18th. Its sign delineations were based largely on Ptolemy's *Tetrabiblos*. Sun sign delineations are generally not to be found in 18th and 19th century almanacs, although the occasional French almanac may devote half a page to them.

But historically the emphasis in astrology books has been on planets rather than signs. Furthermore, signs with planets in them (of which the sun sign was only one) were less important than the rising sign or *horoskopos*, from the Greek for "watcher of the hour." In *A Student's Textbook of Astrology*, compiled in 1922, the British astrologer Vivian Robson explains the difference: "The rising sign describes the native's outlook on the world and the side of his character that is most in evidence", ie our behaviour, whereas the sun sign shows "the deeper and inner side of his character", ie how we see ourselves. However a more crucial difference lies in their calculation -- rising signs and planetary signs in general need full birth data (time, date, place) and appropriate tables, whereas sun signs need only the birth date. This of course makes sun signs perfectly

suited to popularisation and commercial exploitation. Given the interest in astrology sparked by newspaper columns, the rise of sun sign delineations was inevitable.

Nevertheless they were late in achieving their current popularity, for example in 1945 only two out of ten US monthly astrology guides gave sun sign delineations, and then only briefly. Without scanning many decades of newspapers and magazines it is difficult to be certain, but it seems reasonable to suppose that in the UK sun sign delineations did not really arrive until the 1950s or 1960s. In *Old Moore's Almanack* they did not appear before 1961. Twelve-volume works (ie one per sign) always included delineations, the first being *Your day-by-day horoscope and character analysis* published by Atlas in 1960. By 1970 twelve-volume works had become firmly established.

Today sun sign delineation books heavily outnumber other astrology books in the New Age section of bookstores except when sun sign forecast books are in season. Even in specialist New Age bookstores they can account for one fifth of the astrology titles, with titles currently including *Sun Signs*, *Star Signs*, *Success Signs*, *Baby Signs*, *Cat Signs*, *Love Signs*, *Money Signs*, *Sex Signs*, *Seduction by the Stars*, *Sex Stars* and *Seduction it's all in the Stars*. (Do cat signs reveal the "inner cat" or only "as others see them"? And how would we know anyway?)

Indeed signs generally have taken over even in astrology textbooks. Thus in the 19th century the page ratio for planets:signs averaged about 3:1 whereas today it is more like 1:3. When astrologers talk about planets they now tend to use sign-based psychological characteristics, for example Pluto might be characterised by "Scorpionic intensity." Even the role of rising signs seems to be slowly diminishing, for example in his authoritative *Horoscope Symbols*, written in 1981, Rob Hand says nothing about rising signs, whereas fifty years earlier this would have been unthinkable.

The disagreement among astrologers begins

We have seen how sun sign columns are a twentieth century invention, driven by commercialisation to a status far above their traditional entitlement, making them equivalent to palmistry readings based on little fingers. No wonder that among astrologers they quickly became controversial. For example in 1967 a survey of 213 German astrologers found that 49% wanted a ban on sun sign columns (see *Zeitschrift für Parapsychologie und Grenzgebiete der Psychologie* 10, 115-130). But no action was taken.

Later, in the early 1970s, a famous controversy about sun sign columns arose within the UK Astrological Association (AA), much of it centred on Roger Elliot, then the AA's Promotions Director, who was also the astrologer for the *TV Times* sun sign columns. In Elliot's own words:

"A number of leading Association figures ... silently hated the thought that the *TV Times* astrologer was apt to be the public mouthpiece of the Association. So I retreated and no longer play a significant role in Association matters." (Town v. Gown, *Astrological Journal* Autumn 1973, 21-23)

In his defence, Elliot felt that no firm line could be drawn between popular and serious astrology. The former "supplies an inadequate service which is better than nothing. There is always the hope that it will lead to better things." But Charles Harvey, the AA President, pointed out that the controversy was about sun sign forecasts, not sun sign delineations, which distinction had been ignored by Elliot. Harvey stressed that:

"Sun sign [delineation] astrology ... has a valid and valuable function. Clearly stating its limitations, it sets out to give a popular account of basic astrological principles which no astrologer would deny. ... it is written for a wide non-specialist market but its content though simplified is not essentially different from its specialist counterpart. No-one would deny that such literature has a useful role to play in spreading astrological ideas to a wider public. On the other hand, the daily and weekly sun sign forecast 'horoscopes' which appear in the press have no relation to any kind of astrological fact or tradition. ... They may offer a choice of 12 thoughts for the day but as astrology they are an offence to the intelligence of even the most modestly endowed. ... To couple and underpin such nonsense with astrology is not only a pernicious encouragement of superstition and neurosis but also a corruption and denial of astrology's great power to increase individual awareness and liberate the human spirit from arbitrary values, pressures and exploitation." (*Astrological Journal* Winter 1973-74, 38-40)

These views were endorsed by Julia Parker, President of the Faculty for Astrological Studies who was later to become famous for her best-selling books on sun sign delineations, who felt that:

"Predictive columns ... should all have what might be called a Government Health Warning, telling the readers that this is for entertainment only, and warning them not to take the paragraphs seriously, and certainly on no account to make any decision of the slightest importance on the strength of any statement in an astrological column." (*Astrological Journal* Spring 1974, 15-18)

Certain eminent US astrologers agreed. For example "newspaper or sun-sign astrology is nonsense" and "astrology in the newspapers is pure drivel", from respectively Henry Weingarten and Noel Tyl in *The Humanist* November-December 1975, 25-26. But other US astrologers equally eminent disagreed. For example, in a defence of popular astrology, Charles Jayne argued:

"Those who have written such material [sun sign forecasts] aside from my wife and myself [include] Sidney Omarr, Dane Rudhyar, Grant Lewi, Carl Payne Toby, Margaret Morrell, Pauline Messina, Al Morrison, etc. ... It would not be too much to say that the above group is as eminent and respectable as their critics: this suggests that one or both sides must be partially wrong. ... I suggest that our critics come forward with some hard evidence that this type of material is actually the rubbish they allege it to be." (*Astrological Journal* Spring 1976, 18-19)

But the critics did not come forward with hard evidence. For example, in the same issue the editor Zach Matthews merely commented:

"Can a presentation of it [astrology] to the general public as naively simple to the point of laughable absurdity accomplish anything worthwhile for the public, professional astrologers or for astrology?" (Editorial, *Astrological Journal* Spring 1976, 2)

Even ace investigator John Addey did little better:

"I have not seriously considered ... the possibility that there may actually be a significant amount of truth in the predictions given. ... they have a "grain" of truth in them but it seems to me that the grain is so small that it must normally be lost in a sea of

unknowns. ... based as they are upon two or three factors among the hundreds which are available to anyone with the full natal chart." (*Astrological Journal* Spring 1976, 23)

At which point we leave history to consider validity.

Validity

Enter empiricism: Our prize competitions

Whatever we may think of sun signs, testable claims are often made ("Aquarians favour the unusual", "the 22nd sees you keeping a rendezvous with your gynaecologist"), so their truth or falsity is an empirical matter to be established by research, not proclaimed by fiat or simply ignored. So in 1980 we offered the world's then biggest astrology prize (\$US1000) to anyone who could demonstrate the validity of signs, that is, any kind of sign including sun sign forecasts and delineations (*Astrological Journal* Spring 1980, 57). We described the background to the prize as follows:

"Signs are astrology's most popular and universal concept. They fill the pages of serious textbooks and popular magazines alike. And for over 2000 years astrologers have been largely in agreement about what each sign means. It follows that signs are widely seen to be valid. But if they are valid they can be shown to be valid. And if the popularity of signs is any guide, their validation should be easy. Furthermore if signs are empirically based, as is generally implied, they automatically lend themselves to empirical testing. In other words, it should be easy to demonstrate that signs actually work in the way they are said to work. During our literature searches ... we were therefore confident of finding such a demonstration. But although we had searched well over a thousand books and many hundreds of journals, and had written to hundreds of astrologers around the world, we had not found anybody who had demonstrated the validity of signs -- and many had tried." (*Astrological Journal* Summer 1981, 162-166)

Accordingly, our prize was offered to anyone who could demonstrate the validity of signs as traditionally conceived. Details were circulated to over 10,000 astrologers and students via astrological journals in the UK, USA, Australia and NZ. When our offer closed at the end of 1980, six entries had been received, none of them successful. Along the way we discovered that some people wanted more time, or more money, or a more definite hypothesis to test. So we then offered an even bigger prize of \$US2000 to anyone who could validate the tropical sign hypothesis given in Margaret Hone's *Modern Textbook of Astrology* (1951, 37), which says that each sign is different, and that people will be very like any sign that is prominent in their chart. When our offer closed 18 months later at the end of 1982, four entries had been received, none of them successful, see *Astrological Journal* Summer 1983, 203-210.

With the help of sponsors including the AA we then offered a new superprize of \$US5000 for convincing evidence that the accuracy of chart interpretations (including signs) cannot be explained by non-astrological factors, for example statistical artifacts and human judgement biases. When our offer closed 18 months later at the end of 1984, 34 entries from seven countries had been received, of which 16 did not address the required topic and 3 had produced only negative results. Of the remaining 15 entries (two involved signs), only one was successful, but this was a fake study entered to test the allegation by Dennis Elwell that the prize was unwinnable because appropriate tests could not be designed and the panel of eight judges was not impartial. Nevertheless, as a consolation prize, the six best entries each received \$200. See *Astrological Journal*

Winter 1985, 23-30, April 1986, 92-96, November 1986, 274-275, March 1987, 86-90, and May 1987, 143-147.

Ironically, in certain quarters in the USA the response to our superprize was nothing so simple as an entry. Instead there was sustained ridicule, ad hominem attacks, and the publicising of "The Alternative Geoffrey Dean PhD Space Age Bonanza Super-Duper Prize(s)." This consisted of an unspecified amount (\$10 was implied) offered for the validation or invalidation of "some significant component" of language such as "verbs, nouns, adjectives" and so on, which reflected the view that astrology was a language and was therefore free speech protected by the US Constitution. Improbably, this generated an entry "Astrology as poetic text" from a British astrologer cum semiotician who argued that "proving the validity of language in general amounts to the same as proving astrology, hence I take the contest seriously." See *CAO Times* 1984-1985 Volumes 5(4) through 6(4).

In short, despite massive literature searches, letter writings, and cash inducements, we had still not found anybody who had demonstrated the validity of signs or sun sign columns under controlled conditions. Opinions yes, demonstrations no.

Accuracy of sun sign forecasts: Early studies

The mundane predictions were undoubtedly responsible for the initial interest in sun sign columns, and much was made of any apparent hits. For example on 12 October 1930 the editor of the *Sunday Express* announced:

"Mr Naylor, who has a world-wide reputation as a seer, has been uncannily and extraordinarily accurate in the few articles already published in the *Sunday Express*. He forecast, among other things, the Stock Exchange boom in September and the Hitler upheaval in Germany. And last week ... the R101 disaster."

In fact the first forecast, which read "values on [the Stock Exchange] and otherwise will appreciate after Thursday morning", resulted in the following letter to the editor:

"Sir, -- I note, with great interest, that shares have appreciated on the Stock Exchange, which is in accordance with the prophecy given in the article on astrology in the *Sunday Express* last Sunday. Few of us in business believed such a thing possible under present conditions, but it shows that the action of the planets can be taken into account with some confidence. Fordyce Jones." (31 August 1930 page 7)

The forecast about the R101, Britain's great passenger airship, read "British aircraft will be in danger about the same date (October 8 to 15)" (5 October 1930 page 21). On 5 October the R101 was wrecked in a storm near Paris. She was flying low, weighed down by heavy rain, when gale force winds blew her into a hilltop. There were 46 dead and 8 survivors. Naylor himself commented:

"My prediction last week was based on a very simple observation. It can be proved that, whenever the new moon or full moon falls at a certain angle to the planet Uranus, aircraft accidents, electrical storms, and sometimes earthquakes follow. Now ... the configuration referred to occurred as on October 7; the destruction of the R101, therefore, prematurely fulfilled the indication." (12 October 1930 page 19)

But the hit is ambiguous. Naylor's forecast said 8-15 October, during which time no other hits were noted, whereas the configuration (New Moon conjunct uranus) was actually at 1855 GMT on 7 October, and the crash was at 0205 on 5 October when the Moon was 33 degrees from configuration.

Less ambiguous were Naylor's repeated forecasts of no war: "In this column, for years, I have constantly laboured these points: Hitler's horoscope is not a war-horoscope ... there will be no war over Danzig (27 August 1939). But despite the obvious realities, Naylor persisted with his views, which in the issue of 26 May 1940 led to the following editorial comment: "We are living in tense, grave days. The *Sunday Express* believes that the light, popular entertainment of normal times is out of place now. For that reason it has decided to discontinue the weekly article of astrological predictions."

Ironically Edward Lyndoe also saw no world war, eg "I see absolutely no signs of a Great War during 1939" (*The People* 1 January 1939 page 11), "The Nazis attacking Britain? Don't make me laugh! Not a sign in my charts" (25 June page 6), "Hitler will not do it!" (27 August page 6). Then, ingeniously, after war was declared, "A madman against the stars!" (3 September page 6). But unlike Naylor he did not get the sack.

In 1941 the hard-hitting investigative London magazine *Picture Post* [no relation to Australia's *Picture Post*] tested the accuracy of the top five UK newspaper astrologers (Lyndoe, Naylor, Old Moore, Arden, Petulengro) against nine outstanding events during 1939-1941, most of them involving the invasion by Germany of various European countries. Each prediction was rated on a six-point scale of 0 (totally wrong) through 2 (slightly correct) to 5 (totally correct). Out of a possible total of 45 they scored 9, 12, 4, 4 and 13 respectively, an average of barely 1 per forecast ("What DID the stars foretell?", *Picture Post* 6 September 1941 pages 17-21). The issue of 20 September 1941 noted that "Seldom has any article provoked so much interest" (page 22), and then gave a selection of readers' letters, of which the following is typical:

"Congratulations to the brains responsible for expressing so decisively the fallacies of astrology. My only criticism is that your markings were far too generous, and that negative marks should have been awarded for "reversed" forecasts. By this system it is doubtful whether any of the professors would have had a credit balance."

The issue of 27 September 1941 contained a letter from the astrologer and AA member P.J.Harwood, which said:

"Like other astrologers, I have made my mistakes ... but, on the other hand, a large number of very close hits have been scored. I am sending you a copy of my booklet, *When the War Will End*, and if you are really interested in it I should be obliged if you could give it some publicity." (page 3)

To which the editor replied:

"Readers would be wise not to make their plans for peace celebrations too definite. Mr Harwood's booklet foretold invasion in May 1941, a separate peace with Italy in July 1941, and considered Russia unlikely to "be implicated seriously" in war. [All dead wrong]"

Accuracy of sun sign forecasts: Later studies

In due course sun sign forecasts focussed almost entirely on personal matters, making validation more difficult. But studies have found their accuracy no better than before.

For example Fichten and Sunerton used 366 Montreal college students to test daily and monthly forecasts by Sydney Omarr and Jeanne Dixon and found them to be neither valid nor in agreement. When the sign was not known, forecasts for own signs were judged no more valid than forecasts for other signs. But when the sign was known, forecasts for own signs were judged the best, suggesting that prior knowledge is important for acceptance (*Journal of Psychology* 1983, 114, 123-134). Similar studies reported by us in our follow-up article (Response to our Armchair Invitation) all confirm the same outcome -- forecasts for own signs are judged no more valid than forecasts for other signs.

Furthermore, a content analysis of sun sign columns in US women's magazines showed that the readers' social class was a far better predictor of the advice offered than was their sun sign (*Journalism & Mass Communication Quarterly*, 1996, 73, 389-400).

In effect the same test is made whenever the column happens to appear on the wrong day, eg due to a filing error or because old columns were being recycled to save money, or when the column is pure invention (as quoted for Jan Moir in our first section) or assembled at random from previous columns (as per James Randi in *Flim-Flam!*, Prometheus 1987 page 61). But readers never notice. In Randi's case "two office workers ... eagerly scanned my fake columns for their individual prognostications. They squealed with delight on seeing their future so well laid out, and in response to my query said [their columns were] 'right smack on'."

John Johansen, who for 18 years worked for the tabloid *West Australian*, comments "Many years ago we also printed a tabloid called the *Daily News* [which] had horoscopes every day, until one day something happened, no horoscope had been delivered. What to do? Some smart-aleck suggested that they put old ones in the paper, and so, for two years the horoscopes used were many years old, but no one complained." He notes that the cost of newsprint alone for the *West Australian* (which also has horoscopes) is twice the selling price, so the paper's real customers are the advertisers, not the readers. Hence if the advertisers want the horoscope column to stay because it adds to the paper's appeal (and thus the chance of their ads being read), "you would be a brave editor to drop it, and if you did, the CEO would soon, via the shareholders' wishes, bring it back in" (*the [Australian] Skeptic*, 24(3), 61, 2004).

Many studies begin by comparing what different columns say, and the most common finding is that columns disagree. For example on 30 May 1985 the five most widely-read US columnists made the following forecasts for Gemini. Their own sun sign and syndication are given in ():

Bernice Bede Osol (Scorpio, 500 papers). "Regardless of how well you conduct yourself today you will still be judged by the company you keep. Avoid people of questionable repute. Know where to look for romance and you'll find it."

Jeanne Dixon (Capricorn, 300 papers, less syndicated than Osol but the most widely read of the top five columnists with a total circulation of over 8 million). "Employment affairs are on a more productive course now. Take advantage of a friend's offer to help out in an emergency. A new pal adds glamour to your social life."

Sydney Omarr (Leo, 200 papers). "It's wonderful! But remember to protect self in those emotional cliches. Define terms, refuse to give up something of value for a mere whispered promise. Young person could become valuable ally."

Carroll Righter (Aquarius, 150 papers). "You want to have a good time so go along with the ideas of buddies you like and be happy."

Joyce Jillson (Libra, 60 papers). "Working at home is most successful. Routine jobs can be cleared away at last. Go through your residence and start cleaning closets and drawers. Recycle possessions."

The above are from Penelope McMillan (op cit). Apart from the general positive tone, the main themes -- respectively take care socially, employment situation is improving, with precautions all is wonderful, act on welcome ideas and be happy, do routine home jobs - - show noticeable disagreement.

The same disagreement was found by Sperling ("Newspaper horoscope columns", *Bay Area Skeptics Information Sheet* 1992, no page numbers) for six widely-read US columnists for the week of 13-19 October 1991.

On the other hand, forecasts for longer periods can show the agreement expected when the same long-term indicators are used, for example the forecasts by UK columnists for Cancerian love life in 1996 were "superb" (Archie Dunlop), "remarkable opportunities" (Debbie Frank), "togetherness rules" (Russell Grant), "golden time" (Mystic Meg), and "lot of promise" (June Penn), all reflecting the year-long presence of Jupiter in Capricorn.

Nevertheless for weekly forecasts the disagreement between columns can be dramatic, for example in Australia on 28 August 1983 the Sydney *Sunday Telegraph* told Leos "you will have luck on your side ... love life will be bright ... extra money is coming your way ... you will look good and feel good", whereas the Melbourne *Sunday Independent* (now defunct) told the same Leos "you will be glad when this week is over ... [with its] accidents ... upsets ... gossip ... tensions."

The same applies to daily forecasts. For example on 3 December 1990 the Sydney *Daily Telegraph* had two sun sign columns. For Scorpios, one said it was "One of those days when ... just about everything that can go wrong, does" the other said "Everything should be running well with you". For Cancerians, one said it was "a good day to stay as far as possible in the background", the other said "be prepared to man the action stations."

While astrologers continue to argue over whether this sort of thing helps their image, others have been more decisive. Thus in the USA in 1984 the Committee for the Scientific Investigation of Claims of the Paranormal began a campaign against sun sign columns, urging US newspapers and magazines to label their columns with a disclaimer saying they were for entertainment only (ironically the same as proposed by Julia Parker) and had no basis in fact. The response by the 1200 US newspapers with sun sign columns was slow but steady -- by 1986 0.5% had adopted a disclaimer, rising to 5% by 1994. Ironically some editors refused on the grounds that no educated person takes sun signs seriously, so no disclaimer was needed.

The susceptibility of sun signs to a non-serious attitude is illustrated by a contest held by the US *Saturday Review* (June 1982). The contest called for readers to send in an imaginary weekly column. Among the winners was this one:

Gemini. Put your affairs in order. If you are not a church goer, start. If you are, go more often. Sell your Krugerrands.
Cancer. Same goes for you.
Rest. Sorry gang. Sun goes supernova July 22.

Some writers merely use the format as a vehicle for humour, as in these examples from Steven Harrison's weekly column from Sydney Australia featuring "a mix of ancient wisdom and modern nonsense":

Aries. Plant a tree. Reforestation is a growth industry.

Cancer. Get out more at night. Nocturnal bird spotting is a real hoot.

Leo. Forget keeping up with the Joneses. Bring them down to your level instead.

Scorpio. A suntan is terrific if you get a kick from third degree burns.

Sagittarius. If you feel listless, make a list.

Pisces. Avoid bathrooms at full moons. Werewolves are a shaving nightmare.

Accuracy of sun sign delineations

As we have seen, astrologers generally consider sun sign delineations to be more respectable than sun sign forecasts. And except for cases born on the cusp, sun sign can be known just from the date of birth. It is therefore unsurprising that sun sign delineations have been more widely tested by astrologers and others than any other factor in astrology. Altogether something like a hundred tests have been made involving a total of several millions of cases.

The usual approach is to compare the distribution of births (of bakers, bankers, extraverts, and so on) across sun signs with that expected by chance. Unfortunately the latter is affected by astronomical and demographic variables to such an extent that the expected distribution can vary a great deal from country to country, from year to year, from place to place within the same country, and from one social group to another. When these variations are not controlled (as usually happens even in recent studies such as Sachs's *The Astrology File* 1998, see the three critiques on this website under *Sun Signs*) they can easily seem like sun sign effects. But when they are properly controlled no evidence for sun signs has been found.

For example, in 1980 Michel Gauquelin compared the biographical details of famous people with their Sun, Moon and Ascending signs. He searched thousands of biographies to find people who had the qualities attributed to Aries, to Taurus, and so on. The result was 2548 people for Aries, 857 for Taurus, and so on. These samples are so large that even a small effect should easily show up. But there was not even a small tendency in favour of signs. People described in their biographies as having the trait associated with sign X showed no tendency for their Sun, Moon or Ascendant to be in X rather than in any other sign. In fact of the 36 results, 21 were in the wrong direction. In other words this rigorous and sensitive test found no evidence whatsoever that signs are valid.

Interestingly, a weak but statistically significant link between sun sign delineations and extraversion scores was reported in 1978 by Mayo, White and Eysenck (*Social Psychology* 105, 229-236), advance notice of which was hailed by astrologers as "possibly the most important development for astrology in this century" (*Phenomena* 1977, 1.1, 1). The effect disappeared when people unfamiliar with sun signs were tested, so it had a simple explanation -- prior knowledge of astrology. Ask Sagittarians (who are supposedly sociable and outgoing) whether they like going to parties, and their answer might be tipped by astrology in favour of yes rather than no. The bias may be unconscious and very slight but in large samples it can attain impressive significance, as suggested by the original 1978 study where $p = 0.000005$ for $N = 2324$. When combined with the results of national opinion polls the results suggest that roughly 1 person in 4 not only believes in astrology but also believes in it sufficiently to measurably shift their self-image in the corresponding direction.

In 1984, after surveying published studies and making his own tests using data collected with the help of AA members, the psychologist Michael Startup reached this firm conclusion:

"Since the number of studies [of sun signs] that have been conducted is now quite large, the predictions [delineations] that have been tested are varied, and the data that have been sampled are voluminous, and yet the evidence is so poor, it is probably time for all to agree that enough is enough; the sun-sign idea is simply not valid" (*The Validity of Astrological Theory*, PhD Thesis, London University, March 1984, 246)

Subsequent studies have amply supported this conclusion, for example see Suitbert Ertel's illuminating study in *Sachs's Astrology File* on this website under Sun Signs. Sun signs (whether delineations or forecasts) are now the most highly disconfirmed claim in astrology. The British astrologer Judith Bennett overcomes this problem rather ingeniously by telling people whose sun sign does not fit to simply choose another that does (*Sex Signs* 1981 page xxv). But most astrologers seem unable to admit that sun signs are invalid.

The disagreement among astrologers continues

For example in 1994 Charles and Suzi Harvey claimed that Sun-Moon sign combinations are the "heart and soul of your story ... the script of your life" and "are of great importance in understanding your central psychology" (*Sun Sign Moon Sign*, Aquarian 1994, pages 4,13), which implies that enough experimental evidence has emerged since 1984 to justify their delineations such as Gemini-Aries "you do not empathize well with other people." But elsewhere Charles Harvey admitted that such evidence has not emerged:

"Despite the lack of hard experimental evidence to date ... I am personally still convinced that, given more sensitive and imaginative tests, confirmation of the reality of sun-sign typologies, and the signs generally, will be obtained." (Foreword to *The Astrology of Time Twins*, Pentland Press 1994)

Which is equivalent to saying "trust me." Unfortunately there is enough history of wrongly trusting things like perpetual motion or phrenology or Nazi racial analyses to show that personal conviction unsupported by hard evidence is not a reliable guide to validity. For example, consider this sobering US view of testimonials in medicine:

"Our experience of more than thirty years in the enforcement of the Food and Drugs Act has demonstrated that testimonials may be obtained for practically any article labeled as a treatment for practically any disease." (Campbell to Ford, 4 March 1941, interstate office seizure 16224-E, *FDA records*, Washington DC)

Testimonials about sun signs are no different. That half the population of Western countries reads sun sign columns at least sometimes, but only 5% of the population take them seriously, shows how problematic sun signs are in the minds of readers. Nevertheless 1% of the population read them often and take them very seriously, like horoscope junkies unable to operate without their daily fix. (These statistics are from UK and US surveys reported at the 1992 annual meeting of the American Association for the Advancement of Science, for a summary see *Skeptical Inquirer* 1992, 16, 344-347). We have of course already seen how problematic sun signs are in the minds of astrologers. And no wonder, when a single forecast in a newspaper can influence more people than can a lifetime of counselling practice.

By 1980 the Faculty of Astrological Studies had added to its code of ethics the following anti-forecasting clause: "I undertake not to use my Diploma qualification [DFAstroIS] in connection with Sunsign forecasting for the media." The Mayo School of Astrology [DMSAstrol] had the following related clause: "Before using any new theories in my astrological work I will always endeavour to test their validity -- if possible by accepted statistical methods." (Because sun sign columns date only from the 1930s, they presumably qualify as a "new theory").

But despite these band-aids from the bastions of astrological education, in 1991 in the *Astrological Journal* the sun sign controversy flared up again, repeating exactly the same issues that had been debated twenty years previously. Dennis Elwell summarised the situation as follows, ending with an eloquent plea for action:

"When the Astrological Association came into being [in 1958], I urged that it was the moment for serious astrologers to declare loudly and insistently their opposition to the rubbish in the tabloids and women's magazines. The response was "Live and let live." I thought that was an opportunity lost, and I am even more convinced of it now. Can you imagine the medical profession being indifferent to quacks in its midst? It would have been appropriate if the recently formed association for professional astrologers had grasped this nettle, but alas. It is time to fight astrology's corner. ... The failure to be vigilant has made astrology an easy target for hijacking by various vested interests, and the failure to represent its unique vision of reality with sufficient force and understanding has offered a soft underbelly to its enemies." (*Astrological Journal* January 1991, 6-16)

Subsequent letters (*Astrological Journal* May through November 1991) confirmed that nothing had changed in twenty years. Over sun sign forecasts and delineations there was the same violent disagreement, even the same call for a Government Health Warning, but this time it was made worse by an evident blind eye for research results. Elwell's plea for action was ignored. Some examples:

"Any claims for its education value are spurious. We need less sun-sign astrology, not more." (*Astrological Journal* May 1991, 202)

"It is a valid aspect of astrology" clashed with "I have never felt kindly disposed towards sun sign astrology" (*Astrological Journal* July 1991, 260-262)

"I should like to see all such columns appended with a kind of Government Health Warning." (*Astrological Journal* November 1991, 379)

In fact the same violent disagreement becomes evident everywhere the matter is raised. For example, three years later, in response to the 1994 AFAN forum "that sun-sign astrology provides helpful information to the general public", one astrologer in Hawaii felt that:

"my weekly sun-sign columns ... is a good service to the general public. ... The feedback I get is that everybody reads my columns and finds them to be quite accurate." (see reference below)

But Dr Glenn Perry, President of the Association for Astrological Psychology, referring to both forecasts and delineations, asked:

"Why debase it [astrology] by supporting the simplistic, fatalistic, overly generalized pap typical of sun sign books and newspaper horoscopes? If we want astrology and astrologers to be respected, we have to stop peddling these half-baked, half-truth fortune cookies to an increasingly skeptical public. We cannot have it both ways." (*AFAN Newsletter* April 1994,6-7)

Where we came in: More disagreement in the AJ

Two years later, when the *Astrological Journal's* new editor Robin Heath noted that sun signs were both "our greatest sign of astrology's acceptance ... and our weakest line of defence against charges of fortune telling and appalling generalisations" (*Astrological Journal* 1996,38,2), and then invited comments from readers, the responses were just as divided. Dennis Elwell kicked off by reinforcing his previous arguments to make it quite clear where the responsibility for regaining respect lay:

"The obvious retort is why can't astrologers be responsible? ... is this royal art, this divine science, to continue to be represented as a tawdry sideshow without anyone objecting? It is difficult to see, at this late stage, how the damage can be undone. There is a crying need to make the general public more astrologically literate ... but as long as genuine astrology suffers guilt by association this is hardly likely to happen." (*Astrological Journal* 1996, 38, 106-108)

In the next issue, Michael Harding (a former AA Chairman) supported Elwell:

"By adopting the rich language of signs in order to make a series of banal statements that cannot for a moment be substantiated, the sun-sign astrologers already divide the community. ... [The rest of us] have to carry the can for those who have hi-jacked the language for purely commercial purposes. ... We are ready to complain when science trivializes and misrepresents us, but are strangely silent when the trivialization and misrepresentation comes from within our own ranks." (*Astrological Journal* 1996, 38, 170-171)

Others in the same issue supported Elwell. Veteran astrologer Sheila Geddes feels that those who "lend their names to sun sign columns are prostituting astrology" (page 177). Valerie Jeffery says "as long as astrologers (who should know better) keep churning out these columns, we will have to put up with misrepresentation" (page 181).

But others disagreed with Elwell. Mavis Klein says that "a very good case can be made for the primacy of sun signs in categorizing people ... newspaper columns penned by hacks are rubbish ... [but when] written by astrologers ... many millions of (not entirely gullible) people attest to their general validity" (page 176). Anthony Owen says that "to attack sun sign astrology is in fact to attack all astrology, as it is based on exactly the same principles" (page 180). Paul Mayo says that the boost to astrology's popularity due to sun signs was a huge plus, so Elwell's letter "still leaves me with the feeling that our attention is inadvertently being misdirected. ... surely the correct question to ask is not how can we dissociate ourselves from astrological journalism, but rather how can we improve the status of mainstream astrology so that it stands four-square on its own merits against all comers" (page 173). But apart from agreeing with Elwell after all, Mayo presented no suggestions on how this miracle might be achieved.

Later, guest editor Prudence Jones raised the same questions about validity as we had in the 1980s, pointing out that signs remain a particularly sticky problem for astrologers, let alone for outsiders:

"How in heaven do twelve 30-degree sectors of the ecliptic, measured from the vernal equinox but named after now-far-distant constellations, impart any qualities at all to the planets, houses, parts and nodes which we view against their background? Do they do so in fact, or is this wishful thinking? Some astrologers justify the signs (taking, usually without explanation, the Sun in the signs as their exemplar) as shorthand for seasonal characteristics. But this implies that their order should be reversed in the southern hemisphere, which seldom happens. And what, in any case, of horoscopes for equatorial latitudes, where seasonal change is minimal, but where, of course, astrology was invented?" (*Astrological Journal* 1996, 38, 282)

But perhaps the most radical and thought-provoking view came from Bernard Eccles, President of the Astrological Lodge of London and also a newspaper astrologer, who pointed out that (1) the sun-as-character concept did not exist before the 1890s, (2) it was introduced in the 1890s by Alan Leo, and (3) it has been accepted ever since by every astrology textbook:

"The Sun-sign philosophy is an enormous departure from what went before it. It completely disregards the world-view which held from classical times through until the seventeenth century, which was that Man stood on top of the Earth but below the stars, while God was above all. Instead, it suggests that Man is at the centre of all things ... it rejects fatalism and predestination, and it celebrates freedom and the qualities of the individual. ... The Sun-sign philosophy of Alan Leo has given astrology what it needed to survive and to grow through the twentieth century. ...[it] took astrology away from a privileged elite and gave it genuine mass appeal. ...for those who still think that real astrology excludes such trivial nonsense as newspaper horoscopes, then let me say this: Sun-sign astrology doesn't just predict the future. As astrologers and astrology enter the new millenium, it IS the future." (*Astrological Journal* 1996, 38, 306-310)

Such a view may or may not be right, but the absolute disagreement among astrologers clearly remains. In short, a quarter-century of debate has achieved absolutely nothing. Cynics might see this as par for the course.

Richard Dawkins's 1995 attack on astrology

The views in the previous section had been sparked by Richard Dawkins's attack on astrology ("The real romance in the stars", *Independent on Sunday* London 31 December 1995 pages 17-18), which among other things argued that "astrology [especially sun sign astrology] is neither harmless nor fun, and that we should fight it seriously as an enemy of truth" (page 18). The article with four added footnotes was reprinted in *Astrological Journal* 38(3), 133-141, May-June 1996), with a two-page introduction by AA President Nick Campion, who noted that the attack "stunned the astrologers who saw it. There have been a number of sceptical criticisms of astrology ... Yet Dawkins' unremitting assault was notable partly on account of its length, partly on account of the stature of its author." The reprint was justified because "we must know what our critics are saying and be able to answer their accusations. ... we are obliged to look at both sides of any argument" (p.133).

The points made by Richard Dawkins can be summarised as follows. Nearly all are relevant to sun signs:

- Astrologers are glitzy con-artists, charlatans, phoney, quacks.
- A constellation is 3D, not the kind of thing that anything could "move into". Shape is no more significant than a patch of bathroom mould.
- Planets cannot affect us.

- If stars did affect us then precession should make a difference. But it doesn't, so they don't.
- If astrological methods are valid, they are of signal importance for science, but all indications agree there is no validity anywhere.
- Also there is no reason to even *suppose* astrology could work.
- Astrology's 12 dumpbins encourage lonely people to deliberately reject 11/12ths of the available population.
- Why are astrologers not prosecuted under the Trades Description Act for making false claims for their products?

Dawkins's article led to a flood of letters to the *Independent*, which in many ways are more interesting. The flood began on the following Sunday (7 January 1996 page 18). The editor of the *Independent* introduced them as follows: "Astrology: fact or fraud? When Professor Richard Dawkins attacked astrology as an "aesthetic affront" [page 17 rightmost column near top] and an "enemy of truth" [page 18 second column from end] in these pages last week he provoked one of our biggest postbags. Readers wrote in large numbers to challenge his arguments and his evidence -- and his conclusion that professional astrologers should be jailed for fraud. [In fact this was not Dawkins's conclusion, he merely asked why they were not jailed for fraud.] A smaller number wished to congratulate him."

The points raised by each letter provide an interesting cross-section of views from an educated British public, and can be summarised as follows (one line per letter). Most of them are relevant to sun signs, and most of them find fault with Dawkins's arguments (but this might of course merely reflect the editor's selection bias):

- His arguments are unconvincing and based on false assumptions, period.
- Astrological effects are easily seen in our character traits.
- If he actually studied it he might find it beautiful and meaningful.
- Signs have nothing to do with constellations.
- The Moon affects tides, so why not people (90% water).
- Reality is much more beautiful than astrology.
- Check my predictions!
- Why not accept astrology as harmless entertainment?
- Media is at fault for trivialising astrology.
- Astrology obviously doesn't work, insults both science and aesthetics.
- One of the best articles you have ever published.
- Good professional astrologers do not give advice.
- His patronising attitude shows the same prejudice that he condemns.
- Should we now jail inaccurate weather forecasters?
- The subsequent two pages (Archie Dunlop) proves the point.*
- But relations between eg Sun/Moon and life are indisputable.
- To what criminal proceedings should dissenting physicists be subjected?
- His brusque tone gives science as bad a name as astrologers do.
- His comments also apply to religion -- are they foolish superstitions?
- Why waste two pages (Archie Dunlop) on astro rubbish?
- Science has ruined more lives than astrology ever did.
- How can he dismiss astrology if he has no evidence against it?
- He has missed relevant research, eg Gauquelin, Nelson, Dean.
- It is insulting to rank astrologers as equal to educated people.
- Why doesn't RD himself prosecute an astrologer under the TD Act?

* This refers to astrologer Archie Dunlop's sun sign forecasts for the year ahead in the same issue (pages 6-7). Much of it reads like satire, eg "Taurus -- wear loud tasteless colours, and buy a venomous pet such as a rattlesnake", "Virgo -- investments are likely to sink without trace especially if your stock-broker is Aries, Gemini or Pisces".

The flood of letters continued but the next issue (14 January 1996) had room for only two, albeit perhaps the most insightful two of all. The first asked how supposedly rational people can become so upset by such trivia. Will reports of babies starving by the thousand prompt "a similar surge of purple-faced spluttering public outrage? Sadly, I doubt that it will." The second noted that most replies were sympathetic to astrology and took offense at Dawkins's attack; they were also rhetorical, evasive or irrelevant, and showed the irrational defence mechanisms that Dawkins predicted his piece would

provoke. Such as "The hoary old advice that you should not reject astrology until you can prove it is false (the same goes for Father Christmas), that it is close-minded to take a firm negative stance (but open-minded to take an equally firm positive stance), or that it is rude and intolerant to take issue with people's convictions, however absurd -- all these predictable, yet depressing, responses say something about the intellectual climate in which we live." To him the real problem is a pervasive indifference to critical thinking.

As we shall see, our armchair invitation was in effect designed to inspire proper open-mindedness and critical thinking.

The bottom line

We have seen how the astrological community remains sharply divided over sun sign columns. In effect the disagreement is about whether using actual sun signs (as opposed to simply making it up) makes a difference to the validity of forecasts and delineations. But regardless of the answer, the bottom line is this: if half the astrological community peddles what the other half sees as nonsense, and the latter does nothing about it, then astrology becomes a sitting duck. The Canadian astrologer Donna Van Toen puts it this way:

"But we whine because the public trivializes our profession. Of course they do, because we've trivialized it for them already. But we keep on doing those columns. Why? Because they pay ... If we want to be seen as credible, maybe we have to quit displaying our work in incredible places." (*AFAN Newsletter* October 1995, 12-13)

Which is easy to say. According to Penelope McMillan (op cit), US newspapers in 1985 paid a syndicate fee of between \$5 and \$200 a week, with the writer usually getting half, so top columnists might earn between \$500 and \$1500 a week. In 1992 Sperling (op cit) counted 11 syndicated daily columns, 22 weekly and 6 monthly sun sign columns in English-speaking North America. In 1995 the New York Times Syndicate offered its Patric Walker weekly sun sign column free to any newspaper that generated enough calls on the associated phone-in lines, for which the newspaper would get 15c per minute for recorded readings (costing 99c per minute), and 45c per minute for live readings from a network of astrologers (costing \$2.99 per minute), see *Skeptical Inquirer* 1996, 20(1), 15. The return to the Syndicate was probably the same, so it had an easy zero-risk way of making money for virtually no work.

Similarly in the UK. Today the return to astrologers from a newspaper column-plus-phone-line can corrupt absolutely. According to various reports (summarised in *Astrology* 1992, 62(2), 9-10), over 800,000 calls a year are logged by Sydney Omarr's phonenumber in the USA, and over 400,000 calls a year by Mystic Meg's in the UK. Alternatively, if each phone line is busy for 2 hours a day at 49p per minute and 10 hours a day at 39p per minute, of which one third goes to the astrologer, then each line brings in about £100 per day or £35,000 per year. If each sign needs up to say 20 lines to cope with demand, then these figures can be multiplied by 200 or more. (In 1996, at the then exchange rates for the \$US, dial-a-horoscope phone lines at the cheapest rate cost per minute about 78c in the UK, 65c in the USA, 60c in Australia, and 55c in Malaysia.)

Alternatively, if 1% of the UK adult population (ie the 1% estimated to be horoscope junkies) each make one 3-minute call each week, this earns astrologers collectively a total of £10 million per year. Either way, the reputed annual income of half a million

pounds each for top column astrologers Russell Grant, Jonathan Cainer and Shelley von Strunkel seems plausible (Sara Villiers, "Born with stars in their eyes", *Scotland on Sunday*, 21 January 1996, page 9). For such sums maybe you too would happily sell astrology down the river.

And even if not, the newspaper (which takes a similar cut) surely will. *The Sunday Times* for 29 December 1991 page 8 carried a league table of the most successful newspaper promotions during 1991. The top ten included a sun sign supplement by *The Mail on Sunday*, which added 228,000 to the circulation, and a twin feature on astrology and on diet in the *Sunday Express*, which added 191,000. The easy money to be made makes one thing certain -- if the demand exists then someone will meet it. Sun sign columns and their minders are not going to go away.

Consequently it seems inappropriate to complain, as Nicholas Campion does, about "the general unthinking hostility to astrology from the liberal, educated establishment as witnessed in the quality papers", by which he means Dawkins-like attacks (*Transit* [Astrological Association Newsletter], March 1995 page 5), when astrologers have only themselves to blame. An educated person does not have to be unthinking to be hostile to perceived nonsense. To be sure, in the UK the view of astrology as nonsense is reinforced by the Radio Authority broadcasting guidelines on horoscopes, which state "Horoscopes and other forms of divination should neither be presented in a serious manner nor purport to give listeners important or essential advice regarding the future" (paragraph 1.9). On which point Campion comments:

"This is nothing less than the most astonishingly crude piece of censorship. ... [and is] a symptom of the unquestioned assumption that astrology is not only a matter of belief but is also dangerous and misleading. ... Experience shows that, under present circumstances, astrology can never be presented on television on its own terms, unless as sun sign astrology, and then the assumption is that it is entertainment" (ibid page 6).

Given that Campion is not only President of the Astrological Association but also a sun sign columnist with phone-lines (which in itself represents a dramatic U-turn since the days of Roger Elliot), he could hardly take any other view. But when astrologers make no attempt to correct their own self-trivialisation, or to pay attention to the results of controlled studies, it could be argued that such "censorship" is entirely justified. It all comes back to sun sign columns.

In other words, from the astrologers' point of view, if this "unthinking hostility" is to be overcome, if astrology's "soft underbelly" is to be defended, if this "tawdry sideshow" and "trivialisation by astrologers" are to be accepted, and if this "censorship" is to be removed, then their first priority is to decide what they have repeatedly failed to decide, namely whether the statements made in sun sign books and columns are valid or just nonsense. (Either way, this does not deny Eccles' view that they *are* the future.) Accordingly, in response to Elwell's call for action, but without taking sides, we extend the following archair invitation [made in 1996 and no longer open] to all readers:

Our sun sign armchair invitation

Our invitation to readers is not to prove or disprove pet ideas about sun signs, but merely to devise a test that will show whether those ideas are right or wrong. If, as Charles Harvey claims, "sensitive and imaginative tests" will confirm the reality of sun

signs, then what are those tests? If, as John Addey claimed, sun signs are an "elegant fiction", then what tests will demonstrate it? If, as Nicholas Campion implies, there is something in dial-a-horoscopes, then what tests would confirm or refute it? These are honest questions that demand honest answers. It is time to stand and be counted. So, without asking anyone (whether for or against) to take sides, our invitation to you is:

- To devise a way of testing the validity of sun sign forecasts.
- To devise a way of testing the validity of sun sign delineations.

Our invitation is to *devise* tests, not to *perform* tests, so nobody need leave their armchair. It is not another prize contest, so there are no winners and no losers. Our aim is merely to generate acceptable tests. We have of course invited ourselves to respond to our own invitation.

Guidelines

Hypotheses to be tested. Regardless of your attitude to sun signs, you are invited to devise a test for each of the following hypotheses:

- (1) Sun sign forecasts are sufficiently valid for ethical use.
- (2) Sun sign delineations are sufficiently valid for ethical use.

You are welcome to use your own definitions of "valid" and "ethical." *Test description.* Your tests should cover all twelve signs, and should include enough detail to allow anyone to carry them out without further instructions. Your tests should of course be feasible, eg they should not involve samples too huge to be reasonably collected. *Safeguard.* To make sure your tests are not misinterpreted, please specify the results you would accept as disconfirming the hypothesis. *Example targets.* Appended are examples of the sort of sun sign material that your tests should be aimed at. *Deadline and Length.* The deadline for replies is 31 January 1997. Length is up to you but we prefer no more than two pages.

Where to send your reply

Please send your reply to [two addresses were given, one in the UK, the other in Australia, including fax and email] whichever is easiest.

We want your ideas

We want your ideas regardless of whether you support or oppose sun sign columns. Now if daily experience has convinced you that sun signs are valid, you cannot logically claim that validation tests are impossible. Nevertheless if you feel that testing is feasible, but are not able to say specifically how, we would welcome a statement of your position. Of course if validation tests acceptable to astrologers cannot be devised then the case for sun sign forecasts and delineations (other than as trivial entertainment) would seem to collapse.

Circulation

In addition to its publication here and in the *Astrological Journal*, this invitation has been mailed to members of CORA, the Committee for Objective Research into Astrology, to the contributors *ISAR Anthology on Research Methods*, to the consulting editors of *Correlation*, to contributors to the *Correlation* series of Key Topics in research, to members of the CSICOP Astrology Subcommittee, to the Secretaries of the AA, AFAN,

ALL, APA, APAE, AS (Manchester), BAPS, FAS, ISAR, Kepler College AAS, and NCGR, and to selected astrologers worldwide, a total of over 120 individual mailings.

Response

The response to the above invitation is described in Dean G & Mather A (2000). Sun sign columns: Response to an invitation. *Skeptical Inquirer* 24(5), September/October 2000. An expanded version is on this website under Sun Signs.

Appendix

Examples (abridged) of sun sign forecasts and delineations

Yearly forecasts by Rose Elliot (*SHE* January 1994):

Aries. January is a good time to take the initiative in career matters. An exciting project will enthral you throughout February.

Taurus. Demanding but productive trends present you with a challenge in February. Be prepared for a power struggle.

Sagittarius. For some time, money has been a rather confused area in your life, and subject to fluctuation. This trend continues.

Pisces. July brings fun, romance and some unexpected treats. Finances are emphasised in April and October.

Weekly forecasts by Patric Walker (*UK Mail* 1 July 1995):

Aries. A clash between Mercury and your ruler Mars will force you to explore new ways of overcoming old grudges and grievances.

Cancer. After Venus joins the Sun in your birth sign on Wednesday, you should begin to appreciate the true value of your talents.

Scorpio. After Saturn changes direction on Thursday you will feel less inclined to lead the parade.

Aquarius. The planets in their courses are urging you to make whatever changes are necessary to improve the working pattern of your life.

Delineations from *Aries 1987 Super Horoscope* (Arrow Books pp 37-61):

Leo. Often make good leaders. Usually quite popular. Generous most of the time. Can be arrogant and conceited, so can be unpopular.

Virgo. A good planner, practical, dependable, sensitive to others. Sometimes too critical. Can be tactless, mean, and emotionless.

Libra. Loves harmony. Generally kind and sympathetic. Many are artistically inclined. Some are insincere, vain and materialistic.

Scorpio. Determined, sincere, with high principles. Often tender and loving inside. Sometimes devious, ruthless, and revengeful.

Message to all signs (Shelley von Strunckel *Sunday Times* October 1995):

The sun may be in diplomatic Libra but adverse aspects suggest all signs will face obstacles this week. The challenge is to transform them into something positive.

Your best features for seduction from *Cosmopolitan* (January 1988):

Aries. Expressive flirty eyes, perfect teeth.

Taurus. Swanlike neck, regally elegant posture.

Gemini. Softly sexy voice, contagious laugh.

Libra. Small waist, curvy hips.

Sagittarius. Slim pretty knees, high forehead.

Capricorn. Sculpted cheekbones, dark curving eyebrows.

Pisces. Wide flashing smile, infectious laugh.

(Disagreeing on) Compatibility. Russell Grant (*Sunday Mirror magazine*, listed first), whose "guide to love lust and emotional disasters reveals all", vs Mystic Meg (*News of the World magazine*, listed second in italics), who helps you find "love, compatibility, passion", both 7 January 1996:

Gemini-Virgo. Merry chatter but sexual incompatibility. *Your sex style matches perfectly.*

Virgo-Aries. Ardour? Forget it -- your personalities are clashing. *Get to your white-hot sexy side. Then magic emerges!*

Virgo-Pisces. You were so obviously meant for one another. *Don't expect too much sense ... minds don't meet.*

Libra-Libra. Act now or you'll never get anything off the ground. *An unforgettable fling that can last forever!*

Aquarius-Libra. When it comes to amour we are talking tricky. *Sexy minds in overdrive! ... builds into marriage.*

What magazines do, books can do better. Compatibility by Linda Goodman in *Love Signs* (Macmillan 1979), which runs to nearly 1200 pages

Aries-Taurus. A romantic involvement with a Taurus man is sure to be an educational experience for the Aries female. She shoves, he sits. She pushes, he pouts. She demands, he digs in. Then look out. The next step could be: she weeps, he walks. Away, that is, for keeps.

Cancer-Cancer. Only a Cancerian can find the right words and manner to calm another. Crab #1: There you go, diving into one of your inky moods again. Crab #2: I had a sad childhood, nobody cares. Crab #1: But you refuse to talk about it. Crab #2: People are cold and cruel. Crab #1: My mother ignored me. Crab #2: Don't cry, do you want your hanky back?

Aquarius-Pisces. In nature, water softens air, creating a moist fog, the right atmosphere for the mysterious alchemy capable of transmuting dreams into rainbow-streaked realities. There's no end to the wonders and marvels they might conceive and create together.

Sun sign columns

Response to an armchair invitation

Geoffrey Dean and Arthur Mather

An expanded version of the authors' "Sun Sign Columns: Response to an Invitation", *Skeptical Inquirer* 24(5), 36-40, September/October 2000. The invitation is described in their earlier article "Sun sign columns: History, validity, and an armchair invitation" on this website under Sun Signs.

Abstract -- The authors contacted several thousand astrologers and two dozen interested scientists and invited their ideas for testing sun sign forecasts and delineations. The invitation was to devise tests, not to perform tests, so nobody had to leave their armchair. A total of 16 astrologers and 14 scientists responded from a total of nine countries. The article contains a brief summary of each response, and a longer summary of each response in an appendix. The most telling comment was from Professor William Grey, a philosopher who has interacted with astrologers and has also organised a national survey of belief in astrology. He commented: "Astrologers have had plenty of opportunity to establish the validity of sun sign astrology via double-blind tests. That they have not done so is most easily explained by the hypothesis that they cannot do so. Sun sign astrology is not knowledge but epistemological hallucination [ie delusion]." As for the tests, there was essentially no difference between those proposed by astrologers and those proposed by scientists, or between those proposed and those already made. This outcome suggests that the existing negative verdict on sun signs is unlikely to change. Readers can safely take the statements made in sun sign books and columns to be pure fiction. The authors sent their findings to the leading astrological bodies in seven countries (AA Britain, CEDRA France, CIDA Italy, DAV Germany, FAA Australia, ISAR and NCGR United States, NVWOA Netherlands) and called on them to declare their position either for or against the existing verdict. Two declined, the rest did not reply. Such indifference hardly enhances astrology's reputation. If the leading astrological bodies in seven countries can show no concern for negative evidence that seems the most clear and consistent in astrology, astrologers can hardly complain if critics dismiss astrology (not just sun signs) out of hand.

Introduction

If the history of astrology is represented by a loaf of bread, sun sign astrology and sun sign columns do not arise until halfway through the last slice. Columns in particular are a modern invention, being unknown in their present form before the 1930s. There are two distinct types, namely *forecasts* ("Aquarius, romance improves after the 16th"), and *delineations* ("Taureans are stubborn"). The latter includes compatibility ("Gemini and Librans make beautiful music together").

Forecasts with their associated dial-a-horoscope lines are common in newspapers (daily), women's magazines (monthly), and sun sign annuals (yearly), but they are controversial even among astrologers, who tend to see them as either good publicity or gross exploitation. Delineations are almost as common, but appear more in weekend supplements, women's magazines ("secrets of your man's star sign" Mystic Meg), and books (eg *Sun Signs*, *Star Signs*, *Baby Signs*, *Cat Signs*, *Diet Signs*, *Love Signs*, *Money Signs*, *Sex Signs*, *Success Signs*), but among astrologers they are less controversial.

A question of validity

Among critics the issue boils down to this: Does using actual sun sign astrology add validity to sun sign forecasts and delineations as opposed to simply making them up? Does it provide otherwise unattainable truth and uplift? Or does it merely mislead

readers into believing that their "thought for the day" is more meaningful than if it appeared in say Kahlil Gibran or a desk calendar? The verdict from empirical tests is a clear and consistent denial of validity, see Dean & Mather's earlier article *Sun sign columns: History, validity, and an armchair invitation* on this website under Sun Signs, and Dean, Mather & Kelly (1996).

Among astrologers the verdict is less clear. As described by the late Charles Harvey, then President of the British Astrological Association, a sun sign delineation "sets out to give a popular account of basic astrological principles which no astrologer would deny", whereas forecasts "have no relation to any kind of astrological fact or tradition" and are therefore "only a pernicious encouragement of superstition and neurosis" (Harvey 1973). But his successor Nick Campion disagrees because forecasts "encourage people to pause for a moment and reflect on their lives, circumstances and feelings ["the planets are urging you to improve the working pattern of your life" Patric Walker], ... I love sun sign astrology" (Phillipson 1999).

Even delineations can invoke disagreement among astrologers, for example Glen Perry (1994) refers to "the simplistic, fatalistic, overly generalized pap typical of sun sign books", whereas Linda Goodman (1970) says "an individual's sun sign will be approximately eighty percent accurate, sometimes up to ninety percent."

In fact for more than forty years violent disagreements over sun signs have periodically erupted in astrological journals, always repeating the same issues, rarely appealing to empirical evidence, and unsurprisingly getting nowhere (Dean and Mather 1996). As a countermeasure we had earlier ransacked the scientific and astrological literature for positive evidence but without success (Dean and Mather 1977), and had offered the world's then largest astrology prizes of \$US1000 in 1980, \$2000 in 1982, and \$5000 in 1984 to anyone who could demonstrate the validity of signs, again without success (Dean and Mather 1996).

When confronted with such results, many astrologers agree, claiming that the sun sign is meaningless unless combined with the rest of the birth chart, which could overturn its indications. However, some astrologers claim that existing tests are invalid or inadequate or that sun signs cannot be tested in the first place, arguing for example that positive results await only "more sensitive and imaginative tests" (Harvey 1994), but never specifying what such tests would entail.

Accordingly, in a final attempt to resolve the issue in ways acceptable to both sides, we surveyed the history of sun sign columns, the arguments for and against, and the outcome of empirical tests including our prize competitions (see our earlier article). We circulated the results by various means to several thousand astrologers and two dozen interested scientists, and invited their ideas for testing sun sign forecasts and delineations. In what follows we describe the invitation, how it was circulated, the responses to it, and some implications.

Our armchair invitation

Regardless of their attitude to sun signs, we invited astrologers and scientists to devise a test for each of the following hypotheses:

- Sun sign forecasts are sufficiently valid for ethical use.
- Sun sign delineations are sufficiently valid for ethical use.

Our invitation was to *devise* tests of sun sign columns, not to *perform* tests, so nobody need leave their armchair. Hence the title. We chose the terms "valid" and "ethical" because their dictionary definitions are clear and unambiguous (valid = accurate, ethical = responsible). This avoided problems due to vague or multiple meanings as might apply had we chosen a term like "truth". Nevertheless, as a precaution, respondents were welcome to use their own definitions, but none of those proposing tests did so. Evidently the terms were unproblematic.

We provided the following guidelines: Tests should cover all twelve signs, and should include enough detail to allow anyone to carry them out without further instructions. Tests should of course be feasible, eg they should not require samples too huge to be reasonably collected by a typical researcher. Respondents should also specify the results they would accept as disconfirming the hypothesis.

We also gave many examples of the material that tests should be aimed at, such as the following: *Weekly forecast*: Scorpio. After Saturn changes direction on Thursday you will feel less inclined to lead the parade (Patric Walker). *Delineation*: Leo. Usually quite popular. Generous most of the time. Can be arrogant and conceited, so can be unpopular (Aries Super Horoscope). *Compatibility*: Gemini-Virgo. Merry chatter but sexual incompatibility (Russel Grant), Your sex style matches perfectly (Mystic Meg).

We offered no prizes because our invitation was not a competition. If they wished, respondents could send in a position statement without devising a test. Most chose this option.

Circulation and response

Our survey and invitation were circulated during June-November 1996 by articles in journals, see Dean & Mather (1996); by internet postings kindly organised by Joanna Ashmun on four astrology mailing lists and on alt.astrology; by direct mailout to astrologers, astrological organisations, and scientists (total N=115); and by handouts at the 1996 Astrological Research Conference in London (N=40). The deadline for replies was 31 January 1997.

Altogether several thousand astrologers plus many more on the internet were reached (16 responded), and 28 scientists (14 responded). Given the traditional poor response by astrologers to any kind of invitation (including prize contests) to validate their claims, the response was better than expected. Notably absent were certain astrologers critical of present research or with a special interest in sun signs, see later comment.

The 30 responses came from a total of nine countries (Australia 5, Canada 4, England 8, France 1, Germany 2, Holland 1, Scotland 3, South Africa 1, USA 5). Although categories overlap, the breakdown of responses was roughly 14 astrologers (1 with a PhD), 11 astrology researchers (5 with PhDs) and 5 skeptics (all with PhDs). Of the 30 responses, 18 provided position statements and 12 suggested tests. The responses are briefly summarised below, with more details in the Appendix.

Position statements

Of the 18 position statements, most were similar to those aired elsewhere (eg see Dean & Mather 1996), so little was new. They can be summarised as follows:

Sun sign columns are nonsense or trivialise astrology (Miles, Niehenke, Peterson, all astrologers). Sun sign columns are only for making money; validity is irrelevant (Davis, Smit, Turner, all astrologers or researchers). Sun signs columns are without validity (Beyerstein, Grey, O'Neill, Patterson, all scientists). Other comments, five positive, three negative. (Ashmun, Best, Campion, Elwell, Fletcher, Lilly, McGillion, Reeves, all astrologers except one scientist). These comments were respectively: Isolating a chart factor does not make it invalid. Just as the sun dominates life on earth, so sun sign astrology could be superior to the whole chart. If sun sign columns seem valid then they are valid, period. Columns could be useful in diverting attention from the real thing, which could be dangerous in the wrong hands. All columns should carry a disclaimer saying they cannot indicate the true capability of astrology. Ethics and validity are personal, not everyone sees the controversy as important. An ethical issue exists because some people do act on sun sign columns. Yes, sun signs reveal the inner cat.

Perhaps the most thoughtful comment came from University of Queensland philosopher Dr William Grey, one of the few philosophers to have met astrologers for chart readings (Grey 1994) and to have initiated a national survey of belief in astrology (Grey 1992): "Astrologers have had plenty of opportunity to establish the validity of sun sign astrology via double-blind tests. That they have not done so is most easily explained by the hypothesis that they cannot do so. Sun sign astrology is not knowledge but epistemological hallucination."

Suggested tests

The invitation was to devise tests for the hypothesis that sun sign readings (forecasts and delineations) are sufficiently valid for ethical use. Of the 12 suggestions received (see Appendix for details), most were variations on tests already performed, so again little was new. The tests can be summarised as follows:

Direct tests of sun signs: Are sun sign indications supported by diaries, traits, events, relationships, disease? (Ertel, Gauquelin, Gill, Kollerstrom, Mather, Simpson, Thoth, or 3 astrologers, 4 scientists.) **Discrimination tests:** Can subjects pick their own sun sign reading? (Blackmore, Farha, Kelly, Schmitz, or 1 astrologer, 3 scientists.) **Attenuation tests:** Without leaving your armchair, derive plausible bounds for sun sign effect sizes after attenuation by other chart factors, by unreliability, and by range restriction. Does anything useful remain? (Dean, scientist and former astrologer.)

For direct and discrimination tests the answer from existing tests is a resounding No. Attenuation tests are new but the answer is an equally resounding No (see later).

Discussion

The response to our armchair invitation shows that, contrary to what some astrologers claim, designing tests of sun sign readings (forecasts and delineations) is perfectly feasible. But designing a revolutionary *new* test, involving say a completely new paradigm, is something else. The suggested tests involve many useful ideas but they are basically no different from tests already made. Although critics of current research were specifically invited, they made no proposals for new and sensitive tests designed to succeed where others had failed.

The last is disappointing but not necessarily surprising -- sun signs may be already too well researched to leave much hope that innovations remain to be discovered. Furthermore, there was no essential difference between the tests designed by

astrologers (eg Gill, Schmitz) and those designed by scientists (eg Blackmore, Ertel). This suggests that the research to date is generally as good as it can get.

Although our aim was to devise tests and not to draw conclusions about sun signs, some general comments seem possible. First, if research to date cannot be much improved, then any validity commensurate with sun sign claims should have been detected by now. Second, even if sun signs were valid in ways yet unknown, one cannot logically write columns based on unknown properties. It would be like claiming pigs can fly in ways yet unknown. Third, our respondents (and non-respondents by their failure to respond) have in effect found no reason to challenge William Grey's comment (that astrologers cannot validate sun signs despite having appropriate tests), nor the existing verdict as summarised sixteen years ago by psychologist Michael Startup (1984:246) as follows:

Since the number of studies [of sun signs] that have been conducted is now quite large, the predictions [delineations] that have been tested are varied, and the data that have been sampled are voluminous, and yet the evidence is so poor, it is probably time for all to agree that enough is enough; the sun-sign idea is simply not valid.

That is, sun signs (whether forecasts or delineations) are not sufficiently valid for ethical use and are for entertainment only. Which of course does not deny their role in imagery as in late medieval paintings. In short, the existing verdict seems unlikely to change -- a point supported by respondents who had made actual tests, see Appendix.

Our call for action

Nevertheless, as a precaution (suggested by Professor Suitbert Ertel), we sent our findings to the leading astrological bodies in seven countries (AA Britain, CEDRA France, CIDA Italy, DAV Germany, FAA Australia, ISAR and NCGR United States, NVWOA Netherlands) and called on them to publicly declare their position either for or against the existing verdict. Each body had the research orientation and resources to allow an informed declaration; for example the published aims of the AA included promoting "the good name and reputation of astrology among the general public, and especially within the scientific community and the caring professions", and ISAR, the International Society for Astrological Research, had published a massive 466-page anthology *Astrological Research Methods* (Pottenger 1995).

More specifically, we called upon each body to publicly declare their position along the following lines: **Either** (1) To publicly declare that, until research indicated otherwise, sun signs were for entertainment only. **Or** (2) To publicly declare that, based on their own tests, sun signs were sufficiently valid for use other than as entertainment. The declaration should explain how their tests overturned the research to date. **Or** (3) To examine the various tests proposed here, to improve them as necessary, to implement the tests of their choice, and then on the basis of the results to publicly declare as (1) or (2) above. By "publicly" we meant by official press release to the media, and by a notice in their journal and in their advertising material. Our call was circulated in November 1997.

Because each body was known to be concerned about the public image of astrology, and had the wherewithal to allow an informed declaration, we were confident of a good response. But it did not happen.

Response to our call

After two years only two bodies had replied. NVWOA, the Dutch Society for Scientific Research into Astrology, said that in the Netherlands there had already been wide

debate by skeptics on a sun sign disclaimer in the early 1990s, in which NWOA had not participated because "disapproval of astrology on the basis of sun signs" was not justified. Therefore to avoid further misunderstanding NWOA would not be responding to our call. NCGR, the American National Council for Geocosmic Research, said that every director had received a copy of our call but none had responded, so we could assume the NCGR "prefers neither to endorse nor condemn [sun sign columns] at this time." The British AA and Australian FAA privately acknowledged receipt but officially remained silent.

The outcome of our call for action was therefore zero out of eight. Eight astrological bodies had been put to the test and all had been found wanting. Such indifference hardly enhances astrology's reputation. If the leading astrological bodies in seven countries can show no concern for negative evidence that seems the most clear and consistent in astrology, astrologers can hardly complain if skeptics dismiss astrology (not just sun signs) out of hand.

Subsequently we submitted the previous version of this article to *Correlation*, the AA journal of research in astrology. The editor (astrologer Pat Harris) rejected it outright on the grounds that it was "not scientific writing and analysis." When we asked what changes were necessary for it to be accepted, she replied "There are no conditions under which I would accept your sun sign material ... Your article is unscientific in its presentation and analysis." In our opinion this sadly, but amply, justifies a dismissive view by skeptics towards astrology.

An example of this occurred on Canadian TV in a segment on "Horoscopes published in newspapers" 18 December 2000. After quoting the Dean & Mather (2000) *Skeptical Inquirer* article, the presenter concluded "This is a dead issue folks. Astrology is superstition. It dulls the mind and can hurt people. There can be accidental value, but better to get that from desk calendar quotations or diaries with daily inspirations."

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Appendix

A summary of each response appears below according to mode of circulation of the original invitation, ie via (1) articles in astrology journals, (2) internet postings, and (3) various direct mailouts.

1. Circulation via articles in astrology journals

Article in *Astrological Journal* 1996. Circulation 1400, 4 responses as follows:

Helen Best, London. Sun sign astrology could be superior to the whole chart because it is dominated by the Sun, in the same way that life on earth is dominated by the Sun. But only pop astrologers may be adequately tested, not pop astrology. [She asked what testability had to do with truth. Answer: if by truth is meant something that can be publicly demonstrated, then such a demonstration requires testability.]

Cathie Gill, Ellon (Scotland). Three competent astrologers collectively write weekly forecasts for four weeks in December. At least 6 subjects per sign keep weekly diaries for that month, without being told why. A control group of at least 6 subjects per Mars sign (and without Sun in the Mars sign) does the same. The agreement between each forecast and each diary is determined blind by three judges. The test fails if the correct sun sign does not perform significantly better than the other sun signs and the Mars signs. [This was the most detailed entry.]

Nick Kollerstrom, London. Any decent test of sun sign forecasts must fail. To test sun sign delineations, the elements should be tested rather than signs because of their antiquity, and harmonics should be examined rather than boxes to avoid tropical vs sidereal assumptions. For example the trait frequency from Gauquelin trait lists could be plotted against solar longitude. The test would fail if the amplitude of the best-fit third harmonic was less than half the standard deviation of the individual data points.

Cathy Peterson, Sydney NSW. Serious astrology does not suggest that personality and destiny can be predicted solely from sun sign. If sun signs are sufficient, the rest of astrology is superfluous. Until astrologers distance themselves from sun signs, astrology will be seen as the stuff of newspaper columns, and will be dismissed by educated people. Because such people are effectively the gatekeepers of knowledge in our society, the consequences for astrology of alienating them in this way should be obvious. Unless this issue is addressed, astrology will always be marginalised, and what passes for it will be held up to well-deserved ridicule by people such as Richard Dawkins. Furthermore, casting sufficient doubt on sun sign forecasting should not be difficult. Do unexpected career advancements, new loves, social changes, home renovations, lucky numbers and colours etc, apply to alcoholics, drug addicts, invalids, refugees, the hospitalised, the elderly, the homeless, the starving, the dying? Can one therefore doubt that sun sign forecasts are only for the intellectually docile?

Article in *FAA Journal* 1996. Circulation 750, 1 response as follows:

Raelene Reeves, Newcastle NSW. (A side-issue raised in the article was whether cat signs reveal the "inner cat" or only the cat "as others see them".) Any cat owner will tell you it is the former. How can we know this? We just do. It is the knowledge which passeth all understanding.

Article in Indian Skeptic 1997. Circulation unknown, 0 response.

2. Circulation via internet postings

Internet postings to perhaps 600 astrologers on astrology mailing lists, 6 responses, plus perhaps 100,000 casual readers of alt.astrology, 0 responses. This part of our invitation was handled by Joanna Ashmun, who posted our invitation letter on alt.astrology and on four astrology mailing lists, advising that the entire article would be sent by email on request, and that it was also available online at her Web page. The 6 responses are as follows:

Joanna Ashmun, Redmond WA. Sun sign columns are said to be nonsense because they use isolated factors such as sun sign or fast transits. But if a factor is not nonsense in the whole chart it is not nonsense in isolation, just as sugar in a cake is the same sugar in a spoon. I don't think sun sign columns can do much to raise public awareness about astrology when most people read them for amusement. As amusements go, astrology is harmless enough. But columns can be in demand even though written by non-astrologers, which indicates that customer satisfaction depends on something other than astrological validity.

Paul Fletcher, Toronto. All astrology columns should carry a disclaimer like the following: Sun sign astrology classifies the world population in only 12 ways and therefore cannot indicate the true capability of astrology. Contact a professional astrologer and find yourself one in 5 billion on our planet. [Such disclaimers are common at sun sign places on the Web, many being a bait from astrologers wanting to sell their services. Others on the Web have "entertainment only" disclaimers.]

JoAnne Schmitz, New Jersey. If a sun sign column is based on planetary effects by house and by whole-sign aspect (eg a planet in Cancer is in 4th house for a Sun Aries and also in square), the closer the chart fits these assumptions the closer the column will be to an individual reading. Collect two kinds of subjects, those with Sun in first house (the best fit to the assumptions) and those with Sun in 6th or 8th house (the worst fit). Exclude anyone who knows their own chart. Give them weekly columns from which all cues have been removed, and ask them to pick the one that fits them best. [Unfortunately Schmitz said nothing about sample sizes or how the results might be interpreted.]

Jeffrey Simpson, Vancouver. Sun signs are to astrology as Scrabble is to study of the English language -- flirting rather than serious business. An interesting test would be to compare sun signs between people and their closest (non-family) friends. Would the results support the claims of sun sign astrology re compatibility? [But several others have already made this test using compatible and incompatible marriages, and the answer has been consistently no.]

Chris Turner, Sydney NSW. Sun sign columns exist for one reason only -- to help sales. So they must be entertaining, even when astrologically nothing is happening (which is when the biggest divergences between columnists occur). They must fit the space, yet paying ads always take priority. So columns are subject to attack by sub-editors, usually by pruning or by substituting short words for long ones. But columns pay well, far better than teaching or consulting or ordinary writing, and are marvellous advertising. To most astrologers they would be an offer hard to refuse. But columnists will not be hired unless they look good, write well, and deliver what the publisher wants, namely readership. Sales are everything. Astrology is secondary. Fighting sun sign columns is a lost cause because the public wants them, and because there is money to be made from them by everyone, not just the astrologer (in fact the astrologer makes the least of all). The best that astrologers can do is openly acknowledge that sun sign columns are not necessarily related to any serious astrology and are only for entertainment, so we at least maintain some credibility.

Tests of published columns are therefore pointless. Nevertheless columns could be written for the purpose. Such columns should be written by qualified astrologers, and should be of a reasonable size, say 60-100 words per sign. Just three lines is ridiculous, and 400 words is too hard to write. Weekly forecasts would be better than daily forecasts (which are also ridiculous) or monthly forecasts (which give too much scope to chance). Probably three months would be enough to ensure a sufficient variety of astrological happenings. To the extent that gender, age and social status can bias a reader's perceptions of a given column, samples should be divided accordingly. [This was the most informative of any entry, see the following **Note**.]

Note. Chris Turner's comments are of especial interest because she has a foot in both camps. She runs the well-established Chiron school of astrology in Sydney. She also writes a successful sun sign column for *TV Week*, and has experience with phone lines. Of which more below. Her comments confirm that many people have a need for counselling. So sun sign columns may help to meet this need, however imperfectly.

In my experience the typical reader is female, 20-30's, and probably unfulfilled. Most readers know the difference between columns and serious astrology, and very few take them seriously, but many still think there is something in them because hits do occur even if only by chance. (The same happens in consultations, where occasionally I am given the wrong birth data yet the reading is still spot on.) The chance of a hit is of course greatly improved by being nonspecific, for example by using words like loved one instead of partner, and by avoiding events in favour of moods and their likely outcome (few people have events but most have moods), eg "you may be more irritable this week, so avoid arguments and take it easy." But if a column still turns out to be wrong, readers just laugh it off. More generally, they never remember what it says unless it happens to be right, which jogs their memory. Otherwise they never think about it. In ten years nobody has complained that a forecast was wrong but many have said that a forecast was right. The feedback I get is 95% positive.

Today many sun sign columns have an associated 0055 phone line, one for each sign, which typically provide 400 spoken words vs 50 written words in the column. Although phone lines cost typically \$A3 a call (75c/min regardless of distance or time of day), they attract similar loyalties with a definite hard core of users. I did a 0055 daily horoscope where all advertising suddenly ceased, yet people kept ringing for another two years until I closed it. Many of them begged me to keep it going, some of whom said they never went to work without ringing it first.

There are also 1900 phone lines for dial-a-live-astrologer at \$4.95 a minute. I helped develop 1900 lines a few years ago, and am dismayed at their proliferation and low quality. *New Idea*, the women's magazine on sale in supermarkets, regularly has 20 or 30 ads for psychic lines, mostly from people like Mystic Meg, and 2 or 3 ads for astrology lines. But I see these lines as the way astrology will eventually go because they make astrology available to more people, and because it is cheaper to have 20 minutes on a 1900 line than two hours face to face. For the astrologer they are also very convenient, there is no handling of money, and no office is needed, although of course your chart software does need to be up and running. My average call is 7-10 minutes but 15-20 minutes is not uncommon. The maximum so far is one hour.

The average caller is female, 30's, usually self-employed, and usually at a crossroads where they don't know what to do. The most common questions concern relationships and money, and the busiest time is 10pm to midnight. They seem to need a friendly ear, common sense, and some non-obvious counselling (some get aggressive if it is obvious because they called for answers not counselling). This I provide using the natal chart and transits as a focus, followed by gentle probing to find out how it is manifesting, which usually takes about 5 minutes. Then comes the non-obvious counselling, which they seem very happy with (I get plenty of repeat calls, which tend to be longer), although they can be disappointed if it is not what they want to hear. If necessary I always provide the phone numbers of recognised support groups such as Legal Aid. Most callers have only their birth date, but many go away and call back with their full data when told of the advantages. There is a small hard core who call regularly, usually about the same problem, some not caring who they talk to, and some wanting me specifically. Whatever our opinion of 1900 lines, they do make callers better informed about astrology. **End of Note**

The Hermetic ObservaTory (THOTh), part of a group "pledged to serve the Good, the Beautiful and the True" by helping to found "a new civilization or New World during these turbulent times of transition." If reincarnation is true, immature souls and mature souls may handle sun sign energies differently, thus frustrating research. But if disease status is a measure of soul maturity, the incidence of various diseases should vary according to sun sign. Take computerised hospital discharge records, exclude subjects aged under 30, and examine the relation between sun sign and disease. If sun sign X has disease Y 50% more than other signs, to reliably detect it would require about 600 cases of X. [The relevance of all this to sun sign columns was not clear. However, Hughes S (Nephrology and astrology--is there a link? *British Journal of Clinical Practice* 1990, 44, 279) found no relation between kidney disease and Libra (rules kidneys and loins) for 360 renal in-patients.]

Email via Rudolf Smit to about 50 Dutch skeptics, 3 responded. Reactions were very negative. Sun sign astrology is nonsense anyway so why bother researching it? Do you not have better things to do?

3. Circulation via direct mailout

Mailout to 139 selected individuals worldwide. Some were contacted directly, others via the secretary of their organisation. Where a person is a member of both X and Y, where X comes before Y in the list below, they are reported under X and not under Y.

Mailout via the Secretary of Professor Eysenck's Committee for Objective Research into Astrology to 11 CORA members (ie other than Dean), 2 responses as follows:

Rudolf Smit, Dalfsen (Netherlands). Sun sign delineations and forecasts are just *vermaak*, Dutch for "amusement, entertainment." You like them or you don't. Most people in the Netherlands reading these columns are aware that they are not serious stuff. Many of these columns are not even written by astrologers. If they are written by astrologers they only do it to earn some money, but I have never met any astrologer in the Netherlands who takes sun sign columns really seriously. If people want to be deceived by sun sign columns, then let them. These columns may contain some harm for a few highly unstable people, but that type is easily harmed anyway. The Skepsis (Dutch skeptics) organisation tried to have sun sign columns removed but the newspapers and women's magazines showed no interest. Some years previously one women's magazine had removed its column but this led to a storm of protest. Skepsis tried to involve the major astrological associations in devising a disclaimer for sun sign columns (that they were for entertainment only), but the associations could not agree on one, perhaps realising that it would lead to trouble with the few sun sign astrologers in their midst, and the whole thing fizzled out.

Prof Suitbert Ertel, Gottingen. An alternative approach might be to ask the AA to nominate a committee of astrologers for the purpose of testing sun signs. This way they could take charge of the whole controversy and its resolution. To test sun sign delineations, take any large sample of people (eg extraverts, soldiers) which astrologers agree should show sun sign effects. They need not specify which sun signs. Count the births in each sign and calculate chi-squared or, better, the corresponding contingency coefficient. Repeat after shifting the sign boundaries by +/- 1,2,3 ... 15 days. If sun sign effects are present the 0 days shift (unaltered sun signs) should give the largest coefficient. If it does not then the distribution of births does not conform to the traditional sign boundaries. Such a test still requires the usual corrections for demographic and astronomic effects, but if these are unavailable the results can be disentangled as follows:

(1) Repeat the test with eight control zodiacs obtained by dividing the ecliptic into 8, 9, 10, 11, 13, 14, 15, 16 sectors. As boundaries shift from 0 days, astrology predicts a sudden drop in the coefficient for sun signs but not for the controls. In each case demography (unless its effects happen to coincide exactly with sign boundaries, which is unlikely) predicts only gradual changes.

(2) If several sets of data give positive results, select two or, better, four of similar size which reflect different sun signs but similar demographics. If N=1000 for each set, draw equally but randomly from each set to make various control samples of N=1000 each. Because the controls now reflect four minor signs instead of one major one, the sudden drop as boundaries shift from 0 days should be greatly reduced. If not then demographic effects are responsible.

[Ertel recently provided further ideas for scrutinising sun sign claims in *Correlation* 1998, 17(1), 44-49, also on this website in *Three critiques* under Sun Signs. In this case the claims were those made by Gunter Sachs in his extensive 1998 sun sign study *The Astrology File*. Ertel's scrutiny revealed only errors, methodological negligence and noise, with a conspicuous absence of the correspondences expected if Sachs's results were genuinely due to sun sign astrology.]

Mailout via the Editor of *Correlation* to the 9 (out of 13) *Correlation* consulting editors not already contacted, 4 responses as follows:

Nicholas Campion (AA President), Bristol. One either reads and appreciates sun sign columns or one doesn't. If it is appreciated then it appears valid, and that's the end of it. Trying to prove validity would be like trying to prove that Beatles music is valid. One either appreciates it or one doesn't. [Here *valid* is used to mean personally meaningful, as opposed to its dictionary meaning of sound, well-founded, accurate.] "The newspaper horoscope fulfills the kind of function societies have always needed since ancient times, like the oracle, with its riddles, or the I Ching. The astrologer speaks universal truths, and the reader engages with the words as they need them. We are accused of being vague and ambiguous, but it is harmless, it can be useful, it's less time-consuming than therapy, cheaper than analysis, and it comes without the dogma of religion." (Campion as quoted in *The Times*, 22 December 1995, page 12, to which the article writer added "And ... it is fun. Like a Christmas cracker.")

Francoise Gauquelin, Paris. Sun sign delineations contain trait words that can be tested via the Gauquelin trait data. For example, if Leos really are good leaders, popular, generous, etc then a count of the signs of persons described by such traits in their biographies should show a significant peak in Leo. But we have already made this sensitive test, and nothing in favour of signs came out of it.

Dr Frank McGillion, London. A major ethical issue exists because some people do act on sun sign columns. "Leo. A good week to invest money." Lose it and sue under the Financial Services Act. It could happen.

Mike O'Neill, London. I have seen no convincing evidence for the validity (or otherwise) of sun signs. Scientifically we do not know whether they are valid or not. Personally I doubt if forecasts will ever be validated, although delineations might be. Not being an astrologer I am not in a position to comment on the ethics of various astrological practices. [But this is like arguing that only murderers can comment on the ethics of murder.]

Mailout via Prof Ivan Kelly (chairman) to the 9 (out of 10) CSICOP astrology sub-committee members not already contacted, 2 responses as follows:

Prof Ivan Kelly, Saskatoon. Appropriate tests have already been conducted, eg by Gauquelin on sign delineations and by Fichten & Sunerton on forecasts, with negative results. Nevertheless the testing of sun sign columns is a simple matter -- can subjects (and their close friends) pick their own sign from the other signs? Certain easy conditions must be met, namely the columns must be written by an astrologer of merit, the subjects must have no astrological knowledge, and all giveaway cues must be edited out. Instead of testing by whole signs the subjects could rate each statement (previously mixed at random) for fit on a scale of say 1-5, so the mean ratings for each sign could be directly compared. If the statements were too numerous to be conveniently rated then some of the other signs could be excluded. What would it mean if subjects and their close friends could not pick the correct sign? It would be like claiming we could detect cancer when in fact we could not.

Prof Bryan Farha, Oklahoma City. Select subjects who have little or no knowledge of astrology. Show them the current daily or weekly column in scrambled order with all cues removed. Use a column not readily available locally to minimise cheating. Have them select which of the 12 signs fits them best. Repeat as required until results stabilise. This test was later applied to 63 students at Oklahoma City University (mostly 19-25, range 18-53) who, after 5 pm, had to choose which of 12 daily horoscopes best fitted their day. The horoscopes were from the Dallas Morning News in Texas, 300 km away, and were retyped in random order with sun sign names omitted. There were 6 hits vs 5.25 expected by chance, which is not even marginally significant (binomial $p = 0.43$).

Mailout direct to the 12 (out of 21) contributors to ISAR Anthology on Research Methods not already contacted, 1 response as follows:

T Patrick Davis, Florida. The primary purpose of sun sign columns is to generate income for the author and newspaper by providing a seemingly personal message for each reader. Validity has nothing to do with the matter. I met one such author whose only knowledge of astrology was sun signs (she did not know what an ephemeris was) but she had a talent for words and loved giving advice to others. I have no suggestions for tests because they are pointless. After many decades of work it is clear to me that astrologers have no intention of putting their house in order. They have no interest in research unless it confirms what they already accept and use, or unless it requires no additional effort or supplies, or unless it emanates from a time period when the Earth was assumed to be flat and the center of the universe.

Mailout direct to the 12 (out of 23 less 1 deceased and 1 moved) contributors to Key Topic 1 not already contacted, 1 returned address unknown, 2 apologies (no time due to pressure of other work), 2 responses as follows:

Dr William Grey, Queensland. Like a lot of domains of inquiry which are likely to generate extravagant expectations, the claims of sun sign astrology could be endorsed only if they could withstand the rigours of double-blind tests. My view is that astrologers have had plenty of opportunity to establish their credentials. The fact that they have not done so is most easily explained by the hypothesis that they cannot do so. Sun sign astrology is not a body of knowledge, just epistemological hallucination. The interesting remaining questions are about the nature of delusory belief systems, and how it is that more-or-less rational folk cling to their enthusiasms in the teeth of compelling evidence to the contrary.

Dr Peter Niehenke, Freiburg. Sun sign forecasts are nonsense. They are of no use whatsoever. They are at best bad entertainment if done in a way to generally encourage people or to give advice that always applies, as done in some newspapers. Because they mean nothing it is important that they do no harm. Sun sign delineations are acceptable if people are told they are just types that say nothing about individuals. They are an abstraction like descriptions of the typical German or typical American. These typical people actually do not exist. If done in this way, sun sign delineations can be an introduction to astrological symbols, where the sun sign is just one of many elements that have to be considered in an individual chart.

Mailout direct to 30 selected astrologers not already contacted, 1 returned address unknown, 1 response as follows:

Dennis Elwell, West Midlands. Forecasts do provide a suitable jumping off point for a study of the *language* of prediction, and not only in relation to sun signs. At best, newspaper waffle could be a useful smokescreen for the real thing, which could be dangerous in the wrong hands. [The *language* of forecasts has indeed been studied, see Aphek & Tobin, *The Semiotics of Fortune-Telling*, John Benjamins, Amsterdam 1989. Forecasts (p.101) were found to be characterised by a simple and clear style due to space limitations, by vague and imprecise words as in "something may be causing problems", by positive items outweighing the negative items as in "problems dissolve into enjoyment", and by general truths as in "persevere and success will come." As in all fortune-telling, the aim was to

maximise acceptance, in this case by all readers. Obviously forecasts so based need have nothing to do with astrology.]

Mailout direct to 5 selected scientists not already contacted, 1 apology, 3 responses as follows:

Dr Andrew Patterson, Johannesburg. Predicting events, appearance, personality etc by sun sign cannot be valid, simply because there are more than twelve kinds of person in the world. So testing is pointless. [But even dividing into just two kinds, eg extraverts and introverts, can still be useful.] Incidentally, in 1965 my home was invaded by four armed robbers. I had the relevant dates and times published in the local astrology magazine, and offered a substantial cash prize to anyone who could say what happened that night. Some of the responses were preposterous. My money was safe.

Prof Barry Beyerstein, Vancouver. The main sun sign astrologer in Vancouver is Tim Stephens, whose column *Mystic Stars* appears in several newspapers in British Columbia. A couple of years ago I did a quick test of his columns in one of my classes. It involved about 70 students aged 19-40 with a mean in the early twenties. The results showed that they could not reliably recognize their own week-old horoscope (without sign names of course) after the week's events (supposedly described in the horoscope) had transpired. Because some respondents might have seen the column previously in the local paper, results better than chance would have required re-doing the survey, controlling for this possible leakage. As it turned out, the results were so close to those predicted by the null hypothesis that it looked almost as if we had cooked the data.

Dr Susan Blackmore, Bristol. It seems inconceivable that everyone born under, say, Aries would have the same personality and the same kind of life. But even if only partly true, the predictions for own signs should fit better than those for other signs. [Suitable tests are given in her book with Adam Hart-Davis *Test your Psychic Powers*, Thorsons 1995:152-156, and are similar to those of Kelly and Farha above. In the five years since publication no results have been reported by readers.]

Mailout to 24 sun sign columnists whose addresses could be obtained, including (thanks to Dr Gary Posner) the 19 top syndicated columnists in the USA such as Sydney Omarr, 0 response. (Responses from two other sun sign columnists appear above.)

Mailout (two or more copies each) to the Secretaries of AFAN, ALL, APA, APAE, AS (Manchester), BAPS, FAS, ISAR, Kepler College AAS, and NCGR, using addresses from the current UT guide. AS was returned address unknown. There were 2 responses, both made personally, not on behalf of the organisation, as follows:

Sue Lilly, BAPS secretary, Exeter. Not everyone sees the controversy as important. Ethics and validity are too personal. Sun sign columns are popular, and have to be light-hearted to keep within the law against fraudulent prediction. Agreement among astrologers on how to generate sun sign forecasts would be useful.

Colin Miles, APA newsletter editor, Hemel Hempstead. When astrologers go along with sun signs, they make it easy for others to treat astrology as entertainment, which in turn makes it much more difficult for serious researchers re funding, plausibility, access to material, and so on. Many years of observation suggests that sun sign columnists are either disbelievers (often only in private) who do it just for the money, or believers (all the way from dim to very bright) who have trouble with numbers and cannot tell the general from the particular. Several years ago I helped to draw up some tests of sun signs, but there has been no time or opportunity to try them out.

Mailout (ten copies) via the Secretary to the AA Council, 0 response. Given that the AA's objectives include fostering research for the good of astrology, and promoting the good name of astrology (which sun sign columns are tearing apart), the zero response is disappointing. In an attempt to frustrate those who might wish to discredit the AA on these grounds, we made the AA a special case and extended the deadline to 28 February 1997, but to no effect.

Handout to the 30 (out of 44) people not already contacted at the London Research Conference 10 November 1996, 0 response.

Notable non responses

Among the more notable persons who did not respond were those who had previously attacked sun sign columns (Mike Harding, Glenn Perry, Noel Tyl), those who deal in sun signs (Jonathan Cainer, Russell Grant, Kenneth Irving, Derek and Julia Parker), those who are convinced that appropriate tests will give positive results (Charles Harvey), those prominently connected with research (J Lee Lehman, Mark Pottenger, and Beverly Steffert), and those prominently connected with education (Pat Harris PR person for the Faculty of Astrological Studies).

Our own responses

To be fair, we invited ourselves to respond to our own invitation. Our responses were as follows:

Dean. The invitation is to test the hypothesis that sun sign readings (forecasts and delineations) are sufficiently valid for ethical use. My approach is to fit the sun sign situation to the equations that describe validity attenuation, to apply plausible bounds to the variables, and then to judge if the outcome is plausible. No tests are required, just paper and pencil. Readers can easily repeat the calculation using their own bounds, all without leaving their armchair. For details see the following **Note**.

Note. In Dean's approach, define validity in the usual way as the observed correlation (0-1) between sun sign reading and reality. The observed correlation will be affected by errors of measurement in the same way that handwriting legibility is affected by wearing boxing gloves. Here the key equation is: **observed correlation = a x sqrt(b) x sqrt(c) x d**, where a is the correlation between sun sign and reality that would be observed if there were no measurement errors, b is the agreement between interpretations of the same sun sign by different readers, c is the agreement between repeated observations of the same reality, d is a correction when subjects are restricted in range on the dimension being predicted, and sqrt = square root. All of these quantities (abcd) can be estimated as a first approximation without the need for actual subjects, as follows:

A chart will generally have many factors that are relevant to a given reading. Suppose there are n independent chart factors (of which the sun sign is only one), or n independent clusters of chart factors, each of roughly equal relevance to the reading. (If independence, or at least sufficient independence, is not allowed then of course the case for sun sign astrology collapses.) If the maximum possible correlation between the whole chart and reality is m, where m must be less than 1 because the stars do not compel, then as a rule of thumb $a = m/\sqrt{n}$. Both m and n can be estimated by asking astrologers. Suppose their replies suggest m is 0.2-0.8 and n is 10-100. The bounds on a, the true correlation between sun sign and reality, are then $0.2/\sqrt{100}$ to $0.8/\sqrt{10}$, or 0.02 to 0.25.

Now to the two agreements b and c, both expressed as a correlation. Agreement b is between interpretations of the same sun sign by different readers, so it can be measured. For delineations, given that readers would be repeating the same stock meanings, b should be close to 1. For forecasts, given their notorious disagreement, b might be closer to 0. For the sake of discussion suppose the bounds on b are 0.2-0.9 (the observed agreement on interpreting the whole chart is close to 0.1, so 0.2-0.9 could be optimistic). Agreement c is between repeated observations of the same reality, so it too can be measured. For ratings of ability, c is typically around 0.6. It is lower for eyewitness testimony and higher for psychometric tests. For the sake of discussion suppose the bounds on c are 0.4-0.8.

Correction d applies when subjects are restricted in range on the dimension being predicted. If there is no restriction then $d = 1$. If 10% or 30% of the range is lost from one end, as might happen if the subjects excluded those who failed a qualifying exam, then $d = 0.85$ or 0.75 . For the sake of discussion suppose the bounds on d are 0.8-1.0. At which point the bounds on abcd have been estimated. So the bounds on the observed correlation between sun sign reading and reality can now be calculated, and are found to extend

	a	b	c	d	
from a minimum of	0.02	x sqrt(0.2)	x sqrt(0.4)	x 0.8	= 0.005
to a maximum of	0.25	x sqrt(0.9)	x sqrt(0.8)	x 1.0	= 0.21

For comparison, the highest correlation that has been consistently observed between sun sign and personality is 0.09 for extraversion. Unfortunately it becomes zero when subjects are ignorant of their sun sign, so the effect is due to role playing not astrology, nevertheless the results show that even very small correlations can be detected.

What is the minimum correlation required for ethical use? As a guide, the minimum correlation generally accepted for the application of psychological tests to individuals is about 0.4, ie the observed correlation between test score and reality has to be at least 0.4, which gives a hit rate of 70% compared to 50% for tossing coins. If this was the best

your dentist could manage, he would be drilling seven of your teeth to be sure of getting every two that actually needed it, so it is hardly marvellous. But it is still well above our upper bound of 0.21.

So we need to raise the upper bound. In general the only way we can do this is to raise a , which would require sun signs to have far greater validity than has ever been observed. In turn this would leave very little for the rest of the chart to account for, thus denying any isolated-factor excuses about why sun signs can be invalid. For example, to achieve an upper bound of 0.5, a would have to be $0.5 / (\text{sqr}(0.9) \times \text{sqr}(0.8) \times 1.0) = 0.59$. If m , the maximum possible correlation between the whole chart and reality that is consistent with the stars not compelling, is also 0.59, then from $a = m/\text{sqr}(n)$ the corresponding n is 1.0, meaning that only sun signs can have an effect. Alternatively, if sun signs are the most important chart factor and their influence is one third of the total, the limiting case is $n = 3$ and m has to be $0.59 \times \text{sqr}(3) = 1.0$. In other words, for sun signs to be sufficiently valid for ethical use, either the rest of the chart must be of no consequence whatever or the stars must compel absolutely. Readers can easily repeat these calculation using their own estimates, and draw their own conclusions, all without leaving their armchairs. **End of Note**

Mather. Any positive proof would be a step in the right direction, but ultimately, for ethical use, the correlation between sun sign statements and observed behaviour should be at least 0.4, ie the same validity as for the better personality and ability tests. To test sun sign delineations, take a single large assembly of people, say 600 or more at a conference or residential weekend, and proceed as follows: (1) On some pretext not involving astrology, get each person to complete the EPI (which takes 5 minutes) and provide their birth date. (2) Set up 12 groups, each based loosely on disguised sun sign characteristics, and each with a discussion leader who focusses on those characteristics. By discussion, by trial and error, each person finds the group with whom they have the greatest affinity. This would require a suitably large hall or grounds, and might take an hour or two. (3) When everything is finished, get each person to complete a knowledge-of-astrology questionnaire. (4) Correlate the results. This experiment is essentially a test of the information assumed to be contained in sun signs. The spontaneous grouping in (2) allows scope to introduce more information than is commonly used. Any positive results for people ignorant of astrology would indicate a genuine effect.

To test sun sign forecasts, get say 100 people with no interest in astrology to keep a weekly record of the main events in their lives over three months, using preset headings selected for compatibility with such forecasts. During this time collect the published weekly horoscopes of the best sun sign astrologers, and code them using the same headings. Then compare the two datasets by computer to see if the forecasts match the right signs better than they match the wrong signs. Continue the best combinations for another three months to see if their success is consistent. If it is then the success is genuine and not an artifact.

Love signs

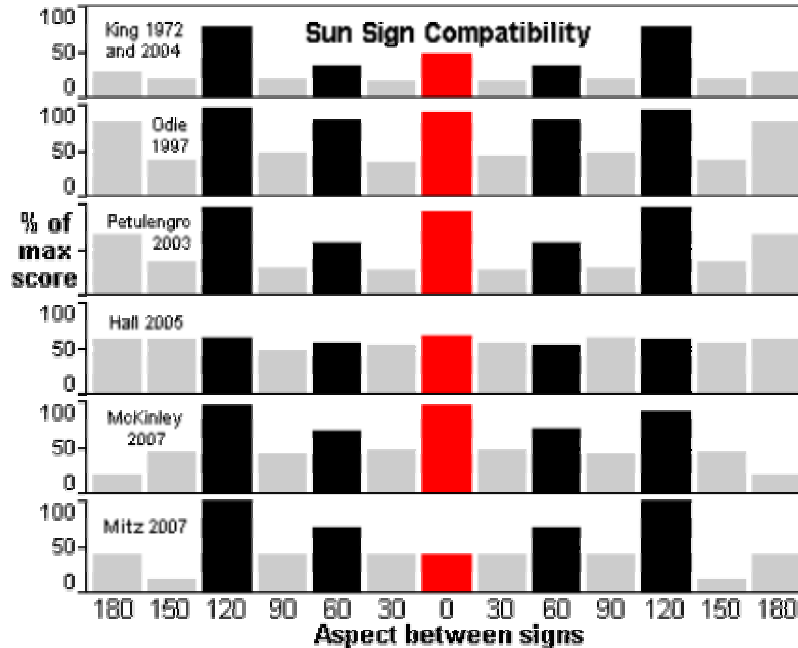
Fail world's largest tests (N=27m)

Geoffrey Dean

Abstract -- Three recent studies (Sachs 1998, Castille 2004, Voas 2007) with a combined sample size of 27 million couples have failed to find the slightest evidence for sun sign effects, thus confirming the results of earlier studies (which are briefly reviewed). Studies of sun sign compatibility largely avoid the problems that plague the testing of individual signs, namely those due to demography (depending on place and country some months have more births than others) and astronomy (due to the Earth's elliptical orbit some signs have more days than others), which here generally cancel out. We follow the tests in some detail to see how huge samples can tease out apparent astrological effects only to find them explained by recording bias and other glitches in the data. Despite the giant magnifying glass of huge samples, no sun sign effects could be detected. Interestingly, many studies have shown that sun sign self-attribution has a tiny effect size typically around 0.08, showing that some people have sufficient belief in sun signs to shift their self-image in the believed direction, albeit only slightly. But the same belief seems to have no effect when picking a partner (effect size $<0.000,001$), showing that such beliefs may shift their own self-image but not the actual behaviour of others. That is, even for them, the real world always prevails over astrology world. In short, lonely hearts (and anybody else including astrologers) who worry about sun signs (and by extension astrology itself) are absolutely wasting their time.

Married couples tend to be similar in many ways including age, height, education, social class, and attractiveness. The effect sizes can be substantial, for example bright men prefer bright women ($r = 0.5$) and tall men prefer tall women ($r = 0.3$). In addition, sun sign books, websites, and women's magazines insist that sun signs are just as important for successful romance. For example Judy Hall (*Sun Signs for Lovers: The Astrological Guide to Love, Sex and Relationships*, Octopus 2005) says "Sun signs can reveal whether people are passionate or romantic, faithful or flirtatious; and whether they are looking for passion or friendship, fidelity or freedom" (page 7). Hall is a professional astrologer, counsellor, and tutor at the London School of Astrology.

Traditionally the harmonious aspects between sun signs (conjunctions, sextiles, trines) are favourable while inharmonious aspects (squares, oppositions) are unfavourable. For example Linda Goodman (*Love Signs*, Pan-Macmillan 1980) says "when you find a trined, sextiled or conjuncted relationship between two SunSigns ... love then takes on a deeper dimension" (page 3). Sometimes astrological authors rate pairings on scales of 1-5 or 1-10, which can then be summarised in numerical form as in the plots below, where the predominance of conjunctions (0), sextiles (60) and trines (120) is clearly visible.



Sun sign compatibility according to six authors. The vertical scale is the compatibility rating as a percentage of the maximum possible. The preferred aspects are conjunctions (0), shown in red, and sextiles (60) and trines (120) shown in black. Aspects on the right are to signs later in the zodiac, aspects on the left are to earlier signs. Where an author gives ratings for subgroups, for example Odle gives separate ratings for love and friendship, and King gives separate ratings for males and females vs love, sex, and marriage, the ratings have been combined. Sources are as follows

- Teri King *Love, Sex and Astrology* Pan Books 1972 and HarperTorch 2004.
- Christopher Odle *Mix & Match Astrology: Compatibility in Romance, Friendship, Family, and Work* Quarto 1997.
- Claire Petulengro *Love Stars: A Guide to All Your Relationships* Pan Books 2003.
- Judy Hall *Sun Signs for Lovers: The Astrological Guide to Love, Sex and Relationships* Octopus 2005.
- Nellie McKinley *Astrology: A Compatibility Guide* Hinkler 2007.
- Phyllis F Mitz *Astrology's Secrets to Hot Romance* Health Communications 2007.

As shown by the above plots, astrologers can disagree on particular sun sign pairings, for example King and McKinley (like Ptolemy, see below) rate the opposition (180) as largely unfavourable, Hall and Mitz rate it as average, and the other two rate it as largely favourable. Similarly Hall rates the inconjunct (150) as moderately favourable, contrary to the others including Ptolemy ("if the luminaries be in trine or sextile to each other, the cohabitation will most usually be lasting; but if ... in signs inconjunct, or in opposition, or in quartile [90], the cohabitation will be speedily dissolved upon slight causes, and the total separation of the parties will ensue", *Tetrabiblos*, Book 4, Chapter 5, Ashmand translation).

Similarly, as shown in the appendix to *History, controversies, validity* on this website under Sun Signs, Russell Grant and Mystic Meg disagree completely on the compatibility of Gemini-Virgo (90, "sexual incompatibility" vs "sex style matches perfectly"), and similarly on Virgo-Aries (150), Virgo-Pisces (180), Libra-Libra (0) and Aquarius-Libra (120).

Astrologers can also disagree with themselves when their rating of X-Y differs from their rating of Y-X. Thus in the above plots only King, Petulengro and Mitz show no internal disagreement, whereas the ratings by McKinley, Odle, and Hall disagree with themselves on respectively 15%, 22% and 47% of the possible 144 pairings, as when Hall rates

Aquarius-Aries (60), Gemini-Virgo (90) and Cancer-Libra (90) as favourable, but not favourable the other way round.

Nevertheless, the agreement among astrologers is still good enough to ensure that sun sign compatibility (if it exists) should be detectable in groups of married couples. For example the mean correlation between the above plots is $r = 0.61$ ($df=10$, $p=0.04$) the individual correlations being as follows:

	King	Odle	Petul	Hall	McKin	Mitz	Mean
King		0.60	0.72	0.45	0.57	0.68	0.60
Odle	0.60		0.80	0.63	0.60	0.70	0.67
Petulengro	0.72	0.80		0.69	0.65	0.66	0.70
Hall	0.45	0.63	0.69		0.32	0.42	0.50
McKinley	0.57	0.60	0.65	0.32		0.61	0.55
Mitz	0.68	0.70	0.66	0.42	0.61		0.61
							Mean 0.61

Here the most agreeing astrologers are Odle and Petulengro ($r=0.80$) and the least agreeing are Hall and McKinley ($r=0.32$).

Compatibility is good for testing

Tests of sun sign compatibility largely avoid the problems that plague the testing of individual signs, namely those due to demography (depending on place and country some months have more births than others) and astronomy (due to the Earth's elliptical orbit some signs have more days than others). For example demographic information is rarely detailed enough to allow the calculation of accurate expectancies. But in tests of sun sign compatibility the variations due to demography will generally apply to both partners and will therefore cancel out, while the variations due to astronomy are automatically covered in the calculations, so an accurate expectancy for any given sign combination is easily obtained. Thus if the proportion of a given sign among husbands is X and the proportion of a given sign among wives is Y, the expected frequency of that combination is XYN where N = sample size. If the observed frequency is Z, the ratio observed frequency / expected frequency (which is the Obs/Exp ratio plotted in the figures) is Z/XYN.

Early research

Marriage and divorce records are a good source of compatible and incompatible births. But studies of sun sign pairings in such records have generally produced only negative results. For example Daneel (1970, 1972) found no significant deviations from chance for 884 and 1608 German divorces, Silverman (1971) found the same for 478 American divorces and 1586 marriages, although a second sample of 1382 marriages found a small but significant surplus of sextiles and trines equivalent to an effect size of 0.06, and Boning et al (1978) found no effect for 736 Dutch marriages. Studies involving other planets and precise aspects have generally been just as negative, for example Shanks (1983) found nothing significant for 960 marriages.

* Boning H et al (1978). Results of Research Group on Marriage Partners, *Tijdschrift Astrologie* 2.2, 2.

Daneel R (1970). Ehescheidung und Geburtssternbild, *Kosmobiologie* November 1970, 149-151.

Daneel R (1972). Ehescheidung und Geburtsdatum, *Zeitschrift fur Parapsychologie und Grenzgebiete der Psychologie* 14, 37-43.

* Shanks T (1983). Research on Astrological Factors Between Married Couples, *Astro-Psychological Problems* 2.1, 12-16.

Silverman BI (1971), Studies of Astrology, *Journal of Psychology* 77, 141-149.

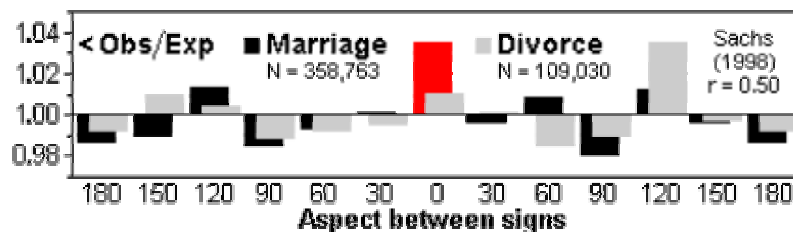
* For an abstract see *Research Results (91 abstracts)* on this website under Doing Scientific Research.

A recent Swiss study

An apparent exception is a study of sun sign compatibility by Gunter Sachs (*The Astrology File*, Orion 1998) who analysed birth data from the Swiss Federal Office of Statistics for couples who married or divorced between 1987 and 1994. It was the largest sample yet (358,763 married couples and 109,030 divorced couples). Of the 144 sign pairings, 25 were individually significant for marriage and 13 for divorce, so Sachs concluded that "star signs clearly are of particular importance when it comes to choosing a partner" (page 70) although they "play a far less significant role in divorce than in marriage" (page 95). This conclusion was supported by a follow-up study in which each spouse was given a false birth date picked at random. The results were "statistically entirely unremarkable" (page 203).

However, a check of his original results shows that his cutoff level for significance is about $p = 0.13$, contrary to his claim of $p = 0.05$ (page 44), which means that in each case $144 \times 0.13 = 18.7$ pairings are expected to be individually significant by chance alone. Overall there are $25 + 13 = 38$ individually significant pairings vs $2 \times 18.7 = 37.4$ expected by chance alone, which means that Sachs's results actually provide no support whatever for sun sign effects.

Furthermore, as noted by Suitbert Ertel in *Sach's Astrology File* on this website under Sun Signs, the sign preferences of husbands should tend to agree with the sign preferences of wives, but the mean rank correlation between preferences over the 66 unduplicated pairings AR-AR, AR-TA, ... SG-PI, AQ-PI was a negligible 0.075 ($p=0.53$) for marriages and -0.12 ($p=0.31$) for divorces, the last being in the wrong direction. (Ertel's rankings used preferences based on Sach's published expectancies, which are rounded and occasionally lead to ties. When Ertel's test is repeated with unrounded expectancies to avoid ties, the mean rank correlations are 0.136 ($p=0.28$) and 0.073 ($p=0.56$), respectively. The differences are small and do not affect the outcome.) Ertel concluded there was "no hint of the correspondences we would expect if Sach's results were genuinely due to astrology". More obviously, as shown in the figure below, the deviations from expectancy do not match the predictions of astrology.

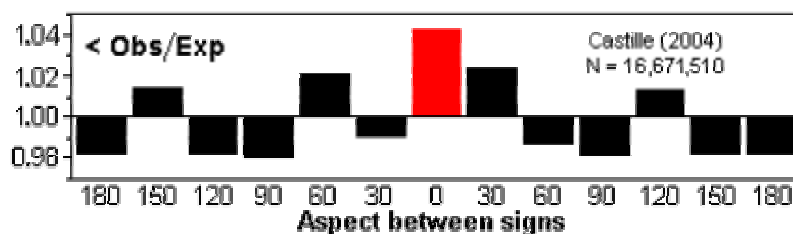


Sachs's sun sign results for marriage and divorce show little similarity with the previous figure. Other than the apparent excess of conjunctions (shown in red), which is probably due to recording bias (see later), the ups and downs are all over the place. Also, contrary to astrological expectation, those for marriage tend to agree with those for divorce ($r = 0.50$).

A more recent French study

However, a more recent French study by Didier Castille (Birth day effect on natality rhythms, *Correlation* 22.2, 20-32, 2004) produced intriguing results. From the Institut National de la Statistique et des Etudes Economiques (National Institute for Statistics and Economic Studies) he had obtained the dates of birth for all married couples to whom live children were born between 1977 and 2000. Couples were excluded if either spouse was born on 1 January, since this date was about 40% more frequent than any other probably due to immigrants who did not know their exact birth date, or if either date was obviously in error such as 31 June. The result was a total of nearly 17 million

couples. Castille was studying the number of days 0-364 between the birthdays of husband and wife rather than their sun signs, but since each sign averages $365/12 = 30.4$ days, his counts can be converted to a roughly equivalent sun sign separation. Spouses born just a few days apart could of course have different sun signs whereas this approach gives them the same sun sign, so the conversion is far from exact. Nevertheless it should be good enough to pick up any sun sign effect in such a huge sample. As shown in the figure below, the results show no clear conformity to what astrology predicts.



Days between 16 million French couples' birthdays from Castille (2004) converted to approximate sun signs between spouses. Once again the ups and downs are all over the place. The number of same-birthday couples (hidden in the red result) was 26% more than the 46,000 expected.

The above results show a small consistent deficit of squares (90) but no consistent excess of sextiles (60) or trines (120). The apparently large excess of same-sign couples (shown in red) appears large only because the scale is small; thus the corresponding effect size is a tiny 0.0039. So this enormous sample offers no useful support whatever for sun sign effects. The excess of same-birthday and same-sign couples is highly significant, but according to Castille an explanation "is yet to be found" (page 30).

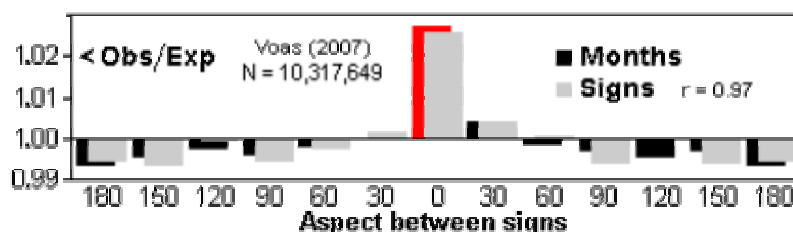
A definitive British study

However, an explanation arises from a recent study by David Voas (*Ten million marriages: A test of astrological love signs*, Cathie Marsh Centre for Census and Survey Research, University of Manchester UK, available at <http://www.ccsr.ac.uk/research/lovesigns.html>) using 2001 census data gathered in England and Wales by the Office for National Statistics. Voas notes that although the quality of the data is very good, three factors can upset any study: (1) Variations due to chance. (2) Recording errors. Some people may not know their birthday or the birthday of the person they are completing the form for. Others may make mistakes, or write illegibly, or decline to respond, or lie. (3) Self-attribution. Some sign pairings may occur more frequently than expected if people seek these matches and avoid others. (The Thomas theorem in sociology holds that if people perceive something as real, even if it isn't, it will have real consequences, as when the 17th century belief in witches led to many thousands of innocent people being burned at the stake.) Fortunately it is possible to allow for the above factors. For example post-census surveys and quality checks provide information about response and non-response, while self-attribution and genuine sun sign effects can be disentangled by testing only people without knowledge of sun sign compatibilities.

Voas also notes that more than a hundred standard tables summarising the census results have been published. If they do not cover a particular interest, special tables can be commissioned including any of the data collected, subject to the usual considerations of data protection. Once a table has been created it becomes publicly available. In this case a table showing the pairings by sun sign of 10,317,649 married couples in England and Wales 2001 had already been commissioned by someone describing himself as "a

philosopher with a degree in statistics" who was "investigating the truth behind astrology".

The table was in general agreement with the results of Castille. It appeared to show a small but significant tendency for people to marry partners of the same sign (about 22,100 more than the 861,800 expected), and a smaller tendency to marry adjacent signs, but no clear conformity to what astrology predicts. Nevertheless the significant excess of same-sign couples seemed large enough to justify investigation. So Voas commissioned a full breakdown of husbands and wives by day and month of birth (366 days x 366 days x four subgroups by husband's age, or nearly 670,000 combinations). As shown in the figure below, this new data showed an apparent month effect that was slightly larger than the apparent sign effect. So both effects were largely due to couples with matching birthdays.



Results from Voas (2007). The excess of same-month couples (2.7% more than the 861,540 expected) is slightly larger than the excess of same-sign couples (2.6%). The number of same-birthday couples is about 40% higher than the expected 28,300.

Voas notes that, while some people may be drawn to each other because they have the same birthday, the excess of same-birthday couples is probably largely due to response error. Census forms are typically completed by one member of the household, who through carelessness or forgetfulness may enter their own birthday for that of their spouse. Such errors are supported by a census validation study that found 10,900 couples where one spouse had assigned their own sex to the other. If people can make mistakes about their spouse's sex they can also make mistakes about birthdays.

Indeed, the most common birthday was 1 January (2560 vs 77 expected) with 1 July (563) in second place, indicating that some people entered 1 January (or 1 July) if an exact birthday was not known, a practice known to occur in old people's homes and for people born overseas. Recall that Castille observed the same in French data, and the same is visible in the previous plot of Sachs's data. (There were even more opportunities for the adjustment of birth dates in the 18th and 19th centuries, see *The Gauquelin work 2. Opinions, artifacts, puzzles* on this website under Gauquelin.)

Furthermore, more spouses than expected were listed as sharing the same day of birth (but a different month) or the same month of birth (but a different day) as the other spouse. This is not necessarily relevant to the analysis of sun signs, although it would be relevant to Castille's day counting, but it does illustrate the way in which recording errors can occur.

A crucial disentangling test

Back at the excess of same-month couples, Voas wondered if (despite the positive effect of recording errors) there might still be some kind of seasonal affinity and if it could be astrological. Here the partial overlap between sun signs and months allowed a crucial test. The first third of each sign occurs in one month and the rest in the next month. If

signs have an effect then couples with both spouses born under the same sign in different months should be more common than those born under different signs in the same month.

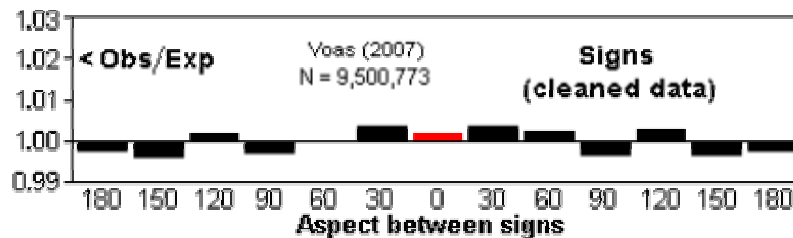
The results were conclusive. Same-sign-different-month couples were not significantly more numerous than expected by chance, whereas different-sign-same-month couples were significantly in excess. Voas concluded that sun signs played no role in the observed excess of same-month couples.

But what about the slightly-higher-than-expected counts for adjacent signs or months? Here Voas explains a census procedure called "imputation". When the census office encounters illegible or missing dates of birth (which account for about 0.5% of all responses), the day is entered as the 1st of the month, and the months are assigned in rotation. Thus if the dates for both spouses were missing, one would be entered as 1st of month M and the other (usually the wife because they are typically listed on the form after husbands) as 1st of month M+1. Such cases will therefore usually assign wives to the month or sign following their husbands, which is precisely what is observed in the previous plots including Castille's. Because of the tendency to give 1 January as a birthday (which date Castille had therefore removed from his data prior to analysis), both the same-sign/month effect and the following-sign/month effect (ie the value of observed/expected frequency) should be highest for Capricorn/January. And it is:

Capricorn same-sign = 1.061, following-sign = 1.008
 January same-month = 1.054, following-month = 1.007

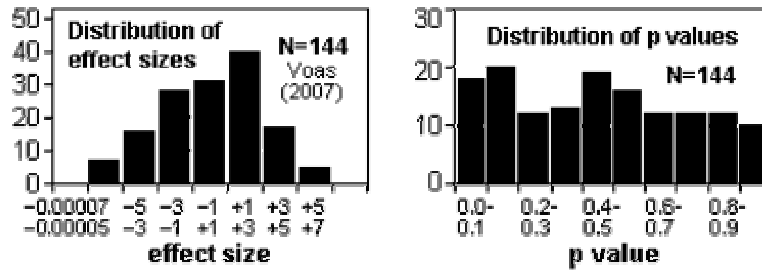
Results for cleaned data

Voas then removed these response errors by excluding from the data all couples where one or both spouses are born on the 1st of a month, and by excluding from same-sign couples those with the same birthday or month of birth. The effect of these exclusions reduced the sample size from 10,317,649 marriages to 9,500,773 and gave the results shown below:



Results for cleaned data based on Voas (2007)

The excess of same-sign marriages is now less than 0.2% ($p=0.08$), no more than would be expected by chance, and much less than the previous 2.7% ($p<10^{-100}$), confirming the bias due to recording errors and the processing of missing data. Overall there are no variations more than expected by chance, as shown below for the 144 sign pairings.



Results using cleaned data for 144 sign pairings. **Left:** the distribution of 144 effect sizes ranges from -0.000,07 to +0.000,07, mean <0.000,001 equivalent to a success rate in predicting compatibility by sun sign of no more than 50.00005% vs 50% expected by chance. **Right:** the distribution of 144 significance levels is close to uniform, showing that no sun sign pairing is even marginally significant more than expected by chance.

Interestingly, sun sign self-attribution has a tiny effect size typically around 0.08 (see *Meta-analyses* on this website under Doing Scientific Research), showing that some people have sufficient belief in sun signs to shift their self-image in the believed direction, albeit only slightly. So we might expect the same belief to lead such people to consider sun signs when picking a partner. That no effect can be detected even with enormous samples shows that their beliefs may shift their own self-image but not the actual behaviour of others. That is, even for them, the real world always prevails over astrology world.

Conclusion

These three studies (by respectively Sachs, Castille and Voas) are the largest tests of sun sign astrology ever undertaken. After allowing for response and procedural biases, the distribution of spousal birthdays is as close to random as one is likely to find in a real-world situation. Voas concludes as follows:

"Astrologers are likely to complain that full birth charts are needed to predict personality accurately. There are two responses. First, to the extent that astrology has influenced everyday belief, it is almost entirely through the use of sun signs; if those were seen as useless when it comes to assessing personality and romantic compatibility, then astrology would lose its hold on the public imagination. Secondly, the basic signs are important even in professional charts. If they had any direct influence, however small, the giant magnifying glass of this huge sample would reveal it. No effects can be detected.

"The only remaining defence is that sun signs mean nothing on their own. [However] such a claim would mean that no generalizations about sun signs could be true. Virtually all astrologers, however, make statements about the supposed influence of different elements of a chart, including the sun sign."

In short, lonely hearts (and anybody else including astrologers) who worry about sun signs (and by extension astrology itself) are absolutely wasting their time. Nevertheless sun sign astrology is unlikely to go away, simply because there is a huge commercial profit to be made from its continued existence, along with wide ignorance of how to judge its claims.

Sach's Astrology File

Sun sign hype has fatal defects

Three critiques that appeared in 1998. Two are from *Correlation* 17(1), the third is from *Skeptiker* 11(3).

Gunter Sachs, *The Astrology File: Scientific Proof of the Link Between Star Signs and Human Behaviour* Orion Books, London 1998, translated from the original German version published in 1997.

Abstract -- The book is promoted on the cover as a "world-wide best seller". Its blurb says "At last the proof which answers the age-old question: Is there anything to astrology?" and "If you do believe in astrology, here's the proof. If you didn't believe in astrology, you will now". Here the **first critique by astrologer Peter Niehenke** shows how flaws in Sachs's reasoning make his results meaningless. Sachs tested occupations (47 groups), cause of death, criminals, suicides, and compatibility. His base samples were often very large (millions of cases) and were from diverse sources such as the Swiss census of 1990. For each test he corrected for demographic effects in the total population and then applied a statistical chi-squared test to the observed and expected sign totals. There were many significant differences, which he saw as proving the effect of sun signs. But his results are largely meaningless. Many factors influence the distribution of births including climate, culture, and social class, so there are many possible explanations for the observed differences, all more plausible than astrology. And if the sample is huge, as here, even the smallest effect will become statistically significant. Furthermore, Sachs never checked the large number of existing studies, which often found differences opposite to his own. In short, his observation of significant yet contradictory results is only to be expected and does not necessarily have anything to do with astrology. The **second critique by psychologist Suitbert Ertel** points out that all data is tabulated. So despite the flaws in reasoning (see first critique) the data can be re-analysed by improved methods. Factor analysis of the sun sign data for occupations revealed no similarities between similar occupations such as industrial economy and political economy, or medicine and veterinary medicine, or medicine and pharmacy. Nor was there any general ordering such as sciences vs humanities. A similar analysis of the sun sign data for criminal behaviour was equally negative. As for Sachs's data for 350,763 marriages, sun sign books say the compatibility between two signs is much the same regardless of which one is male or female. But when the liking of one sign for another was ranked for each male sign, and again for each female sign, the mean rank correlation between male and female rankings for all twelve signs was a negligible 0.05, not even weakly significant ($p = 0.88$). So the sun sign books are wrong. Nor was it any better when Sachs's divorces were analysed in the same way. There was no hint of the links expected if Sachs's results were genuinely due to astrology. This critique is a fascinating step-by-step look at how a sympathetic scientist applies powerful methods to astrological ideas, and at how good science sorts out bad science. Altogether the next best thing to doing the work yourself. The **third critique by statistician Herbert Basler** finds an abundance of statistical errors and is more suitable for technical readers. Most of the print-media reviews of Sachs's book were scathingly critical of how he interpreted his results. But most reviews seemed to agree that the calculations were correct, which is not the case. Sachs regularly makes mistakes, for example in the number of results said to be significant, using the wrong average to compute certain deviations, neglecting one tail of the statistical distribution (so his reported significance levels are inflated), miscalculating the statistics in his "simplified example" (which describes as nonsignificant a drug that cures 75% of cases, whereas if the illness were AIDS it would win a Nobel prize), using samples that differ from the comparison sample (there are 8.81% Pisces births but only 8.54% Pisces deaths, so 0.27% Pisces must be immortal, suggesting that statistics is something done by *Zahlenfriedhofsgaertner*, gardeners who work in the cemeteries where dead numbers are buried), and wrongly assuming that the comparison data are stable (his sun sign births during 1925-60 differ from those during 1954-76). Such frequent errors would make us doubt Sachs's claims, even if everything else was acceptable (which, as the other critiques show, is not the case). Nevertheless Sachs's book does have one good point -- it contradicts the idea promoted by astrologers that astrology cannot be tested by statistical methods.

In 1998 the British newspaper *Daily Mail* ran two articles based on Gunter Sachs's new book *The Astrology File*. The articles claimed that "scientific analysis has proved a link between the stars and how you lead your life" and that "no one has truly analysed in meticulous detail whether human behaviour and astrology really do have a link".

The book's subtitle was equally explicit: "Scientific proof of the link between star signs and human behaviour". As was the blurb: "At last the proof which answers the age-old question: Is there anything to astrology?" (from inside front cover). "If you do believe in astrology, here's the proof. If you didn't believe in astrology, you will now" (from inside back cover).

Now read the following three critiques of Sach's book and see if you agree. The authors are respectively Dr Peter Niehenke, one of Germany's leading astrologers, Professor Dr Suitbert Ertel, a longtime astro-researcher and Gauquelin expert, and Dr Herbert Basler, an eminent statistician. Each author approaches Sach's book in his own way but all reach the same conclusion. All articles first appeared in 1998, Niehenke and Ertel in *Correlation* 17(1), Basler in *Skeptiker* 11(3).

The Astrology File: scientific proof of sun sign effects?

By Peter Niehenke

To add to recent critical interest in sun signs, I would like to comment on a recent German book by Gunter Sachs called *Die Akte Astrologie: Wissenschaftlicher Nachweis eines Zusammenhangs zwischen den Sternzeichen und dem menschlichen Verhalten* [The Astrology File: a scientific proof of a relationship between signs of the zodiac and human behaviour]. Munich: Goldmann, 1997.

According to the jacket blurb, "The aim of this study is not exactly unambitious: Up to now, the hypothesis that there is a relationship between the signs of the zodiac and human behaviour has been a matter of faith. With the help of statistics, Gunter Sachs has now approached the problem with impartiality. Step by step, he produces proof that astrology is not a myth. It is based on measurable foundations."

Anyone familiar with astrological research will read this with some astonishment. It implies that no attempt has previously been made to test the accuracy of zodiac signs by statistical methods, and that strong proof is now being presented. Both points are incorrect.

The content of the study

Sachs investigated the question: How do sun signs vary among individuals classified by occupation (47 groups such as carpenter, dentist, doctor, farmer, gardener, house painter, policeman, psychologist, tailor, and teacher), by cause of death, by student's choice of subject, by driving behaviour, and so on. He also studied criminals, suicides, and compatibility. His base samples were often very large and came from diverse sources. For example his occupational groups were from the Swiss census of 1990, a total of 3,580,013 cases, and his causes of death were from all deaths in Switzerland 1969-1994 divided into 32 different causes, a total of 1,195,174 cases. For each group Sachs corrected the sign totals for demographic effects using the sign distribution of the total population. He then applied a chi-squared test to the corrected totals to see if they departed from the distribution expected by chance and from each other. There were many significant results, which he interpreted as proof of a relationship with sun signs.

Sachs' book has attracted an extraordinary amount of public interest, with many talk shows and long interviews, even in magazines such as *Der Spiegel* that are not noted for being interested in astrology. Such publicity would normally be welcomed by us astrologers, so it is distressing that I have to point out that Sachs' results are largely meaningless, being due to flaws in the reasoning. Neither Sachs nor his advisors, which included the Statistical Institute of Munich University and the head of the Institut für Demoskopie (a respected German opinion research institute), had noticed these flaws. Furthermore, it is clear that nobody had suggested checking the large number of existing studies, as is usual in worthwhile scientific activity. Such checks would have

quickly identified the flaws, and would have quickly revealed that the tests planned by Sachs were a waste of time.

The flaws in the reasoning

There are four main flaws. (1) A large number of non-astrological factors are known to affect the distribution of births, including climate and culture (Huntington 1938, for a summary see Dean and Mather 1977, pp.90-91), and social class (Smithers 1984). As a result the distribution of births can vary a great deal from country to country, from year to year, from place to place within the same country, and from one class of person to another. We cannot assume (as Sachs did) that the distribution expected for any particular occupation is the same as the distribution in the general population. So we are not entitled to claim that any differences are necessarily due to the effect of zodiac signs. To put it another way, there are many possible hypotheses to explain such differences, all of them more plausible than astrology.

(2) Because many effects exist in the data, we will observe variations no matter how the data are grouped, whether by tropical sign as in Sachs' case, or by sidereal sign, or by month, or by any other period we care to choose. If the fact that variations exist between individual groups were sufficient proof (which is what Sachs claims), I would be able to prove the effectiveness of all these groupings. Of course, as Suitbert Ertel has pointed out, if it could be shown that, of all possible groupings, the tropical signs produce the most significant results, this would be a good start towards establishing the reality of signs. It would not of course be proof, but it would be a good start. But Sachs is not aware of this basic requirement.

(3) As discussed in every statistics textbook, the chi-squared test measures the *significance* of the effect, not the *size* of the effect. Given a large enough sample, even the smallest effect will become highly significant. In this case, as noted above, many effects are present, therefore Sachs' discovery of significant results is only to be expected. But we are not entitled to claim that they have anything to do with astrology. Nor are we entitled to claim that they are of practical importance. For example, suppose a certain sun sign in a sample of 100,000 plumbers is found to be significant at the $p = 0.000,000,0001$ level by chi-squared test with $df = 1$. At first sight this seems amazing. But it corresponds to only 8.94% of plumbers having that sun sign instead of the 8.33% (= 100/12) expected for a uniform distribution. Not amazing at all. But such is the power of large samples!

(4) The chi-squared test as applied here by Sachs is actually invalid because it assumes that the expectancies are exact theoretical values with no inherent variance due to sampling errors. But Sachs' expectancies are based on observed frequencies that are subject to sampling errors. Consequently the expectancies have a variance for which the chi-squared test makes no allowance, and which effectively inflates the observed significance.

The above flaws could not be more elementary, yet they were missed by the professional statisticians that Sachs consulted, including those from the Statistical Institute of Munich University. It is more than disappointing when a professional body, meant to help people planning research and applying statistical methods, does not do its job well.

A better approach

A better approach, which Sachs does not adopt, would be to test various hypotheses

that are astrologically sound. If the observed peaks and troughs do not lie where astrology predicts, then they can hardly be said to support astrological claims, no matter how significant they may otherwise be. Such an approach was adopted by Smithers (1984) who asked British astrologers which sun signs they would expect to be most prominent among his various professional groups. The most successful prediction by the astrologers was for nurses, predicted to have negative signs prominent.

However, when we compare the nurse distributions observed by Smithers with those observed by Sachs, we find huge differences. Thus for no less than eight signs (TA, GE, CN, LE, VI, SC, SG, PI) a positive deviation from the mean in one distribution is matched by a negative deviation in the other. If we do not wish to assume that an absolute difference exists between being a nurse in Britain and being a nurse in Switzerland, then such differences show how the varying birth rates of nurses in the different periods of the year can bear no relationship to the sun signs. Such differences are nothing special and have been known about for a long time, see Dean and Mather (1977, pp.114-117). In this case it is just one more of the problems that Sachs would have avoided had he made a literature search before starting work.

Reply by Sachs

My criticism of Sachs' book was first published in the January 1998 issue of the German magazine *Esotera*. Unfortunately, "to make it easier to understand for people not knowing too much about statistics", the editor had made some simplifications that subsequently misled Sachs' reply in the March issue. My criticism was also published unchanged in the January/February issue of the German astrological magazine *Meridian*, to which Sachs and his two statisticians H W Schwenk and Dr Rita Kuenstler replied in the May/June issue. But they seemed not to have noticed the difference from the *Esotera* version. They also evaded my main criticism (that the variations are not necessarily due to astrology), dismissing it as "trivial." They also claimed, without giving any argument, that it was "self-evident" that variations would have been obtained regardless of how the year was divided, which of course misses the point. But my criticism has been confirmed by Suitbert Ertel's work [see next article below], in which case the entire Sachs' study must be dismissed as invalid.

Conclusion

Although Gunter Sachs has shown that the distribution of births differs between various groups, this does not necessarily have anything to do with zodiac signs or with astrology. His failure to consider previous research was precisely the opposite of what should have been done. His results, although interesting, are fatally flawed and are a long way from being proof of astrology. Personally I am convinced that there is not the slightest chance of such proof arising from his data.

Acknowledgements

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Scrutiny of Gunter Sachs's excursion into astrological research

By Suitbert Ertel

Famous photographer and publicity expert Gunter Sachs made an excursion into astrology. *Die Akte Astrologie* (The Astrology File), Sachs 1997, promises to deliver "Scientific proof of a relationship between sunsigns and human behaviour" (the book's subtitle). But after reading the report, and after checking its tables, I have to conclude that this promise is not fulfilled. The approach does not provide a proof of astrology, nor is it even scientific. Why? Because it lacks scientific rigor, the readiness to search among the results of one's actions for possible errors. The book thus lacks one of the most indispensable guidelines to which the scientific enterprise is committed, ie critique, and to which Sir Karl Popper, one of its pioneering proponents, drew ample attention.

But this is no grounds to choke down applause for some of the book's good features: Its style is elegant, the chapters entertaining. Above all, the author's methods are made transparent, tables and material for scrutiny are provided. But alas, the scrutiny itself is left to the reader. So let me have a close look at this work. Suppose it had been my task to test statistical connections between sunsign and behaviour. What procedures would I have adopted, and what would I have avoided?

1. First, I would have considered pertinent studies by other scientists in order to take advantage of existing insights and results. Sachs does not do so, and is therefore not aware of the contradiction between his own seemingly positive observations and those of others (such as Gauquelin 1978, 1981) that are entirely negative. The contradictions would have raised my suspicion: What is wrong, who errs, could it be me?

2. If like Sachs I had made no attempt to take notice of pertinent literature, I would have conceded the matter in the book's introduction. I would have admitted that I was actually not informed enough to ask (as Sachs does on page 210), "How was it possible that no one -- no science and no power of the modern world -- has ever tried up to these days to get upon the track of ancient astrology?" This question will seem ludicrous to anyone familiar with the numerous published reviews of astrological research such as by Dean & Mather (1977), Eysenck & Nias (1982), and those provided by Pottenger (1995) and Kelly (1997).

3. Similarly, I would not have dared to claim, as Sachs does on pages 210-211, that "During our work we noticed much ambivalence regarding astrology. Ministers,

university rectors ..., even though widely interested in astrological research, will never profess such curiosity." Apart from the numerous reviews just mentioned that attest to this curiosity, at least one university professor -- having gone public with his research into astrological matters and being eager to cooperate -- attempted to contact Sachs's group twice but received no reply.

4. Having obtained birth data, how would I analyse it? Let me first describe what Sachs did. He used two types of statistical design, applying the first one to questions like "Is sunsign at birth related to occupation?" For this he listed architects, bakers, butchers, educators, farmers etc, in columns, with rows giving the breakdown of deviations from expectancy by sunsign (Aries, Taurus, Gemini etc). He also included categories other than occupation such as fields of university study (biology, economics, medicine etc), criminal behaviour (theft, fraud, forgery etc), causes of death (asthma, diabetes, cancer etc), and make of automobile (Audi, BMW, Ford etc). Sachs reasoned like this: If a chi-squared test of sunsign frequencies gives a significant result, then the variations are caused by astrological factors.

If Sachs had asked me to comment on this rationale, I would have warned him that his demographic corrections regarding expectancies were far from sufficient. Broad demographic aggregates, Sachs's basis for expectancies, level off all local variation and might therefore give rise to artifactual discrepancies between expectancy and observation for subsamples (a point further discussed in Niehenke's letter). The size of such discrepancies is generally negligible, however, they will inevitably reach statistical significance whenever the sample size is large enough (and Sachs collected masses of data, eg nearly four million birth dates for his occupations). I would also have warned Sachs that even if part of what he found was more than artifact, other factors, unrelated to sunsigns, might account for that, for example seasonal factors at birth (temperature, sunlight, stability of weather conditions, constancy of maternal care etc, see Wendt 1978, and Niehenke's critique). Being obliged to observe scientific caution, I would have suggested to test the more straightforward causal rivals first -- see my Appendix 1 for details.

5. Nevertheless, supposing I wanted to find proof for astrological claims, I would certainly have looked at astrology's teachings and derive from them in advance precise hypotheses such as "If astrology is true, then an association should exist between sunsign X and, say, occupation Y." Sachs ignores such hypothesis testing, significant deviation from expectancy, wherever they may turn up, are all hailed as instances of proof for the ancient wisdom. But suppose Sachs, after collecting the data without any particular hypothesis in his mind, had asked me to make the best out of his many numbers, I would have suggested him to take a close look at the total of his results and try to find, after the event, as much sense in them as possible. This would require comparing, combining, separating, ie the ordering of observations. At which point, however, he would eventually have discovered that his results actually do not make sense. Why? Let me explain.

First I looked at Sachs's sunsign results for his ten areas of university study. To these I applied a multivariate procedure called principal component analysis (PCA), which is a standard method for reducing a large number of variables to a small number of underlying factors that collectively explain most of the variation. Each of the 10 study variables (see Table below) is defined by 12 sunsign deviations (differences between observed and expected counts for Aries-born students, for Taurus-born students etc). The 12 deviations for one study area can be correlated with the 12 deviations for every

other study area to give a 10x10 correlation matrix suitable for PCA analysis. The results suggested that most of the variation could be explained by three or four factors. Four factors were therefore Varimax-rotated (which maximises their separation and maximises their loadings) yielding the distribution of factor loadings shown in Table 1.

Table 1. Varimax-rotated factors underlying sunsign variations of university students (Sachs's sample)

Field of study	Factor:	1	2	3	4
1. Architecture		0.23	0.68	-0.08	-0.27
2. Industrial economy		-0.02	-0.94	-0.08	-0.08
3. Biology		0.10	-0.06	0.87	-0.17
4. Law		-0.26	0.10	0.54	0.62
5. Medicine		-0.03	-0.24	-0.37	0.78
6. Psychology		0.66	0.37	0.04	-0.05
7. Pharmacy		0.15	-0.18	0.04	-0.80
8. Veterinary medicine		0.84	-0.22	0.39	-0.25
9. Political economy		-0.80	-0.11	0.33	-0.00
10. Dentistry		-0.23	0.69	-0.41	0.04
% variance accounted for:		20.0	21.3	16.3	18.1

Each entry in the table is a factor loading, thus the sunsign variation among architecture students correlates 0.23 with factor 1 and 0.68 with factor 2. To interpret each factor we simply group together the fields of study on which it loads the most. Selecting all fields with substantial loadings (in excess of 0.40), for factor 1 we have veterinary medicine (0.84), political economy (-0.80), and psychology (0.66). For factor 2 we have industrial economy (-0.94), dentistry (0.69), and architecture (0.68). For factor 3 we have biology (0.87), law (0.57), and dentistry (-0.41). For factor 4 we have pharmacy (-0.80), medicine (0.78), and law (0.62).

Having identified the main fields of study underlying each factor, we examine them to see what they have in common. But they seem to have nothing in common. What has dentistry to do with architecture (factor 2), or biology with law (factor 3)? We might expect certain fields to occur together in the same factor, such as industrial economy and political economy, or medicine and veterinary medicine, but they do not. Even in factor 4, the possibly related fields of pharmacy and medicine are of opposite sign, so they are, if at all, related only negatively, which contradicts expectation. In other words none of the factors can be interpreted. Sunsign-based preferences of fields of study have failed to reflect, as they should, obvious similarities between them. Nor has any general order such as sciences vs humanities become manifest.

I repeated the analysis using Sachs's results for various types of criminal behaviour, and obtained a similar chaos. At this point I would normally resign and conclude that zodiac-based variation among students or criminals is mere noise. But I have still to consider Sachs's second type of statistical design.

6. Sachs applied his second design to synastry questions in marriage such as "Do Taurus men prefer Libra women to Gemini women?" or "Do Leo women prefer Cancer men to Sagittarius men?" Using 358,763 marriages from Swiss records, Sachs derived 12 x 12 = 144 man-woman (same as woman-man) sunsign combinations, and submitted each of the 144 deviations from expectancy to a chi-squared test. Significant values popped up

here and there, too many to grasp by eye (the full matrix is given in my Appendix 2), so for a clearer outcome I turned to Spearman rank correlations between the various deviations. For example, it is reasonable to assume that if an affinity exists where, say, Aries men like Leo women, then this affinity should have some correspondence with the liking by women, ie Aries women would generally be expected to like Leo men. We might even doubt the plausible correspondence and allow for an inversion, ie hypothesize repulsion instead of liking, where Aries women dislike and therefore do not marry Leo men. To check if either was supported by Sachs's results, I listed the deviations given by Sachs for each combination of Aries men and non-Aries woman, and for each combination of Aries women and non-Aries man, as follows:

Partner's sign	TA	GE	CN	LE	VI	LI	SC	SG	CP	AQ	PI
AR men	35	34	-58	68	5	-18	-90	-63	-30	-50	34
AR women	-47	-50	-106	109	-63	-44	-55	125	-38	-15	49

The more positive the deviation, the more popular the combination, and therefore the more the liking between signs. I then ranked the deviations, highest first, and obtained the following ranks for the rankings by Aries men and Aries women:

Partner's sign	TA	GE	CN	LE	VI	LI	SC	SG	CP	AQ	PI
AR men	2	3.5	9	1	5	6	11	10	7	8	3.5
AR women	7	8	11	2	10	6	9	1	5	4	3

When ranked in terms of signs, with the most popular combination first (the two signs like each other the most) and the least popular combination last (the two signs like each other the least), the results are as follows:

	Most						Least				
AR men like	LE	TA	GE	PI	VI	LI	CP	AQ	CN	SG	SC
AR women like	SG	LE	PI	AQ	CP	LI	TA	GE	SC	VI	CN

In the above table some sunsigns such as LE seem consistently liked, others such as SC seem consistently disliked, while others such as SG show no consistency. Ranking signs in this way hides the fact that the differences are small throughout, for example the most liked sign is typically only about 6% more numerous than expected by chance, the least liked sign is only about 6% less numerous than expected by chance. If there are influences at work at all, they cannot be large. But rather than dwell on individual signs it is more important to know the general trend. Is the order of liking by Aries men related to the order of liking by Aries women? This question is easily answered by calculating the Spearman rank correlation rho between the two sets of rankings, which in this case gives rho = 0.18, an insignificant value of correspondence. This is just for Aries. What of the other signs? I analyzed these in the same way and obtained the following mean correlations between the order of liking by men and the order of liking by women:

Sign	AR	TA	GE	CN	LE	VI	LI	SC	SG	CP	AQ	PI	Av
Mean	.18	-13	-15	.21	-06	-19	.01	.21	-23	.63	-25	.36	.05

Half the correlations are positive and half are negative, whereas we might expect the direction to be consistently large and positive. The highest correlation of 0.63 is individually significant ($p = 0.03$) but not when corrected for the number of tests ($np =$

0.38). The mean correlation of 0.05 is not even weakly significant ($p = 0.88$ for a sample of 11 pairs).

In the above tests each sunsign combination occurs twice, first as say AR-LE and again as LE-AR, so the 11 correlation rho's are not completely independent. Each isolated mistake, each glitch in the data, could therefore make itself felt on two separate occasions. To avoid this problem I applied the same Spearman analysis to the $12 \times 11/2 = 66$ pairs of unique combination AR-TA, AR-GE, ... AQ-PI. The mean correlation rho was 0.075, again not even weakly significant ($p = 0.53$). The outcome was not any better when I applied the same strategy of analysis on Sachs's divorce numbers, the correlation being -0.12 ($p = 0.31$). Altogether there is no hint of the correspondences we would expect if Sachs's results were genuinely due to astrology. Instead, as before, there is only noise.

In summary, what I would not have done in the first place to publish such noise nor would I have pretended that the results were scientific and meaningful. I would have been aware that publicizing this chaos of numbers could damage the reputation of other approaches into astro-psychological relationships conducted by those who live up to the ideals of Popper's critical science.

However, even if I had neglected all this, I would have returned to my hobby (photography) less hastily. In his final chapter titled "Astrology Adieu" Sachs sets an abrupt end to his excursion, pictures, he says, attract him more than numbers. I do not argue hedonic values. But before leaving the stage I would first have invited critical readers to discuss the book's formidable message. And before eventually leaving the battle field, probably with losses, I would nevertheless make the masses of my original data available for other researchers who would, more thoroughly than I did, want to test possible correlations between the variables birth, death, crime, marriage, divorce, profession, etc, and cosmo-ecological factors.

After the present article was completed, another critique of Sachs's "Akte Astrologie" by statistician Herbert Basler (1998) appeared in *Skeptiker*. Basler points at errors in the statistics as applied by Sachs, some of which had escaped my attention. Basler also provides an extensive explanation for possible sampling artefacts as noted above in (4), second paragraph. [Basler's article follows this one.]

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Ertel Appendix 1

Testing for more straightforward causal rivals

A crucial test of the sunsign hypothesis can be based on a simple approach that is also mentioned in Niehenke's critique. The approach is not new (others like John Addey and Donald Bradley have already applied it) but it has been generally forgotten. It works like this:

The sunsigns (Aries, Taurus, Gemini, etc) form a sequence of categories that is discontinuous. That is, symbolic differences (such as those based on polarity, triplicity and quadruplicity) between adjacent signs such as Aries and Taurus are not smaller than between non-adjacent signs such as Aries and Gemini, and are possibly even larger.

By contrast, non-astrological factors aligned on the calendar scale (January, February, March etc) are continuous. Thus differences in temperature and rainfall are smaller between adjacent months such as January and February than between non-adjacent months such as January and March. The contrast between astrological factors (discontinuous) and non-astrological factors (continuous) allow a straightforward test.

For example if the differing counts of, say, professions in the twelve sunsign groups reported by Sachs were due to sunsign symbolism, they would be detectable only if the temporal boundaries of sunsign categories are strictly maintained. Consider people born between 21 March and 20 April; these are Aries people. Shift these dates arbitrarily by, say, one week to 28 March and 27 April; of the people born in this period, two-thirds are Aries people, the rest are Taurus people. Thus, by only slightly shifting temporal boundaries, the twelve samples are severely spoiled, at least in terms of sunsign astrology (Aries and Taurus are supposed to be quite different, like apples and potatoes). But there is no severe spoiling in terms of non-astrological seasonal factors.

Now, if the differences of counts among people grouped by sunsign (Sachs's differences) were due to sunsign factors, the variation of counts between those groups would be maximal. So the variation should rapidly dwindle away as the sign boundaries are successively shifted a day at a time for each new computation; and the variation between groups should reach its lowest level at a shift of around 14 days. On the other hand, if the variation between sunsigns had nothing to do with sunsigns and was due to seasonal factors, the variation should stay more or less at an average level, perhaps with smooth oscillations above and below the average level.

Ertel Appendix 2

Man-woman sunsign deviations from expectancy

The table below shows the deviation from expectancy in 358,763 Swiss marriages 1987-1994 for each man-woman sunsign combination. The deviations are from Sachs's book. For Aries-Aries there were 3154 actual marriages and 3021 expected marriages, so the deviation from expectancy is 133. For Pisces-Pisces there were 2738 actual marriages and 2741 expected marriages, so the deviation from expectancy is -3. My text shows how to make sense of this confusing array of numbers.

Men	Women	--										
	AR	TA	GE	CN	LE	VI	LI	SC	SG	CP	AQ	PI
AR	133	35	34	-58	68	5	-18	-90	-63	-30	-50	34
TA	-47	93	-85	37	-106	-23	114	71	6	50	-47	-62
GE	-50	27	129	-32	-15	-43	45	7	23	-42	-22	-27
CN	-106	5	37	17	12	32	-67	22	-3	-66	53	65
LE	109	-31	-33	41	15	21	-11	9	-49	27	-123	25
VI	-63	39	-27	2	-51	120	23	56	4	2	-52	-54
LI	-44	-35	58	26	70	-27	83	-66	25	-19	-29	-44
SC	-55	-65	-77	61	-4	-14	6	34	-14	19	2	107
SG	125	13	-29	-4	21	-24	-26	-38	115	-72	20	-101
CP	-38	48	-34	-63	-32	-8	-50	9	-40	146	21	39
AQ	-15	-161	45	-53	67	44	-21	-122	-1	42	155	21
PI	49	32	-19	26	-45	-82	-78	107	-3	-56	73	-3

"Die Akte Astrologie" by Gunter Sachs from the viewpoint of mathematical statistics

By Herbert Basler

The following critique appeared in *Skeptiker* 11 (3), 104-111. It has been translated from the original German article by the Dutch statistician Dr J W Nienhuys. Some parts have been condensed to save space. Dr Basler is a well-known statistician whose textbook *Grundbegriffe der Wahrscheinlichkeitsrechnung und Statistischen Methodenlehre* is in its 11th printing. In general Basler focusses on statistical faults and not on design faults, even though the latter are usually more important.

"Yet another criticism" many readers will think, reflecting on the fact that the 1997 book by Sachs received much attention from the media, and that most of the reviews in the print media were scathingly critical of Sachs's claims. But most of the reviews criticised only his interpretations of the statistical results. All reviewers seemed to agree that the results themselves were correct -- except for "small superficial errors" noted by the reviewer of the *Frankfurter Allgemeine*. For example the *Suddeutsche Zeitung* says that "A statistics professor of the university of Munich has declared in writing that the study is statistically correct."

This article will counter such views. Indeed, during his calculation of the statistical results, Sachs regularly makes mistakes in his analysis. For example, in the exposition of the connection between starsigns and suicide (extensively discussed by Niehenke) we find the following: Sachs claims that the actual number of suicides deviates significantly in 5 out of 12 cases from the corresponding chance expectation. But calculation shows that this is wrong in four cases, or at any rate these four deviations are not significant at the level indicated by Sachs.

Allensbacher Institute star sign study: Comparing the incomparable

In the second part of the Sachs book (120 pages) is an account of extensive investigation by the Allensbacher Institute for Demoscopy on the possible relations

between the answers of the persons questioned and their star signs. Altogether the answers of 13,283 people on 923 questions were studied. The star sign could be determined for only 10,758 of these people because 2525 people failed to give their birthday. The results of the questions are given on pp.280-332 of the book (page numbers refer to the second printing). 30 characteristics were graphically represented, because in them significant deviations turned up. For example on p.233 we find "Deviations from the average for special interest for building, modernising and remodelling, from which we can see that 17.6% showed 'a special interest'", which we will abbreviate as "yes". Pisces gave 22.1% yes cases, so graphically we see a deviation of $22.1\% - 17.6\% = 4.5\%$.

The deviations in the graph, in percent, starting with Capricorn (January) and ending with Sagittarius (December) are: 0.6, 0.4, 4.5, 0.8, 2.2, 3.4, 2.7, 0.5, -1.2, 1.0, -0.3, 0.9.

If we look at these deviations, we see immediately that there are more positive deviations than negative deviations, whereas we would expect them to even out. In other words we suspect that an error has increased the positive deviations. On p.290 we then read that the Gemini deviation is highly significant with 3.4%, and similarly Pisces with its even greater deviation is also significant. So Allensbach says that there is a highly significant relation between the star signs of the polled people and their answers.

Naturally we suspect that this isn't so, as the positive deviations are probably erroneous. This suspicion is correct. The "average" refers to all 13,283 people, and not to the 10,758 people that gave their birthdays. When we compute from the given numbers of polled people and the given percentage, the number of yes answers (e.g for Capricorns $837 \times 18.2\% = 152$), we obtain altogether 2038 yes answers, which is 18.9% of the whole group with known star sign, rather than the inadmissible value of 17.6% that Allensbach marks as the "mean value". If Allensbach had used the correct mean value, then the deviations would not have been "highly significant" (an actual test would have used the chi-squared test in a 4-field table, which does not give a significance level of 1%). [Note by translator: I think we should first make a 12x2 chi-squared test on all signs together before picking out the high values. Thus for all signs together I get $p=0.24$, indicating that nothing special is happening, so there is no need to look for outliers in individual signs. This matter is discussed at length in Basler's follow-up article, not included here.]

These frequent errors makes us doubt all evaluations done in the Allensbach study and their reported significance, for example on the interest people take in politics, environmental issues etc. Readers may wonder how such a serious error can occur, where we end up comparing incomparables. Maybe readers will think this reviewer is wrong. Maybe they will think that that it wouldn't have made any difference since the 10,758 polled persons with star sign and the 2525 without would answer similarly. But this is not the case. From the given percentages we can compute the total number of yes answers as 2238 for the "star sign group" and 300 for the "no star sign group", which means 18.9% yes compared to 11.9% yes. (Here a chi-squared test of the difference gives $p=10^{-16}$.) This means that the target question related to "building" was answered in a different way by people not willing to give their birthday.

This effect, where answering behavior differs between responders and non-responders, is very inconvenient for polling purposes. Also, the strength of the effect is different across the 923 questions, so a uniform correction is not possible. This problem in

demoscropy is well known, namely that non-responders influence the aggregate result. It appears here in a very harsh light.

I won't go into the methodological objections to the execution of very many single tests with the same material (which is actually mentioned by Sachs as the "multiple test problem"), or the lack of a global comparison for all 12 zodiacal signs (which is what Sachs requires of himself in the first part of the book, see p.48.). Despite these problems, the Allensbacher Institute calls its investigation a mere "pilot study", as a kind of prophylactic plea for forgiveness of their statistical sins.

Star signs and suicide

In the chapter "Who chooses voluntary death?" Sachs presents the data to be analysed as follows: "We had available birthdates of 30,358 women and men that had chosen voluntary death in the years 1969 through 1994 in Switzerland. The officials of the Statistical Federal Office in Bern provided the following table" (which is then given).

The text is seemingly clear but it needs additional information for a statistical investigation. In the previous chapter, "Who dies of what?" we read (p.149 ff): "As basic material we had the dates of all men and women that died in Switzerland from 1969 through 1994, divided according to their star sign and 32 different causes of death. Altogether this concerns 1,195,174 death cases. In agreement with the advising statisticians, this database was processed by leaving out death causes for which the numbers were too small, and those that lacked meaning according to astromedicine. In this way "the decisive data material was reduced to 20 causes of death and 687,850 death cases", in other words a reduction of more than 40%. The 20 selected causes of death do not involve suicide, so the table heading "Deathcases Switzerland 1969-1994" means only non-suicides with 20 causes of death.

For the statistician a connection between star sign and suicide should be tested by means of a 12 x 2 chi-squared test. This asks whether any of the 12 empirical suicide fractions (eg 2725 out of 30,358 = 8.98% for Aries) and the corresponding fraction for the whole sample (eg 61,582 out of 687,850 = 8.95%) are significantly different.

It is therefore immediately clear that Sachs makes a modelling error. His chi-squared test assumes the suicide fraction 8.95% for Aries constituted a portion of all Aries deaths, and this is certainly not the case. [That is, the two samples are not properly matched, see later under the heading "immortal Pisces".] The fractions of the different star signs are not constants, neither for "the death cases", nor for "the births", as we shall show.

The annual fluctuations in the numbers are relatively small in large populations, so that in this case the wrong test and the right test do not give very different answers. Nonetheless, these small fluctuations can explain the otherwise strikingly significant results. Remarkably Sachs doesn't make this mistake in the chapter "Who dies of what?". There he applies the correct tests when he compares the separate death causes and the star signs.

Test results

Sachs indicates that if an error probability of 0.00084 (the result of his wrong test) is accepted, then the empirical distribution of suicides deviates from the distribution of all deaths. This probability number is correct and corresponds to the chi-squared value of 31.7 (Sachs nowhere mentions the actual value of the test variable, which makes checks

considerably more difficult.) However, contrary to this result, the correct test yields $p=0.0014$, which is an astonishing result for astro skeptics, at least for the time being. Sachs then tests each of the star signs separately, to see whether it deviates significantly from its corresponding death fraction, again with the wrong test. He gets the following five significant results (p.162):

- Taurus, Cancer, Sagittarius $p=0.05$ each
- Pisces $p=0.01$
- Libra $p=0.001$

If we use the correct test for these five star signs we find (in the same order as above) the correct significance levels are 0.02, 0.07, 0.09, 0.02, 0.002. So only for Taurus is Sachs right.

It is easy to explain such a serious discrepancy between Sachs and the correct values, simply because Sachs makes a distinction between positive and negative deviations when he discusses single signs. In technical terms he believes he is allowed to apply these tests *one-tailed* with $p=0.05$; but he then rejects the null hypothesis not only if the empirical deviation is in the 5% rejection region in the negative part, but also if it is in the positive 5%. This means that the supposed error probability of 5% is actually 10% instead! Which explains the difference between the five "significant" signs of Sachs and the correct test results.

A one-tailed test is allowed, but only if the investigator has decided before the results are known, which direction (positive or negative) shall apply. Such a decision typically occurs when earlier studies or theoretical considerations lead us to choose, say, a positive direction because a negative direction isn't interesting anymore.

The question whether such advance decisions for a one-tailed test have actually been made before looking into the data, sometimes leads to discussions between statisticians who deal with pure theory and those who deal with real data. In our case the matter is quite clear: Sachs nowhere makes any advance decisions. Sachs even proves this by making remarks that his findings "do not always conform to the picture drawn by astrological literature" (p.161). In other words he stresses that in each single test he is open to the possibility of positive and negative deviations, which means he should have applied two-tailed tests. Also we might remark that Niehenke says that astrology cannot make statements about zodiacal signs and suicide.

This one-tailedness error continually pops up in Sachs's book. For instance in his chapter "Who marries whom?" he examines every one of the $12 \times 12 = 144$ star sign combinations to see if any deviate significantly from the expectation. Because Sachs says he uses $p=0.05$ one-tailed, he effectively uses $p=0.10$ two-tailed, so among his 25 significant cells (pp.74 ff) we may expect $144 \times 0.10 = 14.4$ fake significances, with no way of telling which of these are actually fake. This recurring methodical problem (to be distinguished from the one-tailedness error) is treated in the book by Sachs and he calls it the multiple test problem (p.208), but he doesn't draw the appropriate conclusions.

(The licensed statistician Dr Rita Kunstler who advised Sachs writes p.208 that there was the possibility of a multiple test problem. But it was decided in the case of professions and illnesses to consider "light significant" results only as indications, not as proofs, because the number of individual tests is so large, namely $12 \times 47 = 564$. But even this

precaution was the consequence of a "decision", and the advisor thought it was not imperative.)

If we want to be methodically unobjectionable we should act as follows: if we are dealing with a first investigation, we can observe statistical significance only in global independence tests. The results of tests on individual cells can be taken only as conjectures or indications, which should then be tested on new material, at which point it is allowed (before looking at the results) to settle on a one-tailed test. Only *after* that can we proclaim methodically flawless significance statements, for example that there is a highly significant negative connection between Aquarius men and Taurus women, as Sachs so hastily does (p.74). No doubt such statements greatly increase the book's profitability, which is not an unreasonable expectation because the costs so far of the study (below the 1997 factory price of a Porsche 911, see p.210) have probably already been recouped as bestseller royalties, even after taxes.

The above concerns about the "multiple test problem" also apply to the Allensbach study, because there the evaluation of the samples involved $12 \times 923 = 11,076$ single tests for the 923 questions.

Significance -- a magic word?

When there are so tremendously many significances as in the Sachs book, it is certainly important that we do not misjudge the fundamental meaning of a statistically significant result, and that we do not overvalue them. This seems to be a problem for Sachs, because he explains to his readers the meaning of a "consciously simplified example" in the following way:

"Let us assume 100 people are ill with an unknown disease. All 100 receive a new medicine. 75 patients are cured. According to our criteria this is not significant, as the curing power of the drug is statistically not proved. When 95 of 100 sick people are cured, we can describe the action of the drug as lightly significant. Only at 99 cures can we call the curing power significant" (p.70).

Any lay person will object that something here must be wrong. Because if the unknown disease were incurable like AIDS, then the discoverer of a new drug that cures 75 out of 100 would be an immediate candidate for the Nobel prize, and the Nobel committee wouldn't bother about consulting a statistician. [Note by translator: If the drug produced 75 cures and also 25 deaths, the discoverer might be an immediate candidate for something other than praise for his lethal concoction.] But if we make the example more precise, for example by supposing the chance for spontaneous recovery to be 50%, then 75 cures in 100 patients would be very highly significant, well below $p=0.001$. (Actually a one-tailed test would be appropriate here, but even that would reach $p=0.001$ for only 66 cures.) [Note by translator: The author fails to mention how Sachs seems to confuse "the chance that a sick person gets cured" with "the probability that this or a weaker result would occur if the null hypothesis were true".]

This means that Sachs's example conjures up hopelessly exaggerated interpretations of significance. After this we cannot exclude the possibility that his bizarre misunderstanding is the reason for the rather unbridled astrological interpretations of what Sachs calls significant results. [The author then describes tests showing that Sachs's marriage results can be easily explained by assuming 4% of the population are influenced by astrology when making their marriage preferences, which is very small compared to the 50% or more who read newspaper horoscopes.].

Are there immortal Pisces? Or what is a sample?

If we perform any kind of statistical test, we must suppose that the data material being evaluated is a statistically random sample. This holds also for the statistical investigations we deal with here. We shall see that these assumptions are seriously compromised.

Suppose we test the null hypothesis that the star sign distribution in the general population is identical with that in the death cases. From the Sachs book (pp.114-116) we take the Swiss census data of 1990, which consists of 2,731,766 births between 1925-1960. We take this as the star sign distribution in the general population, and as sample we take the already mentioned 687,850 death cases in Switzerland 1969-1994. The chi-squared test gives $p=10^{-8}$ for 11 df. For example there are 8.81% Pisces births (240,677 out of 2,731,766) but only 8,54% Pisces deaths out of all death cases.

Such a result suggests that some Pisces must be immortal. A typical critical reaction would be: statistically correct, but factually probably incorrect, which would express once more the widespread opinion that statistics is something done by dumb calculators and gardeners at number cemeteries [*Zahlenfriedhofsgaertner*, gardeners who work in the cemeteries where dead numbers are buried.] However, a more sensible conclusion from this example is: The set of death cases is not a random sample from the birth population, as far as the star sign distribution is concerned.

But what has this example to do with the comparison of suicides with death cases? The point is, in both cases we can see that the samples are not representative of the population to which they are being compared. This is clearly so in the case of the deaths (as nobody is immortal). And in the Sachs comparison of suicides with other deaths, the age and birth year are probably not the same. [Note by translator: True. People usually die of old age at around 75, whereas suicides are very roughly the same in all age groups, at least in the Netherlands, which makes the average suicide younger at death than a non-suicidee.] Sachs does not give information about this. Differences would not influence the comparison if the star sign distribution of births was stable across the years, as recognized by Sachs (p.107) when he states: "... the distribution of birth dates over the year is virtually the same over the years, so we can assume, for practical purposes, a relative constancy of the birth distribution across the years."

In fact, if we compare the Swiss star sign distributions for 1925-1960 with those (pp.108-110) for 1954-1976, they turn out to be highly significantly different. For example there are only 8.48% Pisces in 1954-1976 compared to 8.81% in 1925-1960. (Here a chi-squared test gives $p=10^{-40}$ for $df=1$, which is so small that we don't even have to worry about the overlap in years). We might agree with Sachs that for "practical purposes" we might assume a relative constancy, but not for statistical investigations, where such large numbers mean that even the tiniest and most uninteresting differences would yield significant results. Large sample sizes turn every statistical test into a sharp sword that needs much training and care in handling. The danger is that such significances based on tiny effects will lead to hasty and spectacularly wrong interpretations, for example astrological ones.

These remarks do not mean that all of Sachs's significant results will turn out to be false after elimination of errors. But they do require re-investigations in which, for example, data are used only if the people have the same birth years. As we already mentioned in the section "starsigns and suicide" further investigations are even more urgent because of the "multiple test problem".

But reason can be cunning

Maybe it will surprise some readers that I have the opinion -- notwithstanding all my criticism of the *Akte Astrologie* -- that the Sachs book does have some merit, inasmuch as it has widely disseminated the insight that astrological hypotheses can be tested with statistical methods. It is well known that proponents of occult hypotheses reject this idea as a first defense, as it were, against empirical checks.

We have also seen how easily errors can creep in to undermine the results. But we have also seen how we can avoid errors by careful re-examination and investigations with new data. It would be great if Sachs himself would use these possibilities to continue his work with an Act II. If there would remain difficult-to-explain connections between star signs and human affairs, then these would be real hard nuts for astro-skeptics to crack. The road from *Akte* to Act II would then be a nice illustration of Hegels idea of the *List der Vernunft* [Cunning of Reason] which occasionally also promotes the advance of reason by small detours.

True Confessions

How testing sun signs ruined my love life

A true story from an E-skeptic subscriber, August 2003

Abstract -- My girlfriend has a large immediate family, all firm believers in astrology. At a party they rated horoscopes as less accurate than ones that (unknown to them) I had switched, which upset them and ruined my love life.

My girlfriend's family are very smart people who believe weird things. She has a large immediate family, all firm believers in multiple fringe concepts including astrology, ghosts, and psychic powers. At least half of them regularly visit an iridologist. If I express any skepticism on these matters I am quickly stifled.

On the last birthday of my girlfriend's mother, they held a huge party. As an experiment, I found an astrology website on the Internet, and printed out 30 copies of the full 12-sign horoscope. However, I changed 15 of the copies using Microsoft Word so that the readings no longer matched up with the Zodiac sign. At the party, I handed out the copies and had everyone rate how accurate their own readings were on a scale of 1 inaccurate to 5 accurate. Of course I did not tell them that 15 of them were reading false horoscopes. Several members figured I was up to something, but they went along anyway. In the end, the average score for the correct horoscopes was 3.7, and for the non-correct 3.9.

When it was all over, I told them the truth, and showed them that the doctored horoscopes actually got a slightly higher rating. The response was alarming. I was called a know-it-all by at least two people, was attacked within earshot by another, and was informed later by my girlfriend that her father was upset and required me to apologize. I found it ironic that they were upset with me for tricking them, and failed to see how it was me doing the tricking. Conclusion: skepticism may be very rewarding but it has ruined my love life.

<http://www.elbertwade.com/page93.html>

Throughout astrological history there have always been those (usually males) who gain some level of "fame" by challenging time-tested and proven traditional Astrology methods and techniques. These rebels "cook up," "discover" or "develop" their own "take" on this ancient science-art and often gain a certain level of temporary attention and notoriety through their writings, books, lectures and teachings which are excitedly welcomed and supported by those who also know very little about the science-art Astrology, or those wanting to make radical changes, or find themselves unable to make a go of it following the long-established astrological conventions.

These "guru's" travel locally and far (often worldwide) to explain what's "wrong" with Astrology and offer their personal unproven and untested (except possibly only by their very limited and selfishly biased "research") opinions, theories and concepts for "fixing" it -- even though Astrology, when used properly, is not "broken."

It seems they make their "pitch" mainly to females (it helps if these "gurus" have some degree of sex appeal) eager to hear anything "new" and "different" -- no matter how convoluted or bizarre. These modern-day "gurus" are welcomed, honored and cheered by members of the rebellious astrologically community and other "new-age" malcontents, and assorted fortune-tellers who want to make Astrology easier so they can claim they are real astrologers.

For the most part these "guru's" are "above" actually doing horoscope readings, mainly because of their incompetence in preparing, researching and reading horoscope charts; consequently, they can't eke out a living in a traditional consultancy. Of course, they would never admit this to anyone. They find it much easier and more rewarding financially to preach their theories to those who are willing to pay for their travel, lodging and expenses, and who will offer them attractive fees for lectures and conducting classes to "teach" their "new and better way" -- and of course eager to put down cash to buy their books, courses and whatever other merchandise they have to sell.

While these "gurus" may actually need to do this in order to make a living, Astrology would be much better served if they instead entered a new profession for which they might have adequate knowledge, and a chance for success. They certainly are not doing Astrology any favors with their totally-selfish and self-serving often skewed and frequently convoluted attempts to make a name (and money!) for themselves.

Yes, it is very possible some of these "gurus" may enjoy a brief time in the limelight; however, no doubt most of them will never gain a positive mention of honor in the historical records of the Astrology greats.

Elbert Wade will not name any names here (which would be very easy to do), but they know who they are and they are known by serious practicing consulting astrologers, real astrologers and serious students of Astrology all too well.

The science-art Astrology will never gain the wide-spread acceptance it deserves so long as these clowns continue to toy with and attempt to change the time-tested "rules" mainly (or only) in search of a means to gain a name for themselves -- and money.

<http://www.akgupta.com/Thoughts/astrology.htm>

Astrology : A Science or Superstition?

Human beings have always been curious to know their future. Whenever someone is in difficulty and cannot easily come out of it, he wants to know whether the days of his misery will come to an end at all. And if yes, then when? When one invests a great deal of time, effort or money into some project, it is natural to wonder whether that investment will bear some fruit. There have always been people around who have successfully predicted future events. Their methods have been different - some people can simply look into the future, some use tarot cards, some draw up an astrological chart which we call horoscopes, some read the lines in the palms of people. One cannot deny that future has been accurately predicted many a times and by many a people. Each successful prediction proves that it is indeed possible to correctly predict future.

In the ancient times, astrologers were held to be in great esteem by the people. There was no difference between astronomers and astrologers. In fact, astronomy and Astrology were not considered to be two different subjects. Many will be surprised to know that most of the renowned scientists of the past, including Sir Isaac Newton, were astrologers too. In ancient India Astrology was known as "Jyotish Shastra" which included predictive Astrology as well as what we know as astronomy. Needless to say that the astrologers of that era were all great mathematicians too. An accomplished astrologer was called "Trikal-darshee" : one who could see past, present and future. It would perhaps not be an exaggeration to say that Astrology was considered to be the foremost branch of science.

Slowly over a period of time this subject came into disrepute.

How Astrology lost its exalted status?

It is a fact of life that people emulate successful, popular and respected persons. Seeing the social status enjoyed by astrologers, charlatans started masquerading as astrologers. They learnt a few tricks of the trade and started duping gullible people. It was and still is a very lucrative business. An astrologer earns money by making predictions while giving no guarantee that any of his predictions will turn out to be true. There is no money back guarantee :-). Once an astrologer sets up shop, people start coming to him in the hope that may be he will be able to foresee their future correctly. The astrologer is in a wonderful position. For example, he may make predictions about ten persons, getting only one prediction right. The nine persons, about whom he predicted wrongly, will never come back to him. But the tenth person, about which the astrologer was able to predict correctly, will not only come back to him again but also refer many other persons to him, citing personal experience. In this way, the business of an astrologer always flourishes, no matter how he himself fares in his trade. But the

downside of this was that astrologers, as a group, started being seen as a lot of dubious persons like politicians of the modern age. Once such impression started gaining ground, Astrology as a subject no longer remained attractive to intelligent persons. People, who had talent, started to pursue other fields of knowledge. Over a period of time, the inevitable happened. No talent, worth its salt, chose to pursue Astrology as a vocation or a hobby and the outcome of this is for everyone to see in the present times.

There was one more very important reason for Astrology becoming one of the lesser fields of knowledge. It was the decline of India, the fountainhead of human civilization, and its loss of status as the repository of all the knowledge of the ancient world (see [How India lost its Glory](#)). The Islamic hordes, who attacked and looted India many a times and later ruled that country for hundred of years, had no respect for priceless works of art, the magnificent architecture and the other exalted areas of human endeavor. They destroyed most of the ancient temples, burnt down libraries like Nalanda and Takshshila and permanently took away innumerable books of infinite wisdom from the future generations of humanity. A great amount of recorded knowledge was lost, astrological books included. This loss proved to be irreparable, as the then Indian society became engaged in ensuring its survival and a constant struggle against the aggressors. The few people, who had some invaluable texts and scriptures with them, were hard put to preserve the remaining works of ancient sages. That is why, when one studies Astrology, he feels as if some vital links are missing. With the Hindu philosophy losing its ground it was natural that Astrology would lose its prominent place too. As the modern science developed and the scientific temperament gained ground, with the dearth of genuine astrologers, Astrology started fading into oblivion.

The criticism and The defense

Astrology is scoffed at by people for two main reasons. First, of course, is that the predictions made by astrologers often goes wrong. Secondly, if one takes his horoscope to different astrologers, they make different predictions. They even make different horoscopes given the same set of data regarding the birth of a person. These facts force people conclude that Astrology is not a science and that it is only a means to befool people for the astrologers' benefit.

One cannot deny that the reasons cited above are valid. Nonetheless, there is some element of prejudice against Astrology which also plays some part in the denigration of this science. Let us take an example to illustrate this point.

A man falls sick due to some disease. He goes to his neighborhood doctor. The doctor advises him to go for some tests. After seeing the results of those tests and considering the patient's symptoms, the doctor concludes that the man has contracted some particular disease say, Sickosis :-). He prescribes some medicines and the patient goes home in the hope of getting rid of the sickness as soon as possible. After taking the medicines for next two days, the patient finds that the medicines are not working the way they were supposed to work. He goes back to the doctor and the doctor changes the medicines and the person starts responding to the second set of medication immediately. Within a few days, the person is back to his old healthy self.

What would have happened if the person had not responded to that second set of medicines? Most probably he would have gone to another doctor. That doctor would have advised him to go for more tests, diagnosed his problem as per his own knowledge and experience and treated him accordingly. Again, there would have been the same

probability of the patient getting rid of his disease.

So, in the end it boils down to problem of correct diagnosis. As soon as the disease is identified correctly, it can be treated successfully. The doctor's problem is to identify the disease correctly, given the symptoms and the results of the tests conducted. In fact, he guesses the disease based on the symptoms the patient displays and to confirm his suspicions the doctor asks the patient to undergo a particular set of tests. If the doctor's first guess is proved wrong, he suggests another set of tests to the patient aimed at confirming his second best guess of the disease.

There is one more element which may mar the chances of the patient getting better: the test results. If the lab conducting those tests makes a mistake, the doctor is bound to be misled by the results. It has also been observed many a times that even with the same symptoms and the same set of test results, different doctors may diagnose the problem differently.

The same thing, when happening in the context of Astrology, is proffered as a proof that it is not a science. When a doctor makes a mistake, his skills are blamed not the Medical Science. But if an astrologer fails, it is Astrology which is considered a pseudo-science. If doctors can arrive at different conclusions on the basis of same data, why astrologers should not be allowed to differ with each other. If you take the blood samples of the same patient to different labs, you are almost certain to find differences in their findings. If the machines built with all our scientific knowledge at our disposal make mistakes, no one denigrates modern science itself. But when it comes to Astrology, people are only too ready to dismiss it. Perhaps, by doing this, people want to prove that they have, what is called, scientific temperament.

Why Astrologers go wrong in their prediction?

- **Lack of knowledge:** This is perhaps the foremost reason. Most of the astrologers, after learning a bit, find it difficult to resist the temptation to start making predictions. A certain percentage of their predictions do turn out to be true since they have learnt a little bit of Astrology after all. They cannot hold themselves back from showing off their half baked knowledge. Another reason is the temptation to start reaping, as soon as possible, the fruits of their efforts made in learning the subject. Once the customers start flocking to them, they lose the urge to keep learning further. Also, they are left with little spare time to make further efforts to learn more. They get too busy duping people.
- **Lack of Talent:** In the modern times, since the pursuit of this subject is not considered very respectable, persons of genius do not take up the study of Astrology. They would rather prefer to become scientists, engineers, doctors, litterateurs, artists etc. This does not help the development of Astrology nor does it help add to the knowledge or find the missing links in this subject. Currently, there are no serious research projects related to this field. Thus this base of knowledge does not get updated.
- **Incorrect Data:** As the very basis of Astrology is mathematical, the data such as time of birth etc. must be accurate. If this data is incorrect, the horoscope and consequently the interpretation of it is bound to be faulty. The position of cusps, house divisions, and the planetary positions at any given moment needs to be accurate too. The numerous ephemeris differ from each other so much that it seems incredible. One must follow the most accurate data (for example, from NASA) for calculations, in this age of science. Normally, astrologers tend to take

the easy route, that of following some ready-reckoner sort of things, leading to inaccuracies in their calculations.

- **Destiny of the subject:** It may so happen that the fate of the person who wants his future read, does not favor the person in knowing his future. This idea may seem far fetched but it is not. Even in modern times, with all the development of medical science, patients keep dying of fully treatable diseases. If a person is destined to die of pneumonia, he will in spite of the fact that millions of people around the world are successfully treated for it every year. If fate can play a role here why cannot it play the same role regarding Astrology.
- **The very nature of Future:** Modern science divides the universe in two parts: known and the unknown. It is believed that whatever is unknown today, will become known tomorrow. Over a period of time, every thing will become known one day. But the enlightened sages have said that certain aspects of the existence is unknowable. These things do not belong in the domain of human knowledge. Certain aspects of future also belongs to the same domain.

Anyone, who will study Astrology with an open mind, cannot dismiss it as something without merit. It is an easy task for astrologers to correctly tell certain things about a man, such as his physical characteristics, diseases he is likely to get afflicted with, his temperament, his overall success in life in terms of money he earns or fame he achieves, the nature of his profession etc., simply by looking at his correctly drawn horoscope. It is in the matters of details and the timing of events that astrologers tend to go awry. What is needed is a fresh approach to the subject. Brilliant minds should take it up for study, correct some anomalies and misconceptions which this science has acquired over the long past. Then only this subject can regain its rightful place as a serious and important branch of knowledge.

<http://www.halexandria.org/dward330.htm>

Science versus Astrology

Basically, science's rejection of astrology is based on ignorance. Science's ignorance. When the astronomer Edmond Halley asked Sir Isaac Newton (essentially the "patron science of physics") how he could possibly believe in astrology, Sir Isaac answered, "Because I have studied the matter, Sir. You have not." And therein lies the crux of the matter. When Shakespeare made the comment of the "stars influencing our lives", he too was mis- or un-informed. Astrology is about the planets of our solar system, not the stars!

And it is the geometries of these planets which *somehow* affects us. The "somehow" may lead a critic to raise his hand, but before pursuing the matter [put your hand down!] please note the geometrical relationships of the planets as shown in [A Book of Coincidence](#) and demonstrated over and over in the [Harmony of the Spheres](#). When someone can explain the scientifically inexplicable geometrical correlation among the planets -- and not dismiss it as some quirk or nature -- then they can challenge the theory of astrology's geometrical influence. (But of course, if they do the prerequisite, they will likely inadvertently find the means of verifying the truth and validity of astrology. It's a Catch 22 for the skeptics and a "win-win" for astrologers! Such is the fate of truth. Sigh.)

Another example of the ignorance of mainstream science is the oft-quoted astronomer's notation of the Precession of the Equinoxes, and how this somehow makes astrology invalid. In fact, on the day this was being written, NPR's "Star Date" had a brief, lucid explanation about the sun entering Ophiuchus -- what astronomers like to refer to as the 13th constellation of the Zodiac. It turns out that in 1930 astronomers had decided that the allegedly arbitrary division of the Zodiac into 12 equal segments of 30 degrees each was not in keeping with actual sizes of the constellations. Scorpio, for example, spans a much smaller section of sky than say Pisces. While the NPR report was well done and basically accurate, others have taken the position that because of the slow rotation of the Earth's axis on a 25,920 year cycle, this ensures that the portion of the sky that was in Pisces four thousand years ago, is no longer the same portion of the sky now. And thus the constellations are not the same as in the days when astrology was born -- and what astrology calls Scorpio is no longer related to the constellation of Scorpio.

This alleged fallacy of astrology is in fact astronomy's miscue. Astrology simply does not in any shape, form, or fashion base its results upon the stars, the star backgrounds, or any of the constellations. These are simply names, and Scorpio could have easily been called the sign of "wild, sexy beast" (with those born in Leo, always having attached HRH to their names). Scorpio, on the other hand, *as a time of year* -- when the days are rapidly growing shorter and the Sun approaching its winter solstice -- does count for something. An Aries personality, for example, is one born on the first day of spring -- what some think as the more appropriate initiation of the yearly cycle (and thus those born under the sign often act the part of the demanding infant). Meanwhile, Capricorn is in the dead of winter and strongly encourages one to accept the boundaries and limitations of survival in such times. And so it goes. On and on. An astrology based on one star, the Sun.

Thus the only effect of the Precession of the Equinoxes on astrology is to provide one point of evidence as to when astrology was first being developed -- i.e. several thousand years ago, when the time of year now allotted to Capricorn (following the winter solstice) was also the time when the sun had as a background of stars, the constellation Capricorn. Otherwise, this slow movement of the earth's axis has no effect on astrology whatsoever. And accordingly, the Precession is an ally of Astrology -- not an enemy.

Arthur Young <<http://www.arthuryoung.com/astrocos.HTML>> has had a few choice words about Astrology, and mainstream science's inability to come to grips with it.

"Science has been the great venture of modern man, but I am deeply disappointed that it has stopped short of its goal. It has become political, adhering to a materialist dialectic. The cult of calibration and measurement has dispensed with consideration of first principles and produced tons of facts tied together with bits of fragile string. The consistency and clarity, even of classical determinism, has been lost and its blundering prejudice retained. The stimulating challenge of **ESP** is ignored and made ridiculous; even the nineteenth-century recognition that perception was only partially based on sensation, and had components of value and image carried over from earlier experience, is set aside in obeisance to a reductionism based on a physics long since obsolete. Science, in short, is a motley of fragmented special disciplines, each encrusted with its own jargon and incomprehensible to its fellows, rallying under a common policy of objectivity -- valid enough as applied to method, but downright misleading when applied as it is and without justification to require that the world be exclusively objective and physical."

"But when it comes to constructing a cosmology based on the nonmaterial, and I find that the discredited astrology, the divine science of the ancients, is founded on the same vocabulary of elements that is the basis for the measure formulae of physics, I am, like John Dean [of Watergate fame], impelled to turn state's evidence and expose the cover-up. But there is no court of inquiry to hear the evidence. It is only when the cosmology I have set up, based on scientific evidence, itself calls out for the importation of something of larger import than the ingredients of science per se, that I turn to astrology.

"At this juncture I can no longer say as before, 'Ignore the popular usage of astrology, ignore its employment by fortune tellers; consider only the remarkable vocabulary it uses.' Why?

Because I find it not a relic of ancient custom, a temple built to an unknown god, not even an occasional revelation such as inspired ancient prophets or modern-day persons who have seen flying saucers -- it is an ever-present influence as real as were the Greek gods to Ulysses. The arcs and transits of planets do precisely correlate to important events in my life.”

“But the notion of elements and their subdivision does not encompass the other ingredient essential to astrology -- the gods as principles or powers operating through the planets. This is where, in answer to the charge that I’m snatching pieces of the temple of astrology to serve my own purposes, I can cite my own inadequacy. The whole temple cannot be transported except it be taken in pieces. And the temple itself is not the ultimate; it too is an idol. But as an idol it is closer to life than the idol of science. That perhaps is my final plea. So I must take the gods and their correlation with the planets on faith. Let us see what this faith entails.

“I. That the solar system is an organon.

“II. That the organon is ‘a process machine’ having a number of distinct periodicities or rhythms.

“III. That said rhythms are indicated by the planets.

“IV. That the direction in which planets ‘point’ at any given time indicates, or creates, the zeitgeist of that time.

“V. That the pointing of the planets produces such zeitgeist because the directions are themselves different in quality.

“VI. That the planets, because of their difference of period, contribute to the different powers of persons.

“VII. That a person’s birth is an introduction into this organon. A birth is an enrollment, as it were, to ‘take a course in the universe.’ The birth establishes the central stance. The motion of the planets thereafter establishes the scenario.”

Young’s essay <<http://www.arthuryoung.com/valueofastrology.HTML>>, “On the Value of Astrology for a Science of Life” is particularly noteworthy and includes the well-reasoned argument that the biological rhythms of life are endogenous (i.e. not dependent upon known external influences), and that the planets are influencing mundane (worldly) events by other means -- perhaps geometrically, geometry being used here as a verb and not a noun. Thus mainstream science’s rejection of astrology is due to the inadequacies of mainstream science in not knowing the manner of the physical influence.

Young notes, for example, that the number of rings in a clam shell are based on the new moons and not the high tides (which occur at both the new and full moon). In general, the “study of circadian (near to 24 hour) and other biological rhythms” have been found to be endogenous (produced from within; originating from internal causes). Young also claims

science “*does not include any first principles which predict or even accommodate life.*”
Again, mainstream science’s rejection of astrology is an admission of its own inadequacy.

Incidentally, Young invented and developed the world’s first helicopter. What has the guy who had his hand up, done? Hmmm...?

Geometry and Astrology

The *aspects* of astrology are the angles (the geometry) between two planets as seen from the earth. Only certain angles are considered important, although close approximations to these angles (what astrologers refer to as being “in orb”) still count very strongly. There are numerous other aspects, but the natal chart is sufficiently busy that few astrologers go looking for more things to consider. (It’s pretty complicated as it is.) The most noteworthy of the different aspects include:

Conjunctions (Zero degrees): Basically the planets are very close to one another. The effect of a conjunctions can be either beneficial or challenging -- depending entirely upon the planets involved. Jupiter conjunct Pluto can be profoundly transformative, but Saturn conjunct Venus can be very limiting for the true romantic.

Sextiles (60 degrees): Sextiles are *actively* beneficial in the vast majority of situations. It’s lucky, but you may have buy the lottery ticket yourself.

Quintiles (72 degrees): This is seldom discussed, because it’s difficult to find. (All the other angles are based on 30 degree increments, which is precisely the number of degrees in each sign.) But from a cyclical point of view (see the Sabian Symbols of [Philosophical Astrology](#)), this is an important angle in astrology, and suggests a repetitive quality -- continuing to do the same thing and perhaps expecting a different result (which is how insanity is often defined). Alternatively, it’s about *breaking the cycle*, trying a new approach, making a fundamental pivot!

Squares (90 degrees): Almost always challenging, forces operating at cross purposes, difficult to content with and basically at odds. Paranoia, repression, exaggeration.

Trines (120 degrees): *Passively* beneficial. So pleasant, one might not even notice. Good luck, peaceful, easy.

Inconjunctions [also **Quincunx**](150 degrees): Difficult to define, illusionary, mystical. Niggling delusions and compulsions. Annoying, and sometimes called a Quincunx (which is also annoying).

Oppositions (180 degrees): Challenging, but more capable of being dealt with. It’s a matter of balancing, appreciating the opposite extreme. Good for growth.

Note that 270 degrees is equivalent to 90 degrees and is still a *square*. The basic rule is that for angles between 180 and 360, subtract the angle from 360 and go from there.

Given this astrological basis for these seven angles (0, 60, 72, 90, 120, 150, and 180), what can be construed in terms of geometry? The most obvious are the 60 and 120 degree angles

(which form the three and six sided plane figures), and the perpendicular, the 90 degree square. According to the logic of astrological geometry, a six-sided room with equal angles would feel very good, while square rooms (the kind that are easy to build) are not such a good idea. The five sided (72 degree angle) pentagon is fundamental to [Sacred Geometry](#), so there's not much of a mystery there.

The more interesting question is why should a planet today making a 60 or a 90 degree angle with the location of a planet in a person's chart mean very different effects?

Cells have what might be best described as teeny tiny, *directional* antenna on the cell walls, which are in a state of constant fluctuation while an embryo is still in the womb. At birth, and shortly thereafter (a matter of days), these antenna cease their fluctuating existence and lock into place. Thereafter, these antenna need only feel the impulse of the appropriate signal to notify the cell to contact the blueprints of its DNA and do its thing. The antenna are basically timing devices for the cell (or its descendants) to be active.

One theory is that the planets are all interconnected to the cells' antenna via subtle electromagnetics. When a planet approaches the point in space where the electromagnetic field around it (on Earth, they include the Van Allen belts, for example) is able to trigger the directional antenna of the cells, the cell checks its DNA blueprints, and physically affects the human host.

How this could work on a nation is anybody's guess, but probably via the collective of the people who inhabit the country. This is especially true of countries where the people are not exactly world travelers -- their location on Earth having remained basically the same for years. (There is, for example, the art of Astrocartography -- locational astrology.)

Any more questions?

Well, if you don't buy that one, how about the simple geometry of planetary locations with respect to one's cellular antenna being the causative factor (in lieu of electromagnetic forces). Mainstream science will likely look askance at that one, but the reality is that no one in mainstream science has been able to figure out how geometry, in and of itself, can make anything happen. What we're advocating is the idea of geometry being a causative factor, causing action-at-a-distance without the standard intermediaries of electromagnetic or gravitational forces. Mainstream science has no idea how that could happen. [But then again, mainstream science still hasn't figured out how gravity and electromagnetism work either. They have theories, but nothing that can be conclusively proven.]

To better buttress the idea of geometry having an effect, it's time to check out [A Book of Coincidences](#) which show how the planets are geometrically connected. Note in particular that the orbits *and sizes* of the Earth and Mercury are both connected via a five pointed star. [Mainstream science has no clue as to *why!*] The same is true of Earth and Saturn, but uses a thirty pointed star (corresponding roughly to Saturn's orbital period). If the planets themselves are following some subtle (or not so subtle -- just difficult for mainstream science

to identify) influence whereby their very orbits are geometrically determined, why wouldn't they effect the small physical bodies of individuals!

There is also something in astrology called the North and South Node (aka the Dragon's Head and Tail). The nodes refers to the two points where the moon's orbit crosses the plane of the Earth's orbit. The nodes do not even constitute a real object -- no mass or anything material -- just two mathematical points, 180 degrees apart. Astrology considers the North Node to be the *destiny* (or *dharma*), or where a person is going. The South Node is where they came from, often their *karma*. [While such thoughts may offend one's dogma; sadly enough, it is often one's *karma* which runs over one's *dogma*.]

The geometrical fact is that it is not the Moon and Earth interaction, but the geometry of their motions which is in interaction. It is the *geometry* doing its thing. Assigning *cause* to geometry might seem extreme, but its *effect* is real. Which implies that its *cause* is real (not to mention just, honorable, and so forth and so on).

Geometry represents the underlying laws of the universe, and astrology is one of the tools or effects. They cannot be separated. Sorry about that. Try to get over it.

Mundane Astrology

Mundane is defined as both dull or routine and “of this world”. In astrology, the latter is emphasized, and “mundane astrology” is astrology applied to the world. It is possible, for example, to create a “natal chart” for the birth of a nation, and thereafter begin to make predictions about the future of that nation. The USSR, for example, began its existence under the sign of Scorpio, and during the passage of Pluto through Scorpio, the USSR had its dismemberment. Pluto -- which is said to “rule” Scorpio -- is about inevitable [Death and Rebirth](#), a description which accurately tells of Russia’s fortunes.

Nostradamus often used [Astrology](#) to time the predictions of many of his prophecies. The problem with Nostradamus has always been that he wrote his quatrains in such a manner as to make obvious interpretations of them difficult -- albeit not impossible. Similarly, with the many astrological references in his prophecies, there is a degree of ambiguity as to the exact date -- i.e. this year, or 120 years from now?

Perhaps one of the guaranteed, blue light specials is Mercury in Retrograde. When the smallest planet and the one closest to the sun is in retrograde -- where it *appears* to be going in the opposite direction (a fact caused only by the relative motion of Mercury and the Earth with respect to the Sun) -- communications become fouled. Contracts signed when Mercury is in retrograde often do not survive, or must be amended (or someone is very unhappy with the agreement) once Mercury turns direct again. Communications, including computers, telephones, verbal and written messages, and so forth all struggle when Mercury is in retrograde. Computers literally crash -- not to mention complete fax and telephone systems. Inevitably what one person says, the other hears something else.

The good news is that when Mercury is in *Re*-trograde, the *re* word is in. Rework, replay, revisit, redesign, redo, regroup... All of these are very appropriate (effective) for those periods of time. It’s the initiation or starting something that runs into problems.

Mercury goes Retrograde roughly three times a year, each time for roughly three and a half weeks. In order to *plan ahead*, some periods of time for this event are:

January 1 - 24, 2003	April 25 - May 21, 2003
August 27 - September 21, 2003	December 16, 2003 - January 7, 2004
April 5 - April 30, 2004	August 9 - September 3, 2004
November 19 - December 21, 2004	March 21 - April 13, 2005
July 22 - August 17, 2005	November 13 - December 5, 2005
March 2 - March 26, 2006	July 3 - July 30, 2006
October 28 - November 19, 2006	February 13 - March 9, 2007

June 14 - July 11, 2007	October 18 - November 3, 2007
January 27 - February 20, 2008	May 25 - June 20, 2008
September 23 - October 16, 2008	January 10 - February 2, 2009
May 6 - May 31, 2009	September 6 - September 30, 2009
December 25, 2009 - January 16, 2010	April 17 - May 12, 2010
August 19 - September 13, 2010	December 9 - December 31, 2010
March 29 - April 24, 2011	August 2 - August 27, 2011
November 23 - December 15, 2011	March 11 - April 5, 2012
July 14 - August 9, 2012	November 5 - 27, 2012 A.D. [*]

[*] Time for a *major* regroup!

One of the more notorious astrological aspects, as applied to the world stage was the Saturn-Pluto opposition of 2001 and 2002 -- particularly the former. Saturn is about the structure, stability, and presence of government and the establishment. Pluto is the carnage and destruction that is applied to such structures by the unknown and hidden, undercover forces of Death and Rebirth. The two planets made their first approach (one of three) just prior to [9-11-2001](#). The collapse of the World Trade Towers (and the damage to the Pentagon) represented the Plutonic destruction of Saturnian structure on a dramatic scale. Clearly, it was brought about by hidden, conspiratorial figures of the underworld, who were never really accurately identified. The fact that there was not a repeat in the fall (when the second opposition occurred in November 2001), and the following spring (May 26, 2002), may be due more to actions to prevent a reoccurrence than to any lack in the astrology.

Finally, there is the astrological implication of the US Presidential Inauguration. Originally the dating of major events of the [Republic](#) was based on: July 4 (Independence Day), approximately November 4 (Election Day), and March 4 for the presidential inauguration. The November day was varied slightly in that Tuesday (ruled by Mars' assertiveness) needed to be election day for the average Joe who might not be available on a weekend. The 4th day of these three months (exactly one-third of a year apart) represents a *grand trine*, one of the most delightful and beneficial aspects in astrology. It was good news for the nation as a whole.

Unfortunately, Franklin D. Roosevelt changed this and had his second inauguration on January 20 of the year after the election. This followed, of course, the [US Bankruptcy](#), and the general dissolution of the Republic known as the United States of America. Not only were the American citizens sold down the river financially, but astrologically as well. The change destroyed the grand trine, and resulted in angles between July 4 (or November 4) and January 20 of 164 (77) degrees -- angles which have no significance whatsoever. It is noteworthy that the powers that be deemed it important to change the inauguration date. Apparently they had more respect for astrology than one might have thought.

Thomas Jefferson, an Aries, wrote in 1787, 'I hold it, that a little rebellion, now and then, is a good thing, and as necessary in the political world as storms in the physical.'" After the Franklin Roosevelt era, when the Republic ceased to be -- and the Banksters took over, Jefferson's words have an appealing ring to them. [Anarchy](#) and [Revolution](#) are not quite the

delightful pastimes of yesteryear, but they daily become more appealing. But before we go there, why not work on [Creating Reality](#) of a better sort, and divorcing oneself from being affected by the

On the lighter side, auto insurance companies may be able to better judge their potential liabilities by [Applying Astrology](#) with respect to Sun signs. But before we get there, we need to spend a bit of time on [Geometry and Astrology](#) and/or [Science and Astrology](#)

Astrology

Astrology has been around for a very long time -- literally thousands of years before what currently passes for science. But in the spirit of the angry (and or spoiled) child, science has vilified astrology, to the point where one might be tempted to doubt astrology's reality. The fundamental flaw, of course, is that so much of science does not recognize anything outside of its very narrow basis, including such things as [Consciousness](#) -- the basis of intelligent life -- and the *influence* by geometry on experiential aspects of life. Science, in fact, does not accept anything for which it does not have a consensus theoretical basis (everything else is *anomalous* behavior, which is routinely ignored until a consensus theory is promulgated). Science has applied reductionism to such an extent that science can truly not see the forest for the trees -- truly the mote in science's eye.

For Updates, see also the [Halexandria Forum](#)

Astrology is a large and extended subject. As such it does not lend itself to quick and precise answers, mathematical equations and other succinct descriptions, and especially the quick and dirty prognostications found in the local newspaper's daily horoscopes. (Virtually all professional astrologers abhor these types of horoscopes!) Instead, one sees many astrological influences -- sometimes contradictory -- operating in a subject's life, and it then becomes a matter of weighing the potential influences to grasp where the individual is going. Science, by contrast, likes to *eliminate* all of the side effects or distracting annoyances, and limit itself to only the most blatant effect, the "active ingredient". But it is in the side-effects and asides that the really part of life resides. Such is astrology.

One should also recognize that astrology in this context is "Western Astrology" and is distinct from Chinese Astrology. The latter is really a lunar based astrology (as opposed to a more sun-oriented Western Astrology). Furthermore, in Chinese Astrology there is a decided emphasis on the year of one's birth -- which the Chinese link to the facade or presentation that a person makes to the rest of the world (which was always important in their culture... *saving face* so to speak). In some respects, this is similar to Western Astrology's "ascendant" or "rising sign". Still there are distinctions. It might in fact make a difference for a Scorpio born in the Year of the Dragon and a Scorpio born in the Year of the Dog. This website is primarily about Western Astrology, but for a quick and dirty look at your Chinese Astrology, you can obtain a free forecast at <http://www.proastro.com>.

Any study of astrology must ultimately be an extensive one. Thus, this very brief treatise on the subject is really only sufficient to whet the reader's appetite. For the local purpose, therefore, only nine subjects will be briefly addressed. These include:

- ♃ [Philosophical Astrology](#)
- ♈ [Determinism and Free Will](#)
- ♉ [Some Bare Basics](#) (just enough to get you into trouble)
- ♊ [Chiron](#) (a maverick in the crowd)
- ♋ [Synastry](#) (or why so-and-so bugs and/or attracts you so much... and how)
- ♌ [Mundane Astrology](#) (worldly considerations)
- e [Geometry and Astrology](#) (there is a connection!)
- ♍ [Science and Astrology](#)
- ♎ [Applying Astrology](#) (intriguing examples from the real world)

Take your pick, i.e. choose the route most intriguing to you. You can only become hopelessly lost, preyed on by ravenous wolves, forced to listen to a used car salesperson, or... Hmmmm... Perhaps, you had just better take it one step at a time, and read from start to finish. Unless, of course, you were born under one of the more adventuresome signs! Then you probably don't know any better, don't care, or would get lost anyway. Plus which, you probably wouldn't care that you were lost in the first place.

Determinism and Free Will

The question of Determinism and Free Will in shaping our lives and destinies is a very old debate. On the one hand there are the determinants of Western thought encapsulated in Plato's and Parmenides' views that *nothing changes, there is no becoming, and eternal truth resides in immutable ideas*. Conversely, Heraclitus' thesis is that *the nature of reality is based on flux and evolution*. These antipodal philosophical traditions have left later generations to adopt either one view or the other.

Living organisms, however, appear to have adopted both scenarios: chance *and* necessity, invariance and evolution, [Causality](#) and free will; the immutable idea (i.e., DNA) and the imperfect processes of material reality. [Lothar Schäfer](#) called it, "The deterministic

evolution of not-quite-real tendencies, and the expressions of choices in creating true reality.” He went on to note that, “One cannot help but speculate that the congruence is the sign of a deeper connection.”

In a Special Issue, *Time Magazine* [1] investigated the “[Mind-Body](#) dualism” in which “The thoughts and emotions that seem to color our reality are the result of complex electro-chemical interactions within and between nerve cells.” Schizophrenia and depression are viewed as “no more than distortions in brain electrochemistry.” *Time* goes on to write that “The pathology of depression shows with especial clarity that mind and body aren’t separate at all; they are part of a single system.” This view is in many respects the clock work mechanical view of the universe; one which does not allow for true Free Will.

One article in the issue did admit to one aspect of Free Will, however, if only to avoid the threat of genetic encoding being held as a means to legally escape personal responsibility. “Among the brain circuits laid down by genes are the ones that reflect on memories, current circumstances and the anticipated consequences of various courses of action and that select behavior accordingly -- in an intricate and not entirely predictable way. These circuits are what we call ‘free will’, and providing them with information about the likely consequences of behavioral options is what we call ‘holding people responsible’.” [1]

This is, of course, rather silly -- if only because the advancement of science might lead to the point where genetic dispositions could be much more predictable, and thus a person’s genes would dictate their actions. This would result in a similar situation as encountered in the movie, *Minority Report*, where people would be arrested and convicted of crimes they had not committed, but who were genetically disposed to do so. Such determinism would result in *no* personal responsibility. Instead of “The Devil made me do it”, the new defense argument would be, “My genes made me do it.”

One might give credit to *Time* for at least making it clear there is a brain-body interaction whereby our thoughts dictate our physical health (and vice-versa?). This is simply a means of [Creating Reality](#), and thus it is encouraging to see the idea hitting the mainstream [Media](#) -- even if the journalists, in typical fashion, rather missed the larger picture.

The reality of living organisms are that, “*Without any mystery: genes determine residue sequence, sequence determines protein folding, folding determines structure, structure determines function, function determines life.*” Which sounds pretty deterministic. But, “If all but one residue in a given protein are known, nothing in the existing sequence will allow one to predict precisely which amino acid will form the missing link.” [2]

“Once a particular sequence has been genetically coded, it is absolutely invariant, faithfully repeated, *never* synthesized at random, and its order is fixed, even though it is *randomness reproduced over and over.*” Mutations are errors. “Once an error has been made and the mutation put in place, it is **rigorously and invariantly** incorporated in the system, and from then on is faithfully reproduced by the organism until the next error occurs. *Chance has become necessity.* The congruence is striking between this and the processes by which physical reality is created; when they are not perturbed, the genes are reproduced in a

deterministic process, like quantum entities evolve in a deterministic state when they are not perturbed. When perturbed, a choice is expressed in the one case as in the other.” [2]

Furthermore, “All the cells in the body of an individual contain the same genetic material, the same information -- *a thought* -- in the form of DNA. All cells develop by repeated divisions from a single, initial cell. And yet an incredible differentiation takes place every time a human being is formed, leading to such diversified materials as muscles, receptors, tissues, membranes, organs, bones, and so on. In the words of Sheldrake: “*To believe that his procedure occurs without a design, without a master plan, automatically, guided by nothing but the laws of physics and chemistry, is equivalent to the belief that, after delivering a ton of bricks, cement, wood, and glass to a construction site, the new building will erect itself spontaneously.*” [2]

Meanwhile, such things as [Astrology](#) may fail in its appeal to many people on the basis that it sounds like or suggests determinism (fate) in a world where on the basis of hubris and arrogance the preferred operative would be Free Will. (Else why would anyone make any effort to “win”, compete, or simply “do” -- as opposed to “be”?) If the person with the most toys doesn’t win... What are we to do?

Such a fate versus free will argument against astrology is not viable for several reasons -- most of which involve not understanding astrology. Basically, astrology may provide a script for our lives, even our destinies, but we always have free will to decide when to ad-lib, forget lines, ignore an entrance or an exit, and in general to thoroughly ham it up on stage. In fact, free will and fate are on different levels -- the latter the base from which we launch all manner of unique, unexpected, and unpredictable journeys.

[Arthur Young](#) <<http://www.arthuryoung.com/astrocos.HTML>> has addressed what he calls “a familiar paradox, the question of fate versus free will. As has already been shown, the third derivative [e.g. [Connective Physics](#)] removes the apparent conflict of free will and determinism. They are not in conflict because they are at different levels. *When we know the law we can use it to extend our freedom.* The third derivative is assurance from science on this option, testimony from science that there is something outside of science which can use science.” [emphasis added - see also [Remedy and Recourse](#)]

“Free will and fate are also at different levels. We could say that because we choose one [astrological] chart, we choose our ‘fate,’ and thus put free will on top of fate. But ordinary life is on such a different time scale from that of fate that it is impossible for the two to be in conflict. We do not and cannot know our fate in terms of ego consciousness; the self that chose a time of birth [critical to an individual’s natal astrological chart] is not on call to our waking personality (who may be asleep), and the conscious ego doesn't know its fate, so it cannot be in conflict with fate. It’s busy, very busy, trying to do this, trying to do that, pushing buttons, ringing bells, knocking on doors; but this activity is 99 percent futile. It is when Fate, a different agency, opens the door or returns the call that things happen.” [“Hello, this is Fate. Your plans for the weekend have been canceled.”]

Young goes on to say, “This still doesn't answer the feeling that a pre-programmed scenario is inconsistent with our free will. This feeling may be insatiable, no doubt because it cannot see itself. In this respect it is like reason and the Zeno paradox. Reason cannot solve the Zeno paradox, that defining motion in terms of rest it has to realize that motion and rest are incommensurate -- like the point and the line which are regarded as undefined terms in geometry. In other words *free will and fate are not in conflict because they are not on the same level, or even at the same time scale.* ‘There is a tide in the affairs of men, which taken at the peak leads on...’ ‘There is a divinity that shapes our ends, rough hew them as we may.’” [3] [*emphasis added*]

Robert Hand, a well known and highly respected astrologer, in an article originally at <<http://www.stariq.com>> observed that [Consciousness](#) appears to be playing a role in astrology (as well as [Magic](#)). He notes the basic idea of consciousness as involving “being aware of something.” He also notes that from Rene Descartes’ “I Think, Therefore I Am”, it can be inferred that “at the center of my being is an awareness of a subject, myself, experiencing an object, everything else.” He also notes that consciousness is also an “awareness that can be shared through language.”

“When we know something together with someone, we experience each other as fully alive and aware. When we do not, we do not fully accept each other as conscious, or, ultimately, as human. We accomplish shared awareness by means of [Language](#). Shared languages enable us fully to experience someone else as aware. So while it is debatable that language is necessary for us to experience our own awareness, language is necessary for us to experience each other and to share awareness.” [4]

“We are [also] aware of things being true or false. Based on this, we can make judgments and plan actions based on those judgments. This is free will. While every living thing seems to have the capacity for directed movement, movement that has an intended object (plants reach for the Sun, animals hunt for food), only conscious beings have free will. This is true of human beings, even though we clearly exhibit the primitive, almost machine-like drives that we see present in animals and plants. When we operate from free will, there is something between our awareness and our actions, something that is not determined, something that is not predictable.” [4]

Astrology also recognizes that different folks will have different strokes when it comes to free will or fate. In an astrological chart, if the planetary arrangement tends to the left side of the natal chart of the person, they are likely to tend toward believing in free will, while a tendency to the other side, leans a person toward fate. In effect, each of us has *chosen* our predilection to determinism or free will prior to incarnating.

Mind-Matter

Mind-Body discussions are all about how a transcendent mind might control the body with which it is associated. On a grander scale is the idea of Mind-Matter in which the mind controls matter in the universe. This is *not* a favorite topic of many scientists, inasmuch as it puts their experimental protocols at risk, i.e. all the brilliant work they've thus far conjured up may be fatally flawed! Their experiments which may have depended upon an observer not influencing the results, would be just so much barn carpeting if in fact the observer had, perhaps inadvertently, skewed the results.

For Updates, see also the [Halexandria Forum](#)

Unfortunately for such Separatists, the universe is connected, including mind and matter. Dean Radin's [Consciousness Research](#) Laboratory <<http://www.psiresearch.org/research.html>>, for example, has noted experiences which "*suggest the presence of a deep interconnectedness among all things.*" These experiences are typically labeled telepathy, clairvoyance, remote viewing, precognition, and psychokinesis (i.e. [ESP](#)), and "have been reported throughout history, across all cultures, and at all educational and socio-economic levels." "Historical persistence of these phenomena suggests the scientific understanding of basic concepts like mind, matter, space and time may be incomplete, possibly in fundamental ways." Duh.

[The Fifth Element](#) and [Connective Physics](#) -- along with intelligent interpretations of Quantum Physics -- demonstrate that the universe is connected. Not just the electrons and atoms, but everything. This includes minds, even if the minds of physicists are often loath to consider such esoteric subjects. [David Bohm](#)'s work, in particular, demonstrates the interconnectedness of matter and consciousness, while rational explanations of the links between [Consciousness and Physics](#) in general -- from the results of [Wave-Particle Duality](#) to [Quantum Knowing](#) -- all contribute to the connection.

The tendency of many mainstream scientists to assume mind-matter events as being completely explained by a combination of delusion, coincidence, wishful thinking, or perceptual and/or cognitive distortions is an example of the age-old preference for burying one's head in the sand at the inception of paradigm shaking evidence. As Radin has pointed out, "The modern view of the physical universe, as expressed in well-accepted physical theories and verified by experiments, allows for far-from-common-sense concepts like non-locality and the relativity of space and time. In fact, the physical universe, as best as we presently understand it, seems to support the very types of space-time anomalies that would be required for genuine psychic phenomena."

Radin, for example, <<http://www.psiresearch.org/research.html>> has conducted mind-matter interaction experiments with living systems as the remote "targets" for mind-matter interaction effects, typically in the context of distant healing. Using conventional scientific protocols, results have indicated "that distant mental influence of the human body does occur in the laboratory under well-controlled conditions." Curiously, with inanimate systems, "group mind" effects have been found to "play a role in modulating mind-matter interactions, [such] that there appears to be a 'field consciousness' effect when groups of people direct their focus on a common object." This same result has been shown by many others in "spoon-bending" exercises. I.e. "with a little help from my friends..."

Radin has also found strong evidence that "just as people can apparently affect others at a distance by simply thinking about them, people can apparently affect their own physiology through time. This includes some aspects of intuitive hunches (especially visceral hunches associated with threats or danger), unconscious physiological responses to future events, and conscious precognition.

From an environmental standpoint, Radin's results have indicated "that changes in weather, geomagnetic fluctuations, lunar cycle, and possibly tidal effects do significantly correlate with many aspects of human behavior, including lottery and casino payouts. In particular, these analyses suggest that at least some of the folklore associated with the moon may manifest in real-world contexts, including in the casino." I.e. the "bottom line" is that there's money to be made by the light of the moon!

The Global Consciousness Project <<http://noosphere.princeton.edu>> has taken a slightly different tact, i.e.:

"We experience the world with beautiful immediacy, and with a quality of direct participation that seems completely natural. And yet it is quite magical. We take meaning from music, we know our loved ones from afar, and we leap in thought to the stars. Sometimes we sense that we have dissolved ourselves into a group or a larger whole. And we always have prayed as if it mattered. The mind's reach remains a mystery in scientific terms, but research on the extraordinary range of consciousness indicates that we may have direct communication links with each other, and that our intentions can have effects in the world despite physical barriers and separations. We are compelled by good evidence to accept correlations that we cannot yet explain. It appears that Consciousness may sometimes produce something that resembles, at least metaphorically, a nonlocal field of meaningful information.

"The Global Consciousness Project (GCP) takes this possibility as a starting point for a speculation that such fields generated by individual consciousness would interact and combine, and ultimately have a global presence." "To study the effects of a possible global consciousness, [they] have created a world-spanning network of devices sensitive to coherence and resonance in the mental domain. Continuous streams of data are sent over the Inter Net to be archived and correlated with events that may evoke a world-wide consciousness. Examples that appear to have done so include both peaceful gatherings and disasters: a few minutes around midnight on any New Years Eve, the first hour of NATO

bombing in Yugoslavia, the Papal visit to Israel, a variety of global meditations, several major earthquakes, and” more recently, [9-11-2001](#).

Interestingly, the Pentagon has looked into the possibilities of mind-matter interactions, if only because a genuine effect might be important for national security. Separate review committees, from 1981 to 1995, looked into the matter. As Dean Radin recounts in *The Conscious Universe* [Harper Edge], the Congressional Research Service in 1981, came to the conclusion that "*Recent experiments in remote viewing and other studies in parapsychology suggest that there exists an ‘interconnectiveness’ of the human mind with other minds and with matter. This interconnectiveness would appear to be functional in nature and amplified by intent and emotion.*" [emphasis added]

Meanwhile, the Army Research Institute in 1985 reported that, "The bottom line is that the data reviewed in [this] report constitute genuine scientific anomalies for which no one has an adequate explanation or set of explanations.... If they are what they appear to be, their theoretical (and, eventually, their practical) implications are enormous."

In a 1995 report of the American Institutes for Research, statistician Jessica Utts of the University of California, Davis, one of the two principal reviewers, concluded that, "The statistical results of the studies examined are far beyond what is expected by chance. Arguments that these results could be due to methodological flaws in the experiments are soundly refuted. Effects of similar magnitude to those found in government-sponsored research... have been replicated at a number of laboratories across the world. Such consistency cannot be readily explained by claims of flaws or fraud.... It is recommended that future experiments focus on understanding how this phenomenon works, and on how to make it as useful as possible. There is little benefit to continuing experiments designed to offer proof...."

The inevitable conclusion that one can take to the bank is that the mind-matter interactions are a reality. Minds are connected, even if the connection may sometimes seem like a lot of static is on the line. But such lack of clarity is more often the result of distractions and barriers in one or other of the minds in question. It's not the mind link that's at fault, but more likely the transceivers at each end. You can have the best and fastest Inter Net connection, but if you're still using an ancient computer with a storage of say 16 Mega bytes, then... guess what?

Consciousness and Physics

In addition to the understandings of numerous quantum physicists, [Lothar Schäfer](#) [1] has provided a brilliant addition to the literature on consciousness and physics. In his book, he quotes Sir Arthur Stanley Eddington (one of the great physicists of history), to wit, “To put the conclusion crudely -- the stuff of the world is mind-stuff... and the substratum of everything is of mental character... Consciousness is not sharply defined, but fades into subconsciousness; and beyond that we must postulate something indefinite but yet continuous with our mental nature. This I take to be the world-stuff.”

For Updates, see also the [Halexandria Forum](#)

Schafer goes on to note that the quantum phenomena “has all the attributes of a transcendent reality. The foundation of the material world is found to be non-material; the constituents of real things are found not to be real in the same way as the things that they make; and non-local faster-than-light influences are found to pervade a universe whose nature is mind-like.” Also, “The quantum phenomena makes it possible to establish a new covenant -- between the human mind and the mind-like background of the universe.”

From the forefront of modern quantum physics, it has become clear that the foundation of matter is *nonmaterial*. In effect, the components of what we call real things are *not real in the same way as the things of which they are composed*. At the same time, mechanical, deterministic processes alternate with expressions of choices in creating the visible order of things -- what we see and observe. In fact, it is *observation that creates reality*.

“Heisenberg thought, *the quantum waves are not quite real -- ‘between the idea of a thing and a real thing’ -- but have the potential to become real when an observation is made.*” [1] This view is equivalent to [Creating Reality](#) by intelligent thought! (Or brainless ponderings.) Saying a word aloud can create the subject matter.

“Accordingly, in Heisenberg’s ontology -- similar to views expressed by von Neumann and Born -- physical reality is assumed to be formed by two processes. In the first, when no observations are made, elementary physical systems, such as atoms, molecules, or collections of elementary particles, evolve into a *superposition of possibilities or tendencies*, in a wave-like state that constantly splits into numerous branches, each representing an alternatively possible event, or outcome of an experiment. This state contains all possible events, evolving in accordance with *deterministic laws of motion*, and in this process continues until an observation is made. In this case -- the second process -- the transition from the “*possible*” to the “*actual*” takes place, as Heisenberg phrased it.

“An observation “*changes the probability function discontinuously; it selects from all possible events the actual one that has taken place.*” The second process occurs in the form of a *quantum jump*. Seemingly ruled by nothing but chance, one of the possible events is *abruptly* selected and made the actual one. In the terminology of Dirac, a “*choice*” is made. As Aristotle puts it: *Forms bring matter into reality.* [Geometry!] In the language of quantum mechanics: *Observations bring tendencies into reality.*” [1]

The term “observation” can be thought of as denoting an interaction of a quantum system with an object in a state of ordinary reality. But physical systems are not thought to react (to the point of being observed to do so), simply because of changes in the information available on them. Such a reaction to information is the prerogative of a mind. But in the quantum world, just knowing information about a system -- a [Quantum Knowing](#) -- does in fact change the outcome. The [Wave-Particle Duality](#) clearly demonstrates a system reacting to information being known about it, and thus implies that *mind-like properties are found at the very foundation of ordinary things.*

In an equivalent sense to the wave-particle duality for physical reality, the [Mind-Body duality](#) can be thought of as the defining symbol of the nature of human reality and an indicator of its transcendent elements.

In Eccles’ *The Human Mystery*, the question is posed: “How has the materialist mechanism of biological evolution been able to bring forth beings with self-consciousness and human values? How can we explain the dualism of man’s nature: body and mind, and the interaction between mind and brain.” [1] How does a transcendent mind -- distinct from a mechanical, computer-like brain -- relate to matter, body, and the physical world?

The answer seems to suggest that Eccles asked the wrong question. Instead of how did mind derive from matter, the more appropriate question is how did matter derive from mind. (If you don’t mind my asking; if it doesn’t matter to you.)

“If, as Eddington says, ‘the substratum of everything is of mental character... [which in some parts] rises to the level of [Consciousness](#)... and the universe is of the nature of a thought,’ then *it must be assumed that the universe rules spiritual matters as well as the laws of physics, and it is in human minds that the spiritual order of the universe rises to the level of morality.*” [1] That says quite a lot.

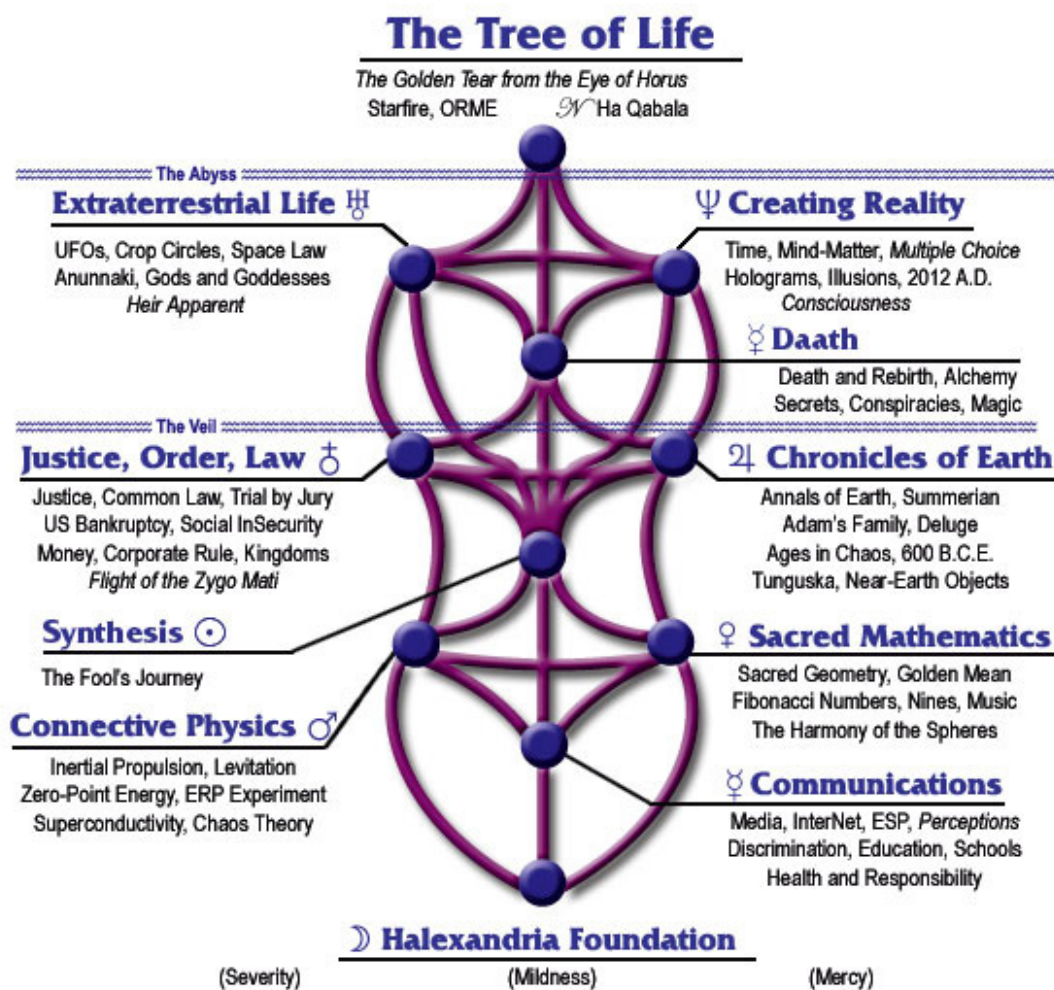
The Library of Halexandria

Updated 1 April 2008

Halexandria is a [Synthesis](#) of new physics, sacred geometry, ancient and modern history, multiple universes & realities, consciousness, the Ha Qabala and ORME, extraterrestrials, corporate rule and politics, law, order and entropy, trial by jury, astronomy, monetary policy, scientific anomalies,

religion and spirituality, and a whole host of other subjects ranging from astrology and astrophysics to superstrings and sonoluminescence to biblical and geologic histories to numerology, the Tarot, and creating your own reality.

(BTW, for those with Internet Explorer, ⚭alexandria⚭ is written in the form that shows an attempt at bridging of the Age of Pisces (⚭, capital H) and the Age of Aquarius (⚭, small i). Otherwise the fonts don't quite translate. Sigh.)



⚭alexandria⚭ is, in essence, putting all of the pieces together. It is based primarily on fact and documented evidence, with a liberal dose of rational, logical speculation, as well as several diversions into reality-based fictional treatments. In all cases, ⚭alexandria⚭ makes the assumption -- an assumption which will be mathematically proven within these pages -- that *all*

aspects of the universe are connected and that there are no limits to what we can possess or what we can become.

This then is the [Pharos](#), the lighthouse to attract the wandering net-surfer, to encourage the browser to view one after the other the *scrolls* (pardon the pun) of this modern, compacted, esoteric library akin in design or aim to that of Egypt's ancient [Alexandria](#) and its famed Library, Mouseion and center of wisdom. From hence, one can choose a variety of options in which to rush in where angels (and used car salesmen) dare not tread.

NEW -- NEW -- April Fool's Day, 2008 -- NEW -- NEW

One means of exploring this website, a website that is expected to yield both a significant amount of instant gratification and a notable degree of enlightenment (our ego really knows no bounds), is via the recently added, Halexandria Foundation [Forums](#) -- the latter thanks in no small measure to the Herculean efforts of, among others, [Sol](#) and [Dustin](#).

These Forums offer the very important means by which all of those brilliant and discerning Readers of the Lost Art -- i.e., anyone reading this page, for example -- can express their own views to the general readership of Halexandria, receive replies, carry on conversations, debate issues, and perhaps in the process, develop life long friendships. Who knows? There may even be wedding bells in the future for some of our lucky? readers. (Not that this is the only reason for checking out the Forums, but it will do... it will do.)

Meanwhile, for those already married, betrothed, stuck, or for any other reason unlikely to be seeking new romantic liaisons, there are also the more traditional means of sampling the many, many wares of Halexandria. For example...

✕alexandria✕ is in all respects a journey, specifically [The Fool's Journey](#), one which begins from diverse locations but always leading to a comprehension of the magnificent whole. Depending upon your preferences, you may initiate your journey, your destined path, from any point of the above modified [Tree of Life](#) (or Tree of Knowledge of Good and Evil). Your only prerequisite will be the possession of an open mind and a sense of humor -- possibly even a warped sense of humor. Or warped mind. Whichever.

Inasmuch as ✕alexandria✕ is, above all, about *choices*, it is not necessary to read the [Synthesis](#) (aka the Executive Summary) first, and thereafter select one of the other Nine pathways briefly described above -- or to decipher the [Website Road Map](#) (which has the notable advantage that it does not require refolding) -- or to plunge into any of the almost 850 webpages of this website relatively unaware.

One can, for example, simply grab one of the links below and connect directly to the subject of your choice. And then wander purposefully or aimlessly through the [Labyrinth](#) on to new and stranger locations.

[Adam's Family](#), [Age of Pisces](#), [Ages in Chaos](#), [Alchemy](#), [Alice in Barium-Titanate Land](#), [Anarchy](#), [Annals of Earth](#), [Anunnaki](#), [Astrology](#), [Bell's Theorem](#), [David Bohm](#), [Calvin and Hobbes](#), [Cartels](#), [Chaos Theory](#), [Common Law](#), [Consciousness](#), [Corporate Rule](#), [Corporate Politics](#), [Corporate State](#), [Creating Reality](#), [Crop Circles](#), [Dawn the Chosen](#), [Days of the Week](#), [Deluge](#), [Epic of Creation](#), [ESP](#), [EPR Experiment](#), [Executive Orders](#), [Extraterrestrial Life](#), [Fibonacci Numbers](#), [The Fool's Journey](#), [Laurence Gardner](#), [Genesis](#), [Gods and Goddesses](#), [Gold Peace](#), [The Golden Rule](#), [Golden Mean](#), [The Golden Tear from the Eye of Horus](#), [Ha Qabala](#), [Harmony of the Spheres](#), [Health and Responsibility](#), [Heir Apparent](#), [Heisenberg's Uncertainty Principle](#), [Hemp](#), [Holograms](#), [Hyperdimensional Physics](#), [Illusions](#), [Mach's Principle](#), [Magic Squares](#), [Mary Magdalen](#), [Mind-Body](#), [Money](#), [Multiple Choice](#), [Music](#), [Nature of Law](#), [Nines](#), [Numerology](#), [ORME](#), [Paatah](#), [Philanthropy](#), [Philosophy](#), [Pogo Possum](#), [Precious Metals](#), [Relativistic Variations on a Theme](#), [Restorative Justice](#), [Zecharia Sitchin](#), [Secrets](#), [Social InSecurity](#), [Sonoluminescence](#), [Star Fire](#), [Sumerian](#), [Superconductivity](#), [Superstrings](#), [Tarot](#), [Transcendental Numbers](#), [Tree of Life](#), [Trial by Jury](#), [Tunguska Explosion](#), [UFOs](#), [Immanuel Velikovsky](#), [Victimless Crimes](#), [White Powder of Gold](#), [Wicca](#), [Arthur Young](#), and/or [Zero-Point Energy](#). Also Zygo Mati, as in the [Flight of the Zygo Mati](#).

Or as of October 1, 2003, such classics as: [Benjamin Franklin](#), [Buy One, Get One Free](#), [CEOs](#), [Conflict](#), [Don't Push the Baby](#), [Douglas Adams](#), [Dyslexia](#), [Five Paths](#), [Homeland Insecurity](#), [Magnetic Pole Shift](#), [Night Falls on the Gods](#), [Oil Wars](#), [Bush Wars](#), [War Wars](#), [ORMUS](#), [Politics Makes Strange Bedfellows](#), [Subtle Energies](#), [The \(9\) Supremes](#), [The Tower of Babel](#), [The War on Terrorism is Bogus](#), [Wisdom](#), and by popular request, [Cats](#), [Dogs](#), and other Deities. Did we mention [Fear of Flying](#), or better yet, [Sacred Orgasm](#)?

As of December 15, 2003 -- there was a full length screenplay, [Multiple Choice](#), a full length stage play, [Perceptions](#), and a book sized [Annals of Earth](#). This was followed in February 2004 with a gaggle (about a dozen) new pages (which are as always conveniently listed in the [updates](#) page).

And then, as Halexandria approached its first full year -- its anniversary is April 21st -- still more goodies had been added, including, [The Flight of the Zygo Mati](#), [Art of Writing](#), [Autism](#), [Dyslexia](#), [Lost Gospels](#), [Non-Locality](#), [The Passion](#), [Maxwell's Equations](#), [Pauli Exclusion Principle](#), [No Child Left Behind](#), and a whole host of other new pages, cleverly inserted among a plethora of updates.

We could go on and on inasmuch as of April 1, 2008, there had been yet many, many more pages added. Which is why there is an [Updates](#) page to keep you

abreast. The Updates of course reflect updated information as well as whole new pages -- whatever the spirit moves the author to write about. (And it takes precious little to motivate a prolific writer.)

As of this writing (on or about April 1, 2008), Halexandria is celebrating its fifth anniversary -- we celebrate all month! Yea. Lots more on the update page. Even the site map is updated!

Yet another alternative is to follow the path generated by any one or all of the following statements:

1. Philosophy -- Phi-lo-Sophia -- can best be defined as "the study, wisdom, or knowledge of the amazing sight of phi" (the latter being the Greek letter denoting the [Golden Mean](#)).

2. Extraterrestrials (aka Angels?) created man in their own image. [Adam and Eve](#) were, in fact, [Lunatics](#) -- among other things.

3. The phrase, [Sun Stand Thou Still](#) (Joshua 12:13), is an accurate account of reality.

4. The creator of the universe is clearly partial to [Sacred Geometry](#) and [Sacred Mathematics](#).

5. [Sodom and Gomorrah](#) were destroyed by nuclear fission devices.

6. It doesn't rain in [Indianapolis](#) in the summertime.

7. [Mythologies](#) and Legends are essentially abbreviated histories (or herstories).

8. There is fundamentally a [Geometry of Alphabets](#).

9. [Nines](#) are the most amazing of all integer numbers.

One final alternative (unless you can think of another one) is to throw caution to the winds (but in a direction where it doesn't come back in your face), and just click on anything that both moves you and vaguely appeals to you. Think of it as dropping a book on the floor and then begin reading on the page that falls open. In other words, let the [Fickle Finger of Fate](#) do the walking!

(6/1/05) In all of these travels and wanderings, the visitor to Halexandria should be aware of the *inclusive* nature of the Library's offerings. That is to say, various webpages within Halexandria are quite likely to link to

independent sites which are outside the Library. This is because others have often said something even better than might be found within, or else they have touched upon unique ideas and viewpoints which might provide better or more fascinating paths to... where ever it is one is attempting to go. For example, Halexandria has found Flemming Funch's (Ming the Mechanic's) [Ming TV](#) and some excellent articles at [ka-gold-jewelry](#) to be well worth perusing on their own merits.

In any case, whether sojourning within or without... lots of luck! You will, undoubtedly, need it.

Just keep in mind Socrates' belief that the unexamined life is not worth living. It's not worth surfing either.

BTW, this strange and twisted tale of intrigue and adventure commonly known as Halexandria[™] is primarily the work of an alleged master of the inexplicable, [Dan Sewell Ward](#) (aka Daniel Sewell DocP'tah Ward), who would partially agree with Mark Twain when he observed:

"The ancients have stolen all our really good, new ideas."

Throughout it all, it might be wise to heed a wise sage, Jeff Gordon, <<http://www.wellnow.com>>, who is fond of saying:

"There's nothing left in the world to prove. All that's worth doing is to love one another, using whatever means are available to serve.

[Laurence Gardner](#) also notes:

"Be wary of those who know the truth. Align yourself with those who are questing for the truth."

Also...

"In searching the ancient knowledge, we never know if the author was a congenital liar and/or a moron. What we are taught today is clearly written by congenital liars and morons."

Then there are those other websites that tend to complement Halexandria... such as [Book of Light](#), [Great Awakening](#), and others that tend to have better graphics per capita. Sigh.

Meanwhile, congratulations on being one of the unique visitors to this home page. Having been launched on 4/21/2003, the first thirteen months saw something on the order of 12 million hits, with over a million each month beginning in December 2003 and continuing thereafter. As of April 1, 2008,

there were nearly 115 million hits (at a rate of roughly three millions hits per month in the most recent months).

It should be noted that there are problems associated with imbedded hit counters, which result in only a portion of the "hit's being counted. To avoid these problems, the results of the Webalizer Version 2.01 [Site Statistics](#) are included as a separate webpage.

Amazing, if not inexplicable. For mysterious, esoteric reasons, the official date of this website's launching is given in the journals of modern antiquity as April 1, 2003 (April Fool's Day).

Comments on this website may be addressed to:

- 1) The Webmaster at <idon'treallycareaboutyouopinion@farout.org>,
- 2) The predominant author at <dansward@frii.com>,
- 3) By snail mail to Alexandria Foundation, 4520 Walden Court, Loveland, Colorado, USA, or
- 4) If they're not nice comments, they can be simply deposited in ye old round file and/or deleted from your hard drive along with all of your other valuable and irreplaceable documents, your ticket(s) out of here, and all of the sentimental photos and memorabilia currently in your possession. And if you just *have* to get it out of your system, send your nastier comments directly to: <resistanceisfutileyouwillbeassimilated@borg.org>.

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Products and Services -- None.

(You know, of course, that the authorities had Socrates take poison because of the alleged crime of Socrates taking money from his students!)

And finally...

Ye Shall Know the Truth,

And the Truth Shall Set Ye Free;

But when Ye First Learn the Truth, Ye will likely be Really Ticked Off!

Get Ye over it.

And then, laugh about it!

As the sign over the doorway to Hell reads:

“Lighten Up”

