**The Concepts of Modern Astrology**
**A Critique 2005**

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**Abstract** -- Most research reviews are concerned with empirical findings. This one takes astrological concepts, the ideas on which astrology is based, and submits them to expert critical thinking. It covers recent shifts in astrological ideas, how astrologers avoid dealing with criticism, and the problems associated with (in turn) the fundamental assumptions of astrology, the origins of astrological ideas, modern psychological astrology, astrological world views, astrological symbolism, non-falsifiability, and magical influences. To be plausible astrology needs sound ideas with sound origins, and sound methods for verifying those ideas. But none of the possible origins of astrological ideas (revelation, paranormal, analogy, observation, theory) are plausible. Astrologers can explain away wrong chart interpretations by blaming the symbolism, chart factor, method, data, astrologer or client. They can also dismiss the interpretation as misguided (it used to be visible events, now it is invisible inner meaning). So astrologers could never know if astrology was wrong or which of their explanatory theories could actually apply. Central ideas such as "as above so below" and "interconnectedness" and the "whole chart" are too poorly developed to amount to anything useful. There is little agreement on basic issues and on how to resolve differences among astrological techniques and ideas. Astrological symbolism is unsystematic and based on metaphors, analogies, verbal associations, and mythology, which are developed in different ways by astrologers with no clear way of evaluating them. The philosophies and worldviews associated with astrology are underdeveloped or poorly described. Consequently astrology does not have, and never will have, the resources to put its house in order. Astrology seems quite unlikely to deliver anything beyond what non-astrological factors (eg cognitive and perceptual biasses) can account for. With copious quotes from leading astrologers and nearly 250 references.

This critique of the concepts of modern astrology is long and detailed. It looks first at the awareness of problematic concepts, recent shifts in astrological ideas, and how astrologers avoid dealing with criticism. It then looks at the problems associated with, in turn, the basic ideas of astrology, the origins of astrological ideas, modern psychological astrology, astrological world views, astrological symbolism, non-falsifiability, and magical influences. My conclusion is that astrological concepts are deeply problematic from beginning to end, and that astrology will never have the resources to put its house in order.

**1. Awareness of problematic concepts**

Since Newton, the views of astrologers and scientists have become increasingly opposed. Astrologers today still hold that the connection between celestial and earthly phenomena is so strong that knowing the heavens allows us to explain and/or predict the earthly happenings. But scientists and philosophers disagree. The terrestrial and cosmological sciences, including the life sciences and social sciences, even though no less interested in extraterrestrial relations with earthly events, do not provide any support to these realms of our existence as advocated by astrologers (see Kelly & Dean 2000). **Note 1**

*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.*

Furthermore, the symbolism, mythology, analogies, metaphors, and verbal associations that underpin astrological claims are fraught with very problematic methodological issues.

Most of the symbolism modern astrologers use was created in times when the then astronomer/astrologers had no idea whatever about the physical characteristics of the planets. Consequently,there is little worldwide agreement on central tenets of astrology, let alone agreement on how astrological issues can be resolved. Surveys of research into astrology have provided no evidence that astrology does work, at least not in the way and to the extent claimed by astrologers.

**Facts are hard to find**
Of course, every time we wake up with the sun, or plan barbecues on moonlit nights, or go fishing at high tide, we are showing how celestial bodies have real impact on our lives. But this is very different from the symbolic connection claimed by astrologers. Other channels of relationship might exist and science is certainly open for unexpected discoveries (including celestial effects on human behaviour). But in the sciences, tradition and authorities are not deified as they are in astrology. Astrologers (unlike scientists), in general, can be characterized as less interested in discovering the truth of their assertions, and more interested in making a case for propositions already accepted in advance (check out magazines like The Mountain Astrologer or astrological web sites like Stariq 2000).

Leahey and Leahey (1983) note that "Most popular works on astrology today do not even attempt to defend it but simply teach their readers how to use it" (p.39). Similarly, Nias & Dean (1986) note that "nobody should be surprised to learn that the hardest things to find in astrology are facts" (p.357). But if you know where to look they can certainly be found.

**Emergence of critiques**
Before 1950 very few scientific studies of astrology existed. Most critiques of astrology over the centuries focussed on the problematic nature of astrological theory or the gap between the claims of astrologers and their actual performance (Long 1982). Something like a dozen major statistical compilations by astrologers had appeared since 1900, notably in France, Germany, England and the USA, but none were widely known, and in any case their methodology was too poor (eg no controls) for meaningful results. Not surprisingly, the few published critiques were confined mostly to historical surveys (eg Thomen 1938, Bok & Mayall 1941; Eisler 1946). The only extensive scientific critique available was by the French astronomer Paul Couderc (1951/1974).

Then in 1955 Michel Gauquelin published his landmark *L'Influence des Astres*, the first rigorous study of astrological claims, with generally negative results but with what seemed to be provocative exceptions (Gauquelin 1955). The research interest that Dean and Mather (1977) stimulated led to the foundation in 1981 of *Correlation*, an international peer-reviewed journal devoted entirely to scientific research into astrology, followed in 1982 by *Astro-Psychological Problems*, oriented more to Gauquelin interests.

**Enter computers**
By then the advent of home computers in the late 1970s had revolutionized astrological practice and research. Calculating a birth chart (as well as the often required complementary charts, such as progressions, transits, etc.), once took anywhere from an hour to a day; now it could be done in seconds, allowing researchers to do studies that were previously unthinkable.

Today there is a scholarly research base that covers most of the basic claims of astrology. Even sun sign columns have been tested (Dean & Mather 2000). The outcome from all this, in what probably amounts to well over two hundred person-years of research, is almost uniformly negative (Dean, Mather & Kelly 1996). Unfortunately, much of this work is neither widely known nor easily accessible.

**Critiques since 1980**
Critiques of astrology in the light of research findings, post 1980, include those by psychologists Eysenck & Nias (1982), astronomers Culver & Ianna (1988), Crowe (1990), skeptics Martens & Trachet (1998), and Bible scholars Ankerberg & Weldon (1989) and Bourque (1997). The most recent reviews and the first to include meta-analyses are by Kelly, Dean & Saklofske (1990) and Dean, Mather & Kelly (1996). Critiques of philosophical, religious or social aspects of astrology include Kelly & Krutzen (1983), Leahey & Leahey (1983), Thagard (1980), Kanitscheider (1991), Dean (1992), Dean & Loptson (1996), Kelly (1998), and Spencer (2000).

Reviews of the arguments of astrologers include Kelly, Culver & Loptson (1989), Dean, Mather & Kelly (1996), Dean (1997), and Kelly (1999, 2000). Theories of astrology (including Jung's synchronicity theory) are critically examined in Dean, Loptson & Kelly (1996) and Dean, Ertel, Kelly, Mather & Smit (2000). Descriptions of the Gauquelin work include Gauquelin (1983 1988), Ertel (1992) and Dean (2000), for the most recent description see this website under Gauquelin. The cognitive and perceptual biases that can underlie belief in astrology are briefly reviewed by Dean (1992) and in detail by Dean, Kelly, Saklofske & Furnham (1992), and Dean, Kelly & Mather (1999).

The social-psychological reasons for belief in astrology are described by Durant and Bauer (1997), Lindeman (1998), and astrology along with other paranormal phenomena in Goode (2000b). Recent critiques of the occult that cover astrology include Couttie (1988), Hines (1988), and Neher (1990). There is of course an extensive and ongoing literature on the history of astrology, for example ancient astrology (Baigent 1994; Barton 1994; Stewart 1996), medieval psychology (Kemp 1990), pre-19th century astrology (Tester 1987, Spencer 1997), and 19th century astrology (Curry 1992). The recent scholarly journal *Culture and Cosmos* edited by Nick Campion is an important contribution to the history of astrology across the world.

**Why the present article?**
Since the mid-1970s psychology journals have averaged a total per year of about two empirical studies of astrological claims, plus an equal number devoted to related topics such as the acceptance of astrological statements or the prevalence of belief in astrology, all of them easily accessible via PsycLIT, the American Psychological Association's computerized abstract database. But for every such empirical study there are at least four more of equal quality in journals not accessible via PsycLIT. Fortunately most of the major reviews listed above cover this wider information base. On the other hand, the reviews are generally more concerned with empirical findings than with paradigms and conceptual arguments. The present article focusses on the latter, and brings together previously scattered material.

**2. Recent shifts in astrological ideas**

Classical (traditional) astrology was associated with prognostication and relatively specific, testable hypotheses about planetary configurations and human activities (Barton 1994: French 1996: Genuth 1997; Grafton 1998). Until the twentieth century, astrologers have held that the stellar connection mainly reflected actual outward human behaviour, but today among the influential group of psychological astrologers there is the tendency to put main weight on Jungian archetypes and (usually psychoanalyic) structures underlying personality. To appreciate the shift in claim, consider first the view of Charles Carter, who was the leading British astrologer in the mid-twentieth century:

Practical experiment will soon convince the most sceptical that the bodies of the solar system indicate, if they do not actually produce, changes in: (1) our minds. (2) Our feelings and emotions. (3) Our physical bodies. (4) Our external affairs and relationships with the world at large (1925, p.14).

Although every birth chart was different, and many astrological factors had to be assessed (often with mutually conflicting indications) it was conceded that there was an observable, relatively specific something in common that should be exhibited by people with a particular planetary configuration in their birth chart (horoscope). As the Dutch psychologist Jan van Rooij points out:

If one takes 100 people with the sun in Aries, they should have something in common, irrespective of other astrological factors. And this commonality should be different from the common factor in 100 people with the sun in Taurus, irrespective of additional factors (1994, p.55).

On this basis we should not expect to see the influence of a particular factor on a particular person. But examining large groups of people should allow commonalities to be detectable, if they exist.

**Modern ideas**
Contrast the above with the views of psychotherapist and astrologer Dr Glenn Perry, one of the leading proponents of modern psychological astrology (also known as astro-psychology and archetype astrology) in the United States today:

Astrology does not deal with quantities that can be objectively measured ... the [birth] chart depicts the structure and dynamics of consciousness ... [it] shifts the emphasis from predicting outcomes to interpreting the meaning of outcomes as they relate to the inner life of the person (1993, pp.7,8,9).

Further, "astrology only plays a role in the mental plane and does not express itself consistently or systematically in events or behavior" (Terpstra 1994, p.42). Here Carter's direct connection with outward behaviour and external events is played down. Instead the emphasis is with theoretical psychic structures that are symbolically connected to the planets. **Note 2**

In the latter half of the twentieth century, many astrologers thought scientific investigations could confirm many of the claims of astrology. Since the 1950's many studies were conducted by both astrologers and researchers sympathetic to astrology. The picture that emerged out of this research, as pointed out, was mostly bad news for astrology. But negative studies, even when they are cumulative, have been explained away and dismissed in many different ways by astrologers, such as the stars incline but not compel, or the astrologer or the technique is not infallible, allowing them to maintain their belief in astrology whatever the evidence or criticisms (see Kelly 1998).

**3. Dealing with criticism the astrological way**

Reactions to bad news in the astrological camp include ignoring it, moving the goalposts, retreating into metaphor, invoking subtlety, being dogmatic, blaming faulty methods, and assuming the truth. In more detail these strategies are as follows:

**Ignore bad news**
First of all, bad news and unwelcome findings can be ignored or played down. As the astrologer Robert Hand tells us, "Positive results in the scientific study of astrology have to be taken seriously undeniably, but negative results not so seriously" (cited in Perry 1995a, p.37). Overall, this has been the dominant response by the astrological community.

For example this tack is taken by John Anthony West in his *The Case for Astrology* (1991) where he says "Since the aim of this book is to present the positive evidence, intimate details of the bulk of the negative evidence do not really concern us" (p.234). But nearly all the evidence is negative or not commensurate with astrological claims, so West's deliberate suppression of it is irresponsible (Dean 1993). A visit to any astrology bookstore will quickly confirm that research into astrology is rarely cited and when it is, it usually only involves a distorted presentation of the Gauquelin findings (Kelly & Saklofske 1994) **Note 3** and an outdated reliance and misinterpretation of studies examining alleged lunar effects on human behaviour (see Kelly 2000, for an analysis of astrologers' misconceptions regarding lunar studies, and Kelly, Rotton & Culver 1996 for a recent review of lunar effect studies). **Note 4**

**Move goalposts**
Criticisms and serious long lasting anomalies can also be dealt with by hand-waving in another direction and the elevation of speculation to a futuristic higher plane. For example, a serious problem for astrology is the great divide between the Eastern Sidereal zodiac and the Western Tropical zodiac. These zodiacs currently differ by almost one sign. One may be an Aries in North America but a Pisces in India (Cornelius, Hyde & Webster 1995, p.31). Is this conflict between zodiacs a problem for astrology? Cornelius et al tell us this could occur because there are "two different orders of influence, one from the constellations and the other from the earth-sun cycle" or, alternatively, we can view "both zodiacs as two reflections of the same symbolic forms ... [that] both show in their own different ways" (p.32). The obfuscations "orders of influence" and "reflections ... showing in their own ways" are nowhere clarified, hence we are no further in our understanding after being told this than we were before. **Note 5**

**Retreat into metaphor**
What about people who are born at the same time and have different destinies? This has long been a standard argument against astrology. The same astrologers tell us: "The singular horoscope [can be] read as a signature for these particular twins with different groups of planets describing the two individuals ... where frequently one twin answers to the sun and the other to the moon in the same horoscope" (Cornelius et al 1995, p.131). Here the term "frequently" refers to inclining not compelling, to avoid disconfirmation. **Note 6** We are also entitled to ask how one would tell which one is sun and which one is moon, but no answer is provided. **Note 7**

If that doesn't work, Cornelius et al remind us that we can always interpret astrological symbolism in a metaphorical way, for example, "Sigmund Freud was born on a different continent but within minutes of Robert Perry (sic). Freud discovered the unconscious and Perry (sic) discovered the North Pole" (p.131, see also p.96). Hence, these time-twins were both discoverers! **Note 8** If interpretations encompassing both literal and symbolic (including metaphorical) are equally admissible with astrological claims, then we cannot fail to find a fit between the horoscope and the person. The positive side to this is never having to admit you are wrong, the negative side saying very little of import.

**Invoke subtlety**
A fourth popular response is to say that the phenomena astrology deals with are very subtle and elusive, and what is needed are more creative ways of investigating them. For example, even though a large, consistent body of research converges on the view that sun signs are not valid (Dean & Mather 2000), the astrologer Harvey could still say "It is absolutely correct to say that there is no evidence for signs and houses *as yet* ... (1982, p.47, italics Harvey's) and twelve years later, after acknowledging an even larger body of negative studies, tell us "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" (1994, page v) **Note 9**.

Similarly, after finding no relationship between gender dysphoria and astrological factors, Anderson (1997) tells us "*Somewhere* the astrological signature *must exist* predicting that at some time during the native's life this devastating upheaval will take place" (p.106, italics mine). Since it is difficult to prove a negative in such cases, this position can be maintained indefinitely.

**Be dogmatic**
A further point is that astrologers with incompatible positions on fundamental tenets can adopt the same dogmatic attitude in regard to their own beliefs. Such a posture in the face of negative evidence can guarantee a static system and a lack of progress. The astronomers Culver & Ianna (1988) see this posture as so pervasive among astrologers that they have characterised astrology as "The Gemini Syndrome", the confident use of glaring inconsistencies, after the two-faced nature of Gemini. If scientists had adopted similar attitudes in the face of negative studies and argument, physics would still be Aristotelian.

The posture that more sensitive tests are needed also contradicts the supposed ease with which astrological connections were first recognized. As Perry (1993) tells us of the ancients, "the partial if not complete validity of astrology was self-evident to anyone willing to attempt a serious study of the subject" (p.3). This contradiction is in need of explanation. Furthermore, appeals to the self-evident have not been very fruitful guides to truth in the history of ideas.

**Blame faulty methods**
Finally, one can say, that if researchers are obtaining negative results, they must be doing it wrong. They are using the wrong methodology, the wrong paradigm or both. This approach has been adopted by increasing numbers of astrologers since the 1950's, when research (and negative results) got underway. West (1991, 1996), for example, contends that scientific criticisms of astrology are irrelevant because astrology is "a system of magic" (p.223), where magic is "the attempt to master the fundamental laws of resonance that have produced the cosmos" (p.220). He is insufficiently explicit about this "system of magic" and we are left with a conjunction of unformulated statements about "the creative powers of nature", or the "laws of harmony" and appeals to "ancient wisdom". West (1991, pp.222-223) attributes the symbolic planetary manifestations on earth studied by astrologers to the interactions of poorly understood fluctuations in physical fields around the planets, with even less understood, metaphysical "rarefied realms" higher than our own. He says:

it is Heka, Magic, the Principle of Correspondences that sees to it that Divine Inspiration (Will or Intention), made manifest in the planets, transmits itself ... in subtle frequencies and amplitudes. These in turn produce fluctuations in electromagnetic or geomagnetic fields ... as yet not clearly understood or specifically identified but whose existence is acknowledged. These fluctuations are physical in a sense directly analogous to the fluctuations in the air, the sound waves, that the ear interprets as music, or the eye interprets as color. In this case, those fluctuations represent celestial harmonies, and they manifest on earth as "meaning". The study of this meaning is astrology.

West's "direct analogy" between hearing and vision and astrological meaning is deeply flawed. The dissimilarities between the two things being compared are far more significant than any similarities. We have a great deal of knowledge of sound and colour waves. For example, we know about the receptors involved, and the areas of the brain associated with these senses. On the other hand, we have little idea what the phrase "fluctuations representing celestial harmonies" means, nor can we identify methods which would allow us to reliably distinguish different fluctuations from the planets and asteroids, let alone understand how the frequencies and fluctuations would relate to hypothetical planets, nor identify what receptors are involved.

**Assume truth**
Further, while we have some understanding of how sound waves are related to pitch etc and are interpreted as music, we are provided with no parallel how we can reliably interpret or identify these fluctuations as descriptive of our love lives, or financial lives, let alone future possibilities, or how such "celestial harmonies" could lead to the claim that the herb Cayenne is ruled by Mars. Furthermore, while our sensory capabilities vary among people, and our sensory abilities decline with age, there is nothing analogous with people have differing sensitivities to astrological effects, or our responsiveness to astrological influences declining with age. As Evans (1994) points out, West's

magical system is a closed system. We are invited to believe that it is true, not because it connects up with other things which experience has shown to be true, but by some inherent truth of its own which will have it that the planet Saturn symbolizes contraction whereas Jupiter symbolizes expansiveness (p.413).

While, in general, astrologers give the impression that claims about zodiacal signs, houses, planetary aspects, and so on are empirical statements (that is, claims capable of being rejected or modified by research or theory), to most astrologers such claims actually function as necessarily true claims (Kelly 1998). The truth of central astrological tenets are themselves never in doubt. **Note 10**

**4. Problems with the three basic ideas of astrology**

Here I examine three basic ideas of astrology, namely *as above so below*, the *interconnectedness of things*, and *only the whole chart is meaningful*. I will look at each in turn. Other ideas such as those about what the birth chart actually indicates, will be looked at later.

**Idea 1: As above so below**
The vague relationship *as above so below* postulated by astrologers between celestial and terrestrial phenomena is correlational not causal. As former astrologer Joanna Ashmun (1998, p.6) points out:

The basic notion of astrology is *as above, so below*. It's been elaborated to mean a lot of things, many of them goofy, but its basic meaning is that the heavenly pattern is reflected in the individual, as if the horoscope is somehow embedded in the person. It's just assumed that there is an identity between the natal pattern and the person.

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| Alchemists preparing a distillate | The notion *as above so below* is based on a statement in the famous alchemical document *Emerald Tablet*, dating from around the 9th century. The statement supposedly expresses a macro-micro cosmic unity, the basis of astrology, but ironically it is a mistranslation of an earlier Arabic version that has nothing to do with cosmic unity. According to Merkur (1990), the authentic statement originated among alchemists and refers to distillation. The Arabic original is "That which is above is from that which is below, and that which is below is from that which is above" (p.36), meaning that the distilled vapours *above* are from the liquid being heated *below*, whereupon they condense and return to the *below* again, as in the adjacent woodcut. On this basis the supposedly transcendent core notion of astrology is actually pure physics!  |

Traditional astrology usually adopted the notion that the relationships between celestial and terrestrial affairs was a causal one. As Placidus said in 1657, "It is impossible for the efficient heavenly causes (as being so very far distant from things below) to influence sublunary bodies, unless by some medium or instrumental virtue ... the instrumental cause of the stars is light", and "the stars, where they do not rise, are inactive", so astrologers should "reject a secret influence as superfluous, nay, even impossible" (pp.1,3).

Most modern astrologers reject this causal approach **Note 11**. Perry (1994) tells us that the relationship between people and their birth charts is only correlational. The astronomical bodies reflect human life experiences rather like a mirror reflecting a landscape which has to be interpreted. But there is much disagreement over the kinds of celestial configurations that are relevant, and how they are to be interpreted.

**Disagreement is the rule**
In fact, no matter what an astrologer may claim, a search of the literature will invariably find a conflicting claim by another group of astrologers. Unlike disputes in science, it is unclear how such disputes can be resolved, even in principle. This disagreement exists even at the most fundamental level for entire populations of astrologers, for example Western astrologers disagree with Eastern astrologers on which zodiac to use and how many planets to use. While the Indian astrologers apply the real, star-related constellations in their charts, the Western zodiac is independent of the stars. Such systems are mutually incompatible, yet are seen as completely valid by their users.

**Signs are shaky**
Astrological signs and houses are problematic and there are no agreed upon rules for weighing their effects. For example, as the astrologer Prudence Jones (1996, p.282) says:

[The zodiac signs] rest on shaky foundations from the modern point of view. 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 backgrounds? 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?

Even though the Western Zodiac has lost its connection to the original sky (and cannot simply be reduced to a seasonal effect), the people born within Western zodiac are signs still said to display the personal characteristics associated with the original constellations. The sidereal signs have the same meanings as for tropical signs, eg Aries is aggressive in both systems, but the piece of sky to which this meaning is applied is not the same. So one side can believe a certain piece of the sky means *intense*, while the other side can believe the same piece of sky means *relaxed* (this is Scorpio vs Libra).

**Disagreement on houses**
Much the same applies to the astrological notion of houses. The meanings across systems are usually the same, but because the boundaries can vary, the meaning of any particular piece of sky can depend on the system. House systems differ with regard to number, sequence, method of division, and interpretation (Dean & Mather 1977; Martens & Trachet 1998). Further, some house systems (including popular Placidus) break down at high latitudes. At high latitudes some parts of the zodiac never rise or set, and in affected house systems any house cusps or planets that fall in such areas cannot be shown on the birth chart, so in effect they cease to exist.

**Disagreement on planets**
Western astrologers also differ in how many planets should be used, some use undiscovered hypothetical planets, others use asteroids (Dean & Mather 1977). The good/bad interpretation of transits co-exists with the view that transits are to be viewed as opportunities for learning and growth. This diversity in fundamentals gives us grounds to be sceptical of claims that astrologers are speaking about something they have actually apprehended. This diversity in fundamentals becomes even more problematic when it is placed in a historical context. Astrology, in different senses, has been around for at least twenty-five hundred years. At the beginning of the new millennium astrology is in a chaotic state with an increasing plethora of conflicting claims with little agreement on how to adjudicate among them **Note 12** The claims become more varied and conflicting as some astrologers (eventually) take notice of research findings and retreat to safer pastures.

**Idea 2: Interconnectedness**
Along with the vague, variously interpreted notion of *as above, so below* is the ambiguous idea of *interconnectedness*. Harding says, "We are interconnected; I think this is the central message of astrology" (in Phillipson 2000, p.187), and Brady tells us "The very centre standing stone of astrology is the interconnectedness of things, so [astrology] can't say that you are totally isolated and that's it. It can't" (in Phillipson 2000, p.189).

But astrologers do not have a monopoly on interconnectedness. It is our familiarity with other notions of interconnectedness that gives initial plausibility to the more problematic astrological notion. In the 1600's, Newton hypothesized interconnectedness in his statement that every body in the universe attracts every other body. Evolutionary theory emphasizes living organisms and their environments are constituted of interconnecting webs, and that life shares the same chemical basis. Astronomy acknowledges that all matter in the universe is interconnected in the sense that all matter is made of star stuff from the Big Bang. Human beings are interconnected biologically in that they share the same DNA structure, history and the social sciences show we cannot be isolated beings because we share culture and a heritage, and increasing economic specialization ensures that we are interdependent on others.

None of the above notions imply or even support the *astrological* idea of interconnectedness, which is from a perspective that refers to symbolic connections between heavenly bodies and terrestrial events mediated through interpretation based on notions such as mythology (Mercury was the messenger of the Gods, so Mercury rules body systems that function as messengers), literally taken metaphors (the rings of Saturn represent constraint), analogies (red Mars represents blood and aggression), and idiosyncratically chosen associations ("If you want to activate Mars energy, wear red" -- Phillipson 2000, p.67).

None of the previously mentioned notions from the social or natural sciences suggest in any way that symbolic planetary configurations (which are often unconnected with actual configurations) have a strong relationship to earthy events, nor that the planetary configurations at one's birth have any lasting effect on our lives, nor that the symbolism of astrology is universal for people over time and space.

**Idea 3: Only the whole chart is meaningful**
Since everything is interconnected, astrological factors cannot be examined in isolation, the whole birth chart is needed. So the golden rule is that "only the whole chart should be considered, for any astrological purpose whatever" (Dwyer 1985, p.1). As Perry points out "no one part of a horoscope can be isolated ... since everything influences everything else" and "you cannot empirically observe a pure [astrological factor] isolated from other factors in the chart" (Perry 1993, p.6; Vaughan 1998). But astrologers disagree over which individual factors are important, so they disagree over what comprises the whole chart; they just agree that whatever it is, it's important to keep it in mind when doing astrology. As Van Rooij (1994) asked:

Where does the whole chart end? With ten planets, twelve signs, twelve houses, midpoints, Arabic points, nodes, aspects and whatever other astrological concepts may be used, it is simply impossible to interpret a "whole chart". When astrologers claim that they use the whole chart, they only refer to the fact that they use more factors than just one. Nevertheless, no matter how many factors they may use, they always use a restricted number of factors, and therefore only a part of the horoscope. They never use the whole chart. But then the question becomes how many factors would be considered, and which factors? ... Suppose that I consider as many as 20 factors, then undoubtedly an astrologer will come up who claims that I should use 21 factors (p.56).

The decisions of astrologers regarding what to include in their charts seems entirely arbitrary. Some astrologers use asteroids in birth charts. As Hand (1981) points out, size of an astronomical body is unrelated to astrological effectiveness, therefore "[t]he disaster is that there are thousands of asteroids and other minor bodies orbiting the sun, and using present-day astrological techniques there is no way of accounting for all of them in a chart" (p.93). Other astrologers use hypothetical planets such as Vulcan and Lilith that have not been detected by astronomers (Hand 1981, p.95). There is no evidence that astrologers using asteroids or hypothetical planets are more insightful or more successful counsellors than those using "incomplete charts", or than non-astrologically oriented psychotherapists or even lay therapists (Dean 1985; McGrew & McFall 1992).

**How can different sub-sets give the same meaningful whole?**
This problem is exacerbated when we remember that conflicting Western astrologies utilize different factors. And even when the same factors are used, they are often weighed differently. If different schools of astrology use different astrological factors and hence operate with different notions of the "whole chart", then any reference to the supposed commonality of the "whole chart" is less than meaningful.

Perry (1995a) stated "every planet and every sign of the zodiac is influenced by the whole in which it is embedded" (p.34). But if one astrologer's whole chart and another astrologer's whole chart involve factors that are different in type or number, the end result must (according to Perry) be open to question. It is as if we thought we were talking about the same thing, but upon investigation found that I meant Volkswagen, while you were referring to Cadillacs.

**Having it both ways**
Furthermore, the writings of astrologers continually (very often in the same work that condemns the use of isolated factors) violate this maxim (Kelly 1999). They constantly refer to unqualified isolated factors. So in Phillipson (2000) we read, "Saturn does correlate with failure to conceive" (p.80), "When I had Mars at an angle, I knew I was going to have a hectic day" (p.81), and Moon square Mars is associated with people who work frenetically (p.93). Astrologers continually select one isolated factor out of a large set of possible factors in a chart (often ignoring conflicting factors) to explain both on-going terrestrial events, and events that have already happened.

For example, Wolfstar (2000) explains the problems that Harrison Ford and his wife are having as due to "the troublemaker Uranus", also known as "the divorce planet", because "Over the past year, transiting Uranus has been opposite Harrison Ford's Mars ... this is the major tension leading to separation from his wife." If the Harrison Ford marriage relationship problems were not happening, Wolfstar and other astrologers would have no difficulty finding astrological factors that indicate contentment.

**Now you see it, now you don't**
For example, when Suzanne Lilley-Harvey (1981), a top British astrologer, compared the birth charts of Prince Charles and Lady Diana before their wedding, she found "very fundamental rapport ... harmonious communication ... physical attraction ... general emotional and social compatibility ... strong social-cultural-spiritual bond ... excitingly attractive and romantic ... ability to work together in a very practical way." Which did not stop Campion (1993, p.154), another top British astrologer, after their separation, seeing in the same birth charts, only trauma, anger, rebellion, and disaster. The previous wonderful compatibility was nowhere to be found.

**Safety in numbers**
In other words, due to the enormous number of factors, a perfect correspondence can always be found between any chart, any person, and any event. Nothing could be easier than picking the symbols to fit the circumstances, or the personal beliefs and expectations of the astrologer. As an example of the latter, ten prominent astrologers were asked to provide their predictions as to who would be in the White House after the year 2000 American presidential election; examining the birth charts of Gore and Bush, each astrologer found multiple indicators for their preferred candidate. Four predicted Gore would win, four predicted Bush would win, and two avoided predicting a winner (Stariq 2000). A birth chart generally provides planetary configurations for any number of conflicting predictions or after-the-fact explanations of events, so no wonder astrologers claim to see it "working" everywhere.

**Astrology works?**
So when we are told by astrologers that "astrology works", we are not sure what to make of it. **Note 13** It is also important to note that the slogan "it works" put forward by astrologers masks a number of issues. First of all, astrology is not one kind of animal, but a diverse set of conflicting techniques, conflicting theories, conflicting worldviews, and conflicting claims of what astrology can and cannot do. Second, that astrologers of all (often very conflicting) persuasions will cite testimonials and stories as evidence for their very often incompatible versions of astrology suggest that non-astrological factors may play a large role in the perceived success (see Kelly 1999, p.43, footnote 6; also, Dean, Kelly & Mather 1999). Third, "it works" can have a range of different meanings from "astrology is true" to "clients are satisfied", so the statement is also ambiguous. **Note 14**

**5. Problems with the origin of astrological ideas**

A legitimate query here concerns how astrological connections are established. For example, why do astrologers say that "The Full Moon in Taurus is a good time to attend to the thyroid gland" or "Avoid travelling when the planet ruling your ninth house is making an unfavorable aspect to another planet" (Stariq 2000), or "Women travel on their Mars lines to meet men" (Phillipson 2000, p.99), or "Neptune is associated with universal love, spirituality, dreams, and drugs" (Equinox astrology site 1999)? Most astrologers write as if astrological tenets are based on a form of "inductive empiricism", a basis where correlations between heavenly events and terrestrial events have been observed in everyday practice. Elwell (1999, p.24) says "This process of observation, refinement and confirmation, is how astrology built up over centuries."

To make it easier in examining this contention, let us initially consider a relatively straightforward astrological claim, and examine how astrologers explain it. According to traditional astrology, the planets are associated with certain character traits, for example, Uranus is associated with originality and independence. How did astrologers discover this? What is the origin of this claim? Gauquelin (1980) and Startup (1981) have described five possible origins that are taken seriously by members of the astrological community. In what follows, I will describe each of these origins, relying heavily on the insights of Startup to examine them critically:

**Origin 1: Revelation by a higher intelligence**
For example by gods, angels, demons, or extraterrestrials. Thus Pat Harris (in Phillipson 2000, p.17) suggests that astrology may have originated from spiritual beings that settled on earth and predate Atlantis. Apart from begging the question about the existence of these beings in the first place, explaining mysteries in terms of other mysteries does not take us any further than we were before. "We have not explained how these aliens got their knowledge" and so it merely pushes the problem elsewhere (Startup, p.26). It is also not clear how this proposal could be independently tested.

**Origin 2: Psychic means**
This assumes that ESP is capable of establishing relationships far beyond the claims of researchers of the paranormal. Also:

which particular psi ability is to be invoked? Surely telepathy is no good here since, prior to the establishment of the typology, there was no one's mind to read. Clairvoyance is equally dubious since it is difficult to imagine what state of affairs could have been paranormally perceived which was not available to ordinary perception. That leaves precognition ... but this would presumably require that the ancient astrologers somehow saw the results of modern investigations which were themselves, in turn, inspired, albeit indirectly, by the "insights" of the ancients (Startup 1981, p.26).

There are other problems. What is the "it" we are detecting by paranormal means? Some "force" emanating from the celestial object? How do the items detected paranormally relate to items detected by normal perception? (For example, if we detect all sorts of paranormal "rays" around us, how can we tell that they are coming from what we visually perceive as Mars?). How do we know that there is a correlation between the normal and the paranormal item? By paranormal means? -- That's doubly question begging! By normal means? If so, then why could not we have noticed the paranormal item through normal channels?

**Origin 3: Analogy with planetary appearances**
Startup elaborates on this conjecture:

The idea here seems to be that the originator(s) of the planetary typology started out with the simple theory that the planets influence human personality and then to discover what these influences are, they took note of the gross appearances of the planets and interpreted these appearances analogically in terms of personality characteristics. Francoise Gauquelin gives a typical explanation of how the ancients were supposed to have thought: "the large and brilliant Jupiter suggests power, the red Mars suggests fire and war, the light blue Venus suggests tenderness, the ashy yellowish Saturn suggests remoteness and old age, etc." (pp.26-27).

Startup contends that these analogies were unlikely to have been the source of the personality characteristics associated astrologically with the planets:

Each of the planets has many characteristics visible to the naked eye, so how were the Babylonians to know which were the relevant ones? ... Venus (and other planets to some extent) varies a great deal in visible brightness and yet is not thought to be changeable in character. The sun, and also the moon, are glaringly different from the planets in appearance and yet the temperaments attributed to all these bodies are of much the same order. Jupiter is comparatively large and bright and brightness may perhaps suggest power but [to the naked eye] Venus appears even larger and brighter (Startup 1981, p.27).

Also, the portrait of the very ancients that astrologers profess to admire as scholars is unflattering:

It requires us to believe that the learned men of Babylonia proceeded in a completely unsystematic, inconsistent manner. It suggests that the planets were judged by a hotch-potch of different types of characteristic, the Moon was judged by its phases, Mars by its colour, Jupiter by its brightness or size, Saturn by its apparent speed and so on (Startup 1981, p.27).

While knowledge can evolve by a hotch-potch of experiences, for example, Chinese popular herbal medicine likely evolved by a variety of less than systematic experiences, such claims can be investigated and demonstrated by the very kinds of studies eschewed by most astrologers (Allen 2001).Further, what are the mechanisms analogous to natural selection that separate poor astrological techniques and hypotheses from better ones? As the astrologer McDonough (2000) complains:

Is there anyone ... that isn't confused and overwhelmed by the plethora of techniques in the astrologer's bag of tricks? ... Why do we have such a massive, confusing mess of factors to deal with? Because there has been no way to toss anything out.

**Origin 4: Observation**
As Perry (1993) says:

The stargazers of antiquity systematically recorded their observations of heavenly movements and correlated these with observable events on earth. Through ongoing inductive analysis, these early explorers gradually reached certain conclusions as to the meaning of the variables in question and passed these down to succeeding generations (p.2).

Similarly, Harding (2000, p.29) says:

I need no theory of the birth chart in order to interpret it, merely an awareness that people with Mars in X and Venus in Y tend to present in various ways. ... Ultimately, I have to explain my ideas about the world in terms of how the world is. I might have some amazing idea about the relationship of Mars and Venus, but my "proof" will lie ... only in the positions of the planets themselves and what is said and done by people who were born at certain moments.

On one popular form of this scenario, the ancients, in the process of gathering data on both celestial and terrestrial affairs, began to notice a relationship between manifestations of personality and the activity of the planets. These personality characteristics associated with certain planets were also noticed to be similar to those attributed to certain gods. On the basis of these similarities, the ancients began to match the gods' names with the planets. As Startup (1981, p.28) points out, this assumes a primitive, inductivist (theory-neutral observational) model of science.

However, observations, even low level ones, are not completely theory-neutral because what we believe influences (at least to some extent) what we see. While statements about the presence or absence of a dog under the bed involve a minimal amount of theoretical content, statements about the presence or absence of neutrinos presuppose much more theory. In the case of personality, why would one look for associations with the planets in the first place and not elsewhere? If all ancient peoples had theory neutral access to the world around them, we would expect a great deal less diversity of belief about the world.

Indeed, from this hypothesis, it would be peculiar if only the Babylonians (and nobody else) had noticed their particular personality-planetary relationships that are supposed to play such a large role in human life! Another problem is that the second fundamental claim of astrology says that astrological factors cannot be examined in isolation, because everything affects everything else. So by definition isolated planetary connections with human activity could not have been observed in the first place.

**Origin 5: Theory**
This says that planets were symbols of the gods and had the same terrestrial effects as their namesakes, which led to testable pairings of planets and gods. This is the contrary view to the previous one. There the observations led to theories. Here it is the other way around:

The Babylonian gods "existed" long before their names were also given to the planets. The Babylonians theorized that the planets were the gods, or symbolized the gods, and therefore had the same influence over the terrestrial affairs that the gods in their pantheon were supposed to have. Thus, to discover what influences each of the planets had, all they had to do was to find the correct pairing of god and planet ... In this account, observation was used to check the appropriateness of the god-planet pairings that were proposed and, where the initial pairings proved unsatisfactory, it may have promoted a new round of conjectures and observations (Startup 1981, pp.30-31).

As Startup stated, a serious problem here is that "each horoscopic factor gives off only a weak signal which is embedded in noise ... [so] it is not clear how such checks could have been made" (p.31). One suggested way around the problem is to appeal to what Startup calls a "societal noise filter". Perhaps there were groups of astrologers who studied, in detail, just one of the planets and "also fed back the results of their thoughts and observations to the group which discussed their ideas at length" (p.32). Over time, these restricted groups, so the argument goes, gradually filtered out the wheat from the chaff. Startup pointed out that this seems to have some initial plausibility since many early cultures may have used such a process to learn about things like antibiotic remedies before people knew why and how they worked. There is, however, a large jump between making observational connections about using molds to treat infections and pairing complex personality attributes with planets and gods.

In addition, even false theories can have a long life of their own when they serve political interests and are backed by powerful factions. Astrologers have, throughout history, used their art as a propaganda tool for various political factions. For example, the 17th century astrologer William Lilly wrote pamphlets attacking Charles 1st by selecting whatever celestial factors suited his purposes (Geneva 1995). This flexibility of interpretation of astrological symbolism, and capacity of multiple denotation has allowed astrologers to play any side in the political arena, and so guarantee patrons and the survival of astrology.

**Lack of documentation**
As Startup pointed out, there is not "enough documentation of the relevant facts [about how early astrologers' operated] to make speculation unnecessary" (p.33) and speculation is not an adequate explanation of anything. Startup concludes that all of these proposed explanations are ad hoc and unsatisfactory. In other words, traditional astrologers cannot plausibly account for the origins of a comparatively straightforward claim about the relationship between the planets and personality.

**What numbers are we dealing with?**
But astrologers claim to have uncovered far more varied and complex relationships between human affairs and the cosmos than just the association between planets and personality. There are an incredibly large, but finite, number of possible celestial patterns from which astrologers have arbitrarily excluded certain components. For example, they may have chosen to ignore the moons of Jupiter, or individual contributions from the 1022 stars in the part of the universe that we can see (there may be even more that are too weak to see), and so on.

This still leaves a huge variety of celestial patterns to consider in separating out astrologically effective from astrologically ineffective combinations. And by huge I do mean *huge* -- because even at the most basic level there are ten planets (for convenience, astrologers count the sun and moon as planets), each of which can appear in twelve signs and twelve houses, and make nine kinds of aspect (conjunction, semi-sextile, sextile, semi-square, square, sesqui-quadrate, trine, quincunx, opposition) to each of the other nine planets.

However, the total combinations per planet is not simply 12 x 12 x 9 x 9, nor is the total combinations per ten planets simply 10(12 x 12 x 9 x 9) or about 1040. This is because any given combination of planets-in-signs immediately limits the possibilities for houses and aspects (for example, two planets in the same sign cannot occupy opposite houses or be in opposition), and because some planet-in-sign combinations must be discounted (for example, Mercury is never far from the Sun, and the outer planets move too slowly to allow every combination except over thousands of years).

Instead, the total is more like 1028 combinations, the exact figure depending on geographic location, house system, and the time period. This, of course, is just for the most basic astrological factors: many astrologers would use more factors, often many more, for example, axes, midpoints, retrogradation, and asteroids. Indeed, one American astrologer (without giving details of her calculation) claims that the number of combinations is 5.39 x 1068 (Doane 1956, p.1). This makes 1028 seem puny. But to print out even 1028 combinations each reduced to just one line of description would still require a stack of paper roughly as heavy as the earth.

**Complexity makes observation impossible**
Furthermore, our problems have only just started. Because we are forbidden to consider factors in isolation, we must now relate this huge variety of patterns directly to the large variety of patterns of human action. Obviously it cannot be done. In other words, astrological theory could not possibly be based on either observation or the testing of astrological ideas based on gods. Another complication refers to the importance of location of birth in constructing a horoscope. There is no evidence that early astrologers did or could have done the sort of studies needed to test this idea, studies that even today would be difficult. Since these claims turn out to be deeply problematic, we have good reasons to reject more complicated claims based on these same theories.

We cannot escape from this dilemma by focussing on just one or two isolated factors, because our second fundamental principle (use only the whole chart) forbids it. But even if we do break the rules and look at isolated factors, we still have problems. Suppose we find that, out of all these 1028 celestial combinations, people born with the sun in Aquarius aspecting Saturn in the 12th House are reserved, but those with the Sun in Aquarius aspecting Saturn in the 11th House are outgoing. In the general population, people who are reserved or outgoing are common, but those with any particular planetary configuration will be relatively rare. The mismatch in occurrence makes our finding lack any clear meaning. Even then, our problems are not over.

The same astrological factors are supposedly associated with many different things, including both positive and negative sides, which can be expressed in all sorts of differing ways. For example, together Mars and Neptune can indicate altruistic urges to perform good deeds, or, frustration and rage (Vaughan 2000b). Our interpretation of the meaning of factors in the horoscope is also qualified by other more earthly factors like the person's sex, level of maturity, age, culture and so on. Furthermore, the same planetary configurations can mean different things depending on whether we are talking about a human being, a dog, a company, a country, or an idea. So we have complexity laid upon complexity, laid upon complexity.

The extreme implausibility (some would say impossibility) of the ancients being able to correlate such diverse, complex, amorphous, aspects of reality together into one comprehensive package should reinforce our skepticism about astrology having any kind of basis in observation, and, on the same grounds, astrological claims could not have been refined over time by any empirical procedures. **Note 15**

**6. Problems with modern psychological astrology**

Here I come back to the shifts from tradition associated with modern psychological astrology. In the new psychological, the central relationship between celestial patterns and human beings is not with outward, observable patterns of behaviour and tendencies but rather with the unobservable, inner life of a person, or what Perry called the "psychic structure which underlies personality" (Perry 1995b, p.123 ; see also, Perry 1988). Much of the following will be based on the writings of astrologer-psychotherapist Glenn Perry since he is one of the most prominent and representative spokespersons of the psychological astrology school.

Perry (1999, p.2) contrasts traditional event-oriented astrology and psychological astrology as follows:

A strictly predictive astrology ... implies that one's fate is more or less fixed and that one's ultimate good lies in avoiding pain and maximizing pleasure. Whereas psychological astrology assists individuals in discovering how they are creating their own fate, predictive astrology merely describes fate without relating it to the inner, psychological life of the person. From this perspective, events have no meaning beyond being "good" or "bad". To say that they are "karma" from past lives, to be suffered and endured (or perhaps avoided through the cosmically informed counsel of one's astrologer), does little to help people live more constructively in the here and now. I believe that fate can be positively altered through a process of internal healing and integration. The real meaning of events is that they constitute "feed back" that reflects back to the individual where s/he is at in terms of health and wholeness. And their real value is that they stimulate growth in precisely those areas where the individual most needs to change.

Further, it is not the job of the astrologer to tell clients what to do since planetary configurations provide:

an opportunity for learning rather than an occasion for evasive action ... [and] one of the core meanings of the opportunity it affords -- no, requires, [is] increasing one's trust in an inner source of knowing, I take that away by recommending a specific course of action. I do him a great disservice. I steal his choice, for it would be interfering in his fate to predict an outcome ... The important thing is not what is going to happen, but how he accommodates [to it] ... I believe our value as astrologers lies less in telling people what to do than in encouraging them to trust themselves and the Universe (Perry 1999, pp.2,3).

Perry (1999) further tells us astrologers should help client achieve a "greater realization of their potentials [as revealed in the birth chart]" (p.4) and thereby "best harmonize with the universe" (p.1). How do we know when the individual has achieved this? When they are in a state of "health and wholeness" (p.2).

**Other ways may be better**
The advice given by Perry is hardly unique to astrology. Much of the transcendental talk and advice given by psychological astrologers can be found in pastoral counselling and popular psychology (check any book store), without talk of birth charts and astrological symbolism. The crucial point is that Perry's comments about inner selves, etc. do not require stars and horoscopes. He capitalizes on astrology by using otherwise acceptable insights provided by others. It is likely that there are more effective ways of dealing with the existential and everyday issues of clients than what astrologers can offer.

Farha (2001) points out that most astrologers do not have training in crisis management or related fields, and neither are there astrological national standards that provide a baseline of ethical practice as exists in fields like counselling, psychology, social work, or other human services. Further, the providing of constructive council for living in the here and now, and the providing of meaning, along with ways of stimulating self-examination are very arguably more effectively done by practitioners in the emerging field of philosophical counselling (see Marinoff 1999; Raabe 2001; Le Bon 2001). Given that many of the issues clients deal with are existential or spiritual:

Philosophers are typically far better trained philosophically than their counterparts. They are therefore better able to help a client when it comes to clarifying her thinking, avoiding both logical and procedural mistakes in reasoning, ethical decision making, values clarification, questions about the meaning of life, and the development of a sound and reasonable personal philosophy (Raabe 2001, p.277).

The astrological notion of potential may be more narrow than that advocated by humanistic philosophers and psychologists. While our potentials may, from these other perspectives, be limited to some extent by our genetics and cultural opportunities, the astrologer adds a further limitation, namely, the potentialities "promised" in the natal chart. The astrologer Cornelius (1998, p.10) criticises this notion as follows:

If you're born says this school of thought, with a very powerful Saturn, then you have the potential for certain experiences [opportunities] of a Saturnine nature. Remember, however, that this is a velvet glove fatalism because you're still fated to have been born with a Saturn potential! This approach hasn't really solved the problem.

**Problems of the inner psyche**
Let us now turn to the symbolism that in modern psychological astrology purportedly reveals the inner psyche. Perry says:

A horoscope symbolizes the complex, evolving nature of consciousness ... the depths of personality ... the dynamic relations between psychological drives. For example, Sun square Saturn symbolizes a conflict between the need for self-expression and the need for self-control (Perry 1995b, p.124).

Zodiac signs symbolize general, "fundamental human needs, or motivational drives, inherent in the human condition" (Perry 1988, p.1), whereas the house positions and planetary aspects symbolize a particular individual's "map of consciousness" or "inborn personality structure" (Perry 1988, p.2,3). **Note 16** The extreme problems of accounting for the relations between celestial factors and observable, relatively specific outcomes postulated by the traditional astrologer are further exacerbated by the psychological astrologer's additional conjectures.

**How do we know these things?**
How do we know such invisible psychological processes underlie the astrological symbolism? Perry tells us such cognitive processes and structures are distilled from the composite descriptions associated with traditional astrological symbolism. For example:

the need of a [zodiac] sign can be inferred from the behavior which is characteristic of that sign, eg., Leonian pride, creativity, and amiability evidence the universal human need for validation of perceived identity (Perry 1988, p.2).

It is difficult to see how it follows in the first place from the characteristic behaviours of a sign that one intrinsic motivational factor ties them all together, and even if the case could be made, a further case would need to be independently made for the particular human drives postulated by Perry. He never clearly sets out how he arrived at these conclusions. No sets of studies of a quantitative or qualitative nature are discussed, nor is there any kind of an appeal to any careful examination of the astrologically symbolized behaviours by independent astrologers or psychologists to determine what one might infer from them.

**Other problems**
Furthermore, if only the whole chart will do, inferences based on parts are by definition meaningless. An additional problem is lack of agreement on the characteristics or behaviours associated with each particular sign. The sets of keywords and expressions assigned to particular planets, signs, and houses are far from consistent (Dean, Mather & Kelly 1996, p.82). While there is agreement on many characteristics associated with the signs and planets, the disagreements could contribute to quite different inferences about the underlying psychological structures symbolized.

Perry elevates psychological astrology to Biblical miracle status by further informing us that the dynamic relations between various psychological drives symbolized by the horoscope are "fluid and changing, varying in accord with situational specificity, developmental age, emotional maturity, and level of psychological integration" (1995b, p.123; 1994, p.34). Further, "unlike the boundaries of physical objects, the contents and processes of consciousness involve meanings whose boundary regions are fuzzy ... Meanings are indefinite, arbitrary, relational and culturally embedded" (Perry 1995a, p.34).

The fuzziness claimed by Perry would be one more reason why the astro-connections would be, at best, exceedingly difficult to establish, and one more reason why astrology becomes even more unfalsifiable.

**How could psychological astroloy work?**
Despite Perry's appeals to consciousness, it is clear that no theory of consciousness based on physical processes can perform the role demanded. So Perry opts for dualism, the existence of a nonphysical, immaterial mind or soul. While psychological astrology is described as a theory of "extraordinary complexity and a model of consciousness" (Perry 1995a, p.32; 1994, p.33), questions about how this dualistic view of consciousness actually works are never addressed. Instead we are merely offered tidbits such as: consciousness is a "non-physical system" (1995a, p.32) and "a subjective experience of awareness that has no material correlates" (1995a, p.34).

Nowhere does Perry attempt to articulate the intrinsic nature of his version of the non-physical mind. While the notion of "soul" is a central part of many astrological positions, we are left with vague mental images of a non-physical, internal poltergeist that acts in equally mysterious ways, on the neurological structure and behaviour of human beings. It is far from clear how the postulation of a soul/non-physical mind can contribute toward clarifying and informing our understanding of central notions such as purposive behaviour, values, internal self-causation, meanings and creativity, over that offered by contemporary models consistent with materialism (such as those offered by Crick 1994; Flanagan 1992; Penrose 1994; Searle 1992; Dennett 1996) **Note 17**.

**How does the mind come into it?**
Neither does Perry offer us any inkling as to the mediating role the non-physical mind plays between cosmos and psychic structure. The most we get are vague appeals to notions such as synchronicity which substitute one mystery for another, and sidestep issues of conflicting astrologies but fail to clarify issues of how this imprinting of the cosmos on the psyche takes place. This talk of souls and non-physical entities worsens the picture for astrology without bringing an increase in understanding. Since psychological astrology does not have a theory of its own regarding the nature of the inner psychological processes supposedly mirrored by planetary configurations, it rests mainly on those postulated by various psychodynamic theories. More specifically, Perry relates the birth chart to "conscious and unconscious processes, areas of repression and conflict, pathways of sublimation, transference dynamics, projections and the like" (Perry 1995b, p.123; See also, Perry 1988; Arroyo 1993; Greene 1996).

**Based on outmoded ideas**
Even if we contend that psychological astrologers have refined the crude approximations of traditional astrologers (who themselves do not offer plausible explanations for their correlations), ths above case is difficult to accept. The reason is simple. Twentieth century theorizing was influenced by a great variety of areas of research, including investigations into brain function, humanistic and existential schools of psychology, neuropsychology, artificial intelligence, physicalism and functionalism in philosophy, and so on. Ancient, medieval, and renaissance theories of mind that would have been utilized by the astrologers of the past were quite different from contemporary models (See Pasnau 1997; Wright & Potter 2000).

Further, the above psychic structure is based on psychoanalytic and humanistic psychological theories that since the 1950's have come under very heavy criticism. **Note 18** Psychoanalytic processes and concepts, alluded to by many psychological astrologers, have been described as nonfalsifiable because they are consistent with any physically possible human behaviour. In addition, the coherence of the theory is questionable, along with the controversy over its therapeutic effectiveness (eg see Crews 1998; Grunbaum 1993; Spence 1994; Esterson 1993; Kerr 1993; Macmillan 1991; Webster 1995; McGinn 1999; Coiffi 1998). If the psychological structure symbolized by the planets and their interrelationships are problematic, the rest of the theory is on shaky ground. **Note 19**

**What about cultural effects?**
Is human nature the same the world over? Do all people share the same underlying archetypes as some psychological astrologers contend? Granted that there are physical and psychological commonalities across cultures, but are cognitive styles and thinking processes the same? Some recent research suggest that people in the Orient follow different basic thinking processes than those in the West. People in the Orient pay greater attention to context and relationships and rely more on experience-based knowledge than those in the West. In the West, people tend to detach objects from their context, and are more concerned with consistency in reasoning.

If these cultural variations exist, as some philosophers and psychologists contend (e.g Nisbett, Peng, Choi & Norenzayan 2001; Stich 2001), a problem arises how the same planetary configurations can reflect diverse reasoning patterns, psychological process, or human natures. The views of many psychological astrologers seem to assume that any divergent thinking or psychological differences among cultures can be reduced to the psycho-dynamic mechanisms popular in their circles. **Note 20**

**Anything goes**
Consider also the psychological astrologers' contention that inner mental dynamics can be expressed in a great variety of ways. Here they reject as simplistic the traditional astrologer's claim that celestial patterns are typically associated with relatively specific outcomes. As an example of this complexity, the British astrologer Charles Harvey (1995) claims:

The same [planetary] combination can express itself in a whole range of ways. For example, Uranus in hard aspect with the midpoint of Sun and Moon may produce a Napoleon or a Hitler, but equally it may produce a Margaret Thatcher, a Spike Mulligan, a Martin Luther or a particular [spiritual, caring] astrologer [such] as Dr Zip Dobyns (p.52).

Similarly, Perry claims that psychological astrology does not predict specific behaviours or life outcomes but rather "predicts qualitative experiences of consciousness that can be reflected in a variety of manifestations" (Perry 1995a, p.34; 1994, p.34). He affirms that "The meanings of the parts may be stable, [but] the emergent qualities they produce when combined are not [because] real people are changing, evolving entities that are far too complex to type or tag with a few simple key words" (Perry 1993, p.7).

In other words, according to Perry and Harvey, the birth chart accurately shows our underlying subjective processes, but as to their outward manifestation, astrologers can only guess at a range of possible happenings. The inner psychic state is shown in the birth chart, but after that just about anything goes. As Perry said, "we all have the potential to behave in any way that is humanly possible, and we frequently do" (1995a, p.36).

**Miracle of faith**
We can see that the psychological astrologer is working with a challenging system. It involves celestial configurations that can never be examined in isolation, and whose variety when combined is immensely larger than anyone could possibly cope with. Yet these planetary configurations supposedly correlate with an invisible, largely unconscious, philosophically and scientifically controversial, psychic structure that is supposed to underly personality, and is associated with outcomes so varied and so uncertain that the astrologer can only make guesses.

This miracle of faith is further complicated by the lack of consensus on basics within the psychological astrology school itself: "there is probably no uniform psychological approach to astrology" (Perry 2000). **Note 21** Clients seeing different psychological astrologers would be provided with different considerations of potentials and likely varying descriptions of opportunities for growth and change. **Note 22** Further, the reader should not come away with the impression that psychological astrology has not gone uncriticised by other astrologers. Thoughtful critiques from within astrology of many of the problematic notions of psychological astrologers can be found in Harding (1992) and Elwell (1999).

**7. Problems of astrological world views**

Traditional astrology emphasizes the prediction of events, the association of relatively specific, observable outcomes with astrological factors, sometimes with the world view that planets are transmitters of physical influence. Thus the clients of the famous 17th century astrologer William Lilly expected predictions and decision making, not psychology and religion. Such a traditional orientation is not adverse to experimental investigation. A main problem of this approach, as Perry acknowledged, is that the vast majority of studies have not supported such claims (Perry 1995a).

Further, there is little prospect that plausible physical linkages will be discovered that explain astrological associations with human activity (Perry 1995a, pp.26-33; Culver & Ianna 1988; Crowe 1990; Nhgre 1998). For example, no proposed physical explanation can explain, in advance, how Sun-Jupiter contacts symbolize expansive, optimistic beliefs rather than something else, how Scorpio can symbolize secrecy rather than something else, or how the 2nd House can symbolize possessions rather than something else, or how hypothetical planets and impossible planetary configurations can be encompassed in charts.

Perry states, that even though studies relating astrological configurations with specific observable outcomes have failed, this poses no difficulty for psychological astrology since it is concerned with the "inner life" of an individual, which cannot be adequately tested by modern, materialistic, scientific methodology. Besides, he claims, astrologers already have independent experiential (clinical) evidence that astrology works **Note 23** (Perry 1995a, pp.14, 26).

**What is the astrological worldview?**
While astrology seems implausible from the perspective of modern physical theories, we are told that if we adopt a different set of metaphysical assumptions (for example, a more transcendental framework), astrology becomes plausible. **Note 24** This worldview, according to many astrologers, is very different from scientific worldviews. Hence, Vaughan (2000) says, "the scientific viewpoint is one way of observing the world, and astrology is another" (which does not stop her claiming scientific evidence for astrology).

Similarly, Harding (2000, p.17) tells us, without providing any specifics, that "The claim can be made that the scientific worldview is so completely different from that of the astrologer, that science simply cannot engage with the astrological model at all" (This claim simultaneously exists alongside the rush in the astrological community to associate astrology with the latest scientific theories -- see Note 18).

But what is this astrological worldview? Is it the Aristotelian worldview held by many ancient astrologers? The neo-Platonic view held by astrologers like Plotinus? Is it the worldview of Dennis Elwell's (1999) *Cosmic Loom*, where our reality groups together things like dew, ice, water, humidity and steam, all to do with H2O, whereas astrological reality groups together things like cold, old age, bones, lead, discontent and responsibility, all to do with Saturn. (Elwell does not say how he knows his Saturn group is correct.) Such apparent diversity is woven together on the cosmic loom, hence the name.

Or is the astrological worldview associated with a hierarchy of "planes of being and existence", as portrayed by Negre (1998)? Or, following Cornelius (1994, 1998), should astrologers return to ancient Mesopotamiam ideas regarding omens and spirits? Or are the psychological astrologers who content that astrology is just a projection of unconscious archetypes on the right track? Clearly there are many astrological worldviews, which point I will return to later.

Further, what do expressions like "different ways of viewing the world" and "completely different" entail? Does astrology provide an alternative account of human origins, and is it associated with its own models of the origin and workings of the universe than contemporary scientific models? Surveys of Western astrologers themselves do not indicate that they subscribe to any particular worldview. They seem no different than any other group in society (see eg Elliot 1993).

**Paradigms do not help**
Unfortunately, finding a worldview or paradigm that is more compatible with astrology than modern scientific ones, by itself, provides little support for the basic astrological premiss of *as above so below*, let alone *particular* systems of astrology. Finding a paradigm that is compatible with astrology achieves little since astrology still has to be tested within the paradigm. Why should astrology be taken seriously just because a new paradigm might happen to be compatible with it? As a comparison, let us consider the materialistic or naturalistic worldview, which can support a very large diversity of competing theories with greatly differing assumptions like Lamarckism and Evolution in biology, and theories like Phrenology, Behaviourism, Functionalism, Connectionism, Sociobiology, Freudian Psychoanalysis, and Piaget in psychology. Each of these approaches is encompassed within a naturalistic worldview but this does not preclude their extensive critical evaluation within that framework and, in many cases, rejection.

**Vagueness adds to confusion**
Perry (1991a) tells us the worldview needed to make sense of astrology must involve "a sacred realm that unites, orders, and animates the cosmos" (p.19), or what West calls "a system of magic" (1991, p.223) and Cornelius (1994, p.19) calls "some other element" (that is, other than delusion and ESP). The perspective proposed by Perry re-introduces ancient notions of teleological causation, occult powers of attraction, and most importantly, the notion that psyche and cosmos are alike, and correspond through symbolic action-at-a-distance (1995a, p.15-16), without the discussion and debate needed to evaluate these expressions.

Further, Perry explains, this will involve a return to beliefs that were common in pre-scientific cultures in which a "world soul/consciousness" was immanent in all parts of the universe. The universe, so conceived, involved a hierarchy with parts interconnected by "sympathetic resonances". Astrology played a large part in such worldviews because it gave people a symbolic language "for understanding the various meanings and correspondences of natural phenomena" (Perry 1995a, p.15; also 1993, p.2).

On Perry's transcendent perspective, the "Universe has intentions for us" and "there is an underlying intelligence that organizes the infinity of things happening in the universe". This "organizing intelligence" or "greater consciousness is always assisting us in the unfoldment of our innate capacities -- growing us, as it were, so that we can become more fully conscious of our true identities" (Perry 1999, p.1,3) **Note 25** It is not clear how Perry knows this, it seems unlikely that he has direct, unmediated access to the divine mind. Many might even agree with Perry's general notion about an "underlying intelligence" and yet deny that astrology gives us insight into its intentions for human beings (see Bourque 1997; Ankerberg & Weldon 1989). **Note 26**

**Evasion adds to confusion**
The notion of "our true identity" for example, is one with which many empiricists, post-modernist philosophers, and Buddhists would consider problematic. The Buddhists consider talk of an essential core of one's being illusory, while post-modernists would consider such talk of "our true identities" a modernist illusion. So an explication of astrological theories should explain these central elements. Instead, we are offered evasions such as "Astrology seems to belong to some other order of knowing things, barely conceivable in the modern world" (Cornelius, Hyde & Webster 1995, p.167). While nothing remotely resembling a fuller discussion of the nature of these forces or resonances is provided, we are still told that, whatever they are, they "make possible creation, indeed, all conscious, organic life" (West 1991, p.221).

**Diversity of worldviews is problematic**
We have seen how there are many astrological worldviews. But the problems caused by this diversity is more severe than we might suspect, simply because the notion of worldviews is related to philosophical traditions. Campion (1996, p.134) points out "the philosophical schools that many astrologers find so attractive, especially Platonism, Buddhism and Taoism can equally encourage scepticism and therefore hostility to astrology". For example, Wilber (1999), working from a trans-personal, spiritual perspective, strongly criticises astrology. Furthermore, Perry and others ignore or play down the great diversity found among early cultures regarding pre-scientific worldviews and the conflicting astrologies that were developed within them. The different astrologies we find around the world are intertwined with various conflicting religious systems and cosmologies.

Societies that did possess what we would recognize as a form of astrology were associated with both worldviews and astrologies that differed radically and were contradictory in many fundamentals, including, their conceptions regarding the nature of ultimate reality and the transcendent, whether the transcendent can be known or is ineffable and unknowable, the basic hierarchical structures within the postulated transcendent realities, the modes of divine activity (and whether the divine nature was personal or nonpersonal), the nature of the self, the destiny of human beings, and so on.

Furthermore, astrologies in the East have closer ties to theological systems than modern Western ones. There is also a larger concern in the East with removing negative astrological effects in ways that would not be considered possible by many Western astrologers. For example, in India, many people visit astrologers to soften the blows of horoscopic fate; "On Sundays many worshippers come to the temple to request that [the goddess] Kali remove the evil astrological influences of the two shadow planets, Rahu and Ketu" (Malville & Swaminathan 1998, p 9). Hence, general statements that astrologers believe in a "spiritual or transcendent reality" rather than subscribe to a naturalistic view of the universe, masks a myriad set of conflicting philosophies. **Note 27** To which pre-scientific or ancient astrological worldview do astrologers like Perry advocate we return ? **Note 28**

**Contradictions between East and West**
Likewise, the associated astrologies often differed from each other along essential dimensions. For example, the circumpolar stars, the pole star, and the quadrant divisions of the sky utilized in Chinese astrology are used differently in Western astrology. The circle of 12 animals in Chinese astrology bear little resemblance to the Western zodiac. In ancient China, Mars was related to joy and Jupiter to anger, the opposite of that found in Western astrology (Douglas 1999). The ascendant is important in Western astrology but not in Chinese astrology, and so on (Culver & Ianna 1988, p.25; Dean, Mather & Kelly 1996, pp.56-57). Within Viking mythology the Taurus constellation was interpreted as the open, biting mouth of the furious fenris wolf -- a different psychological interpretation when compared with the usually calm and slow Taurus person of modern astrology.

In India there are also a number of astrological systems which conflict both with each other and with Western approaches. [See Premanand, Bhatty & Risbud (1993) for an overview and critique of Indian astrology]. "In Western astrology the general tendency is to regard the North Node as benefic and the South Node as malefic. In Hindu astrology the general tendency is to regard both Nodes as malefic" (Dean & Mather 1977, p.259). In the Dasha-paddhati system the names of the planets are written in a sequence that is not only arbitrary from a Western astrological perspective but is also not related to any physical characteristics of the planets or their distance from the earth. Each planet is alleged to have a certain period of influence over the destiny of people. These periods vary from 6 years to 20 years.

Each planet takes control over a person's destiny in the order specified by the system and the duration assigned to them. The sequence of the planets is the same for all people provided you are following the Vinshotiari 120 year system. On the other hand, if an astrologer uses the Ashtottari dasha system, the last four planets appear in a reversed order and together have a different duration of 108 years. During one's lifetime , the same planet cannot take charge of your destiny again, unless you live for more than 120 years (or 108 years) (see Risbud 1998 for a critique of these systems). These two systems cannot both be correct, but this seems to have had no effect on their acceptance by astrologers and clients.

**Differences with the Americas**
When we turn to the Americas, other fundamental differences in world view, along with astrological differences, emerge. The Aztecs were just interested in the Sun, Moon, and Venus (Botherstone 1988). In terms of hierarchical structures and allied astrology, the Mayan cosmology was quite different from the orbital-themed earth or sun-centered ideas of other cultures. For a start, Mayan astrology assigned a very central role for Venus. In addition, the position of Venus relative to the horizon was, contrary to Western astrology, more important for the Mayans than its movement. They also associated the morning and evening appearances of Venus with lunar phasing and eclipses which have no counterparts in other astrological systems.

Finally, astrology in Mayan life was closer to the astrology of India and traditional Western astrology than Perry's version in that the central focus was divination and prophecy (Aveni 1992; Danien & Sharer 1992).

**What disagreement implies**
There are even different colour associations with the planets among cultures. Cultures have perceived Venus as white or yellow; Saturn as white, yellow, red, brown, and black; Jupiter as white or greenish-blue; Mercury as green or blue, and the moon has been variously described as green, blue, and silver (Douglas 1999). Within Western astrology, Venus is associated with "everything beautiful, which catches the attraction of your eyes -- museums, theaters, cabarets -- and brothels" (de Wohl 1951, p.146).

The serious problems that arise due to these differing notions are precisely analogous to those issues that arise with religious diversity around the globe (see Hick 1997 for an overview of these critical questions).One cannot presume that the differing notions can be referring to the same ultimate reality (like different fingers pointing to the same moon). The different astrologies throughout the world (over both the past and present), are connected with very different ideas about fundamental reality and its complexity that cannot be side-stepped with general talk like "Astrology unites us with a living cosmos. In a conscious universe, people and planets are woven into the same seamless web of being" or "there is an immanent divine guiding intelligence" to the universe (Perry 1991, p.8; and 1999). Clearly not all the conflicting views of the divine and transcendent can be true, and neither can the different views of human nature and destiny or the conflicting astrologies associated with them. **Note 29**

**Sham enquiry**
It is important to keep in mind that diversity can be productive. We should not stick to one approach, but search out alternative conceptions and promote inquiry into such alternatives. However, this attitude is not prevalent in astrology. Genuine inquiry involves a desire to learn and a determination to follow the truth wherever it leads. In contrast, an examination of astrological books, internet sites, magazines and journals reveal what can be termed sham inquiry, where astrologers go through the motions of inquiry in order to demonstrate foregone conclusions (Kelly 1998; see Haack 1998 on the notion of sham inquiry).

The preoccupation of astrologers with sham enquiry rather than proper enquiry has fatal consequences, simply because they assume that astrology is inexplicable except in terms of a transcendent worldview. But such an assumption is unwarranted because astrology is readily explicable in terms of cognitive and perceptual biasses, everyday artifacts of human judgement that in an astrological context look and feel like astrological "effects", which then wrongly persuade astrologers and their clients that something mysterious is happening (Dean, Kelly & Mather 1999).

Furthermore, on the basis of these artifacts alone, we can predict that modern astrology will be characterised by (1) disagreement on almost everything, (2) agreement that it works, and (3) failure to work when artifacts are prevented. Which is exactly what is observed (and by contrast is exactly what is *not* observed in the sciences). For more on these artifacts see *Artifacts in reasoning* on this website under Doing Scientific Research.

**8. Problems of astrological symbolism**

It was argued earlier that the correspondences claimed by astrologers were not based on observation, as a number of astrologers have claimed. Rather, the connections are established on the basis of word associations, mythological associations, a variety of cultural symbolic notions based in turn on a plethora of conflicting theological and occult beliefs, and idiosyncratic word play by individual astrologers.

Other factors are the influence of authority and tradition. Authority because an astrological master said so, and tradition because it has been done that way for hundreds or thousands of years. The end result being the chaotic state that characterizes astrology with no agreed upon methodology to separate valid notions from less valid or invalid notions. In this section we will explore these symbolic notions.

**Magical correspondences**
While the astronomical and mathematical bases of the cosmologies and astrologies developed by the Mesopotamian, Chinese, Mayan, and Indian cultures were sophisticated, the meaning or quality ascribed to planetary conjunctions and movements were dependent on the beliefs of the particular societies in question. This explains why many of the physical characteristics of the celestial bodies (size, distance, etc.) are considered irrelevant with regard to their effects or meaning, or even whether a planetary body actually exists (eg Vulcan) because what matters is the symbolism or mythology attached to the body's name. The influences, effects, or correlations attributed to the planetary configurations are based on "magical correspondences" relying on superficial similarities and analogies.

For example, the medieval astrologer-physician William of England, appealed to the magical doctrine of "like affects like", as have astrologers of all periods. Hence, he argued, "the sun and Mars affect red bile (because all three are hot) and the moon and Venus affect phlegm (because they are cold)" and "Should the hot and dry Mars be causing a disturbance of the blood, then when Mars moves into a house that has a disturbance of the chest, the patient will spit blood" (French 1996, p.478). **Note 30**

The astrologer Davidson (1963) tells us, "Without the sun there would be no life. It is the driving force behind the whole solar system. It represents Will Power, Vitality, Leadership, Creativity" (p.29) and "The rings of Saturn symbolize the limitations imposed by Saturnian action that operate as a harsh external discipline until we have learnt to discipline ourselves" (p.32). In mythology, Mercury is referred to as the "messenger of the gods", therefore, by simple analogy, "Mercury rules the body systems that function as messengers or conduits for communication, [such as] the central nervous system, the endocrine system, and the respiratory system" (Gailing 2000).

**No systematic method**
What is interesting about the latter example is that while Mercury was the messenger of the gods in mythology, talk of bodily systems as messengers is metaphorical. The above three bodily systems "communicate" in quite different ways with parts of the body, so why not also include the circulatory and lymphatic system? What governs the extent to which astrologers extend such metaphors? There is no underlying systematic method.

Whenever a newly discovered astronomical body is found, the attribution of its earthly connections is not based on the results of published investigations with extensive public discussion to establish its relationships with worldly affairs. Rather, if the name can be identified (eg by looking it up in dictionaries of mythology) and could be plausibly related to existing planetary mythology (not difficult), then the result will be long articles in astrology journals by authors surfing the mythology wave, where readers will be moved to tears or to outrage by the beauty and insight of the connections.

**Examples of Pluto and Chiron**
When Pluto was discovered in 1930 and Chiron in 1977 (a minor planet or moon between the orbits of Saturn and Uranus), astrologers did not publish research to establish their relationships with human and worldly affairs. Pluto is given, as one might expect from mythology, a malefic influence on human life. As Davison (1963) tells us, "The planet named after the God of Hades represents the Underworld of man's consciousness, those elements in his nature that have not been redeemed" (p.33) Could it be otherwise?

It is difficult to imagine that astrologers would ever inform us that a planet named "Pluto" would be associated with love of life and fellow human beings, sensitivity and pleasure (like Venus)! Similarly, Hand (1981) remarked "(Chiron) is believed by many to have a connection with conscious-expanding teachings and with initiation into higher consciousness" (p.94). In the case of Chiron, as with Pluto, these relationships are those we would expect astrologers to attribute to them if they were based to a large extent on mythology (Culver & Ianna 1988).

**Asteroids**
Similarly, as the astrologer Press (1993) says about asteroids, "the particular mythology, whether Greek, Roman, Egyptian, etc., is relevant to the expression of the asteroid in the [birth] chart " (p.178). Having determined the asteroid's mythology, the astrologer looks at the asteroid's position (eg., by sign, by house, by aspect) in various peoples' charts to see if there is anything in the personality or case history that could match the interpretation of that position. For example, "The asteroid Icarus represents flying too close to the sun. The position (house, sign, numerical) and exact aspects of Icarus will show where a person will take risks" (p.197). Whenever possible, some astrologers will add physical symbolism to the mythological symbolism. For example:

The orbit of Icarus is between the sun and Jupiter. This containment surrounds Icarus with the irradiation of the Sun and the expansiveness of Jupiter. Icarus' orbit is in and crosses the orbits of Mercury, Venus, the Earth and Mars. Being in those orbits gives Icarus a smattering of the restlessness of Mercury, the sensuousness of Venus, the earthiness of the Earth and the self-assertiveness of Mars" (Press 1993, p.196). **Note 31**

**What happens with modern names?**
What happens if the new astronomical bodies are named after modern individuals? Startup (1981) says:

A popular modern astrological doctrine maintains that newly discovered planets are inevitably given appropriate names [from which the correct terrestrial relationships can be inferred], even though the names are bestowed by astronomers nowadays. This is usually taken as one more example of synchronicity (p.33).

Asteroids without classical names have a special kind of importance, again based purely on symbolic considerations. Here we enter the realm of "personal name asteroids". Press (1993, p.212) concludes (after much uncontrolled research), that if an asteroid has your name , or something close to it, then its position in your horoscope describes your relationship to yourself (whatever that means). If an asteroid has the name of another person (eg asteroid #3085 is called Donna), then its position in your horoscope (birth chart) describes your relationship to that person. This would seem to imply that your relationship to all the Donna's in the world would have much in common.

**Cultural concerns**
Cultural concerns lead astrologers of a particular region to attribute symbolic associations to astronomical phenomena that would be viewed entirely differently by astrologers in other parts of the world, assuming they considered such observations of relevance in the first place. For example, at some Hindu temples in India, it is believed that the sun suffers from leprosy. Sunspots may have played a role in this symbolic association (Malville & Swaminathan 1998).

**Creative astrologising**
Most modern astrologers view astrology as an all-encompassing, life-pervading system. For them, everything that happens on earth, including fuels and their prices, road rage, stealing bases in baseball, finding your best mate, athletic advantages at the Olympics, the political behaviour of opposing candidates, a person slipping on the ice in winter, whether or not a person gets in an automobile accident, etc. are all connected to the planets (see articles by astrologers on the astrology site, Stariq 2000). The symbolic connections described by astrologers, such as "Neptune is linked to fossil fuels", and "Uranus and Neptune brought us the internet", are based entirely on verbal associations, stretched analogies, and idiosyncratic extensions of mythological symbolism.

Further, the validity of these symbolic connections are not determined by empirical investigation, or coherence with established scientific theory, but rather by the prestige of the astrologer, the creativity of the astrologer in stretching the symbolism to encompass the interests of the readership, and the ability of the astrologer to tell a good story. Hence, different astrologers will arrive at quite different symbolic interpretations of planetary positions and terrestrial events, and each will be convinced of the validity of their own perceived connections. If by chance the astrologer finds an empirical study that will support the claims, it is touted as "scientifically supported", but a lack of supporting empirical research will have no effect on the perceived validity of the asserted symbolic connections [see any issue of *The Mountain Astrologer*, the *Astrological Journal*, or the astrological website Stariq 2000).

**9. Problems of non-falsifiability**

The foregoing section on symbolism indicates how astrologers can claim that the testing of astrology is almost impossible, while simultaneously claiming that their daily experience (i.e. testing) confirms everything. Although there are specific astrological traditions, the flexibility of symbolism allows almost any outcome to be viewed as confirmatory. Consequently, a main problem with the testing of astrological claims is that there are no clear-cut results that would be considered problematic for astrological theory.

In fact, the behaviour of astrologers, indicates that there seems only one overall "theory" in astrology, namely *as above, so below*, or the claim that there are (unspecified in advance) correlations between the positions of the heavenly bodies and earthly events. Astrologers call Uranus the divorce planet (see Wolfstar 2000), but neither Uranus nor any particular conjunction or transit with Uranus need play a role in any particular divorce or even most divorces. In fact, almost any other planetary conjunction or transit could, with a little stretching, be interpreted to play a role in a divorced couples chart, making everything "explainable" in astrological terms. If we found Venus square Saturn in the majority of divorced people's charts, this would make astrological sense.

And so would Sun Square Mars, which stands for will power, aggression, etc. An expression in daily life would be lots of arguments, strife, the will of one partner to dominate over the other, and so on, hence, "No wonder these people got divorced." **Note 32**

**Anything goes**
Consider now an astrologer who explains a sudden death of a client with a transit Uranus within one degree conjunct with the Fifth House cusp. This looks odd because the Fifth House is associated with children and fun. But the astrologer could point out, on the mundane level, the Fifth House cusp makes a square with the Eighth House cusp, which is the House of Death. A reader will not find such a "cause" in any astrological textbook. Nevertheless, quite a few astrologers could easily be persuaded that such an explanation makes sense. Indeed, such ad hoc astrological juggling takes place all the time on astrological internet sites such as Stariq. Accordingly, in research by astrologers and sympathisers, anything goes as long as some relationship between astrological symbolism and earthly events is obtained. And, of course, the likelihood of *some* relationship being uncovered is far, far higher, than that of any *pre-specified* relationship being uncovered. **Note 33**

**An example of nonfalsifiability**
Let us consider the study recently published by Denness (2000). This study found a tendency for car thieves and their victims to share the same sun sign in two areas in England. No specific astrological theory is tested here, only the question whether there is a connection between one set of data (in this case, birth sign of car owners) and another set of data (birth sign of car thieves).

If the uncovered relationship was very different, for example, victims and car thieves avoided sharing the same signs, or had opposite signs, or one group had odd signs and the other even signs, or one group had male signs and the other group female signs, the study would still be described as "an argument that zodiacal signs influence career choices" (p.47). On the other hand, if the study had found no relationship of any kind between the signs of the participants, this would still not be a problem for astrologers. The negative findings would be criticised by astrologers for testing isolated factors and ignoring the qualifying effects of other factors in the horoscopes, or it would be argued that sun signs are too crude to pick up such subtle effects and planetary conjunctions and transits would have been more informative. Ironically, it could be criticised as not testing any recognized textbook claim. **Note 34**

**Even specific claims are nonfalsifiable**
Testing specific claims does not help either, since astrologers have a vast array of ad hoc excuses for rejecting any study that does not confirm any specific claim. Some of these are: a factor was overlooked in the chart, it was done in the wrong country, the stars incline not compel, the meaning of the factors may have changed for the people involved, and so on (see Kelly 1998). All of this supports the conclusion that astrology is not a discipline worthy of the name. Positive findings could never add up to anything coherent since there is no way of following up studies and testing refined hypotheses that could advance the field. There is no astrological theory in research except the vague *as above so below*, and there is always an ad hoc hypothesis for every negative finding.

**10. Problems of magical influences**

Magical or unknown influences are appealed to whenever astrology is in difficulty. Earlier in this article the problem of including all the asteroids in the birth chart/horoscope was described. Hand (1981) points out that astrologer Eleanor Bach "solved" the problem by using just the first four asteroids to be discovered. Hand (1981) justifies this arbitrary choice by informing us that:

One way of defending the use of the first four to be discovered (rather than the four largest) is to say that the effect of celestial bodies is in some way related to human consciousness of them rather than to their physical properties. As the first to be discovered they no doubt made a greater impact than the thousands later to be discovered (p.93).

We are left in the dark as to what the "some way related" and "greater impact" are intended to mean here. What about people who have never heard of the first four asteroids? (The same problem applies to the use of Uranus, Neptune, and Pluto! Up to the discovery of Uranus in the late 1700's, astrology had Saturn as the outer planet). Does this mean the asteroids cannot be used in constructing their charts, or does the awareness of academics of their existence cover for the rest of us? No doubt another set of special rules can be devised by astrologers to "solve" this problem. For example Goodman (1971) says that new asteroids work from the very first moment they are discovered by astronomers. Such speculations have the great advantage of requiring no argument and the disadvantage of saying nothing. Some of the grave difficulties of magical correspondences as explanations are described by Dean, Loptson and Kelly (1996):

First, magical correspondences are arguments from analogy, which can be expressed in the form object X has properties A and B, object Y has property A, therefore Y also has B. John Smith is tall, therefore John Brown is tall ... The inference is vivid and quick, and therefore (as in astrology) agreeably seductive, but our chances of it being correct are not good ... No longer do midwives open the door to ease a painful labour. No longer do alchemical ideas appear in chemistry courses. In fact, magical correspondences have been so spectacularly unsuccessful that in Western education today the doctrine survives only as an example of fallacious thinking. Second, it is impossible to specify any two things, no matter how dissimilar, that do not show some kind of correspondence. A raven is like a writing desk because both begin with the "r" sound, both caste shadows, both contain quills. A speck of sand is like the Empire State Building because they have the same colour, both contain silica, and have a large number of atoms.

The point is, how can we distinguish a magical correspondence from other correspondences? The books do not tell us. Third, we have no immediate way of choosing between opposing magical correspondences. Black cats were lucky to ancient Egyptians but unlucky to medieval Europeans. The moon was male to the Babylonians but female to the Greeks. ... Is Mars unfortunate because red = blood (war), or fortunate because red = blood (life)? Who can believe any magical correspondence when it is so easily denied by another? (pp.28-29).

Other criticisms of magical thinking can be found from a philosophical viewpoint by Thagard (1980) and Vickers (1988), and from a psychological perspective by Zusne and Jones (1989).

**11. Conclusion**

The accounts put forward by astrologers to justify their postulated celestial relationships with outward behaviour/activities of human beings (traditional astrology), or inner structures of consciousness (modern psychological astrology), are problematic and implausible in the extreme. Astrology as presently practised by most astrologers, in its multifaceted and contradictory variations (all of which claim truths that allegedly transcend time and space) is not a reliable source of information about ourselves.

These conceptual problems do not lead astrologers to revise the conceptual basis of astrology or extend it in ways that would allow them to learn from failures, as is routine in orthodox disciplines (Mayo 1996). Rather, they are dealt with by using metaphors that lead nowhere and by applying ad hoc hypotheses that are not independently testable. Chance confirmations are readily seen as support, and routine failures are just as readily explained away by the complexities of astrology, hence the general indifference of astrologers to negative evidence (Mayo 1996, pp.280-282; Kelly 1998).

The failure of physical explanations for astrology, and a determined blind eye for the notable success of psychological explanations such as cognitive and perceptual biasses (Dean, Kelly & Mather 1999), have led astrologers to adopt transcendental worldviews. But instead of providing rational arguments for these worldviews they invoke vague spiritual or occult convolutions and vague references to modern physics, the last in order to appear up-to-date and fashionable. These convolutions (eg "animating spirits", "sympathies", "pure consciousness", "resonant bonds of vibratory frequencies", "psychic anatomy") have no useful explanatory value. We are left with a disparate set of ideas taken out of context from various ancient and often incompatible worldviews without any coherent interlocking metaphysics. The difference from the coherent and well-tested explanations provided by psychology (which exactly predict the astrological situation) could hardly be more marked.

Birth chart interpretation is based on a chaotic mix of physical symbolisms, word associations, analogy, mythology, tradition, and the idiosyncratic contributions of individual astrologers. There is little agreement on what factors should be included or ignored in a chart, how they should be combined, how their importance can be determined, or how conflicting claims can be resolved. It is clear that astrology does not have the resources to deal with its anomalies, nor is it ever likely to. It has nothing to contribute to other disciplines except fallacious arguments and sophistry. Astrology is part of our past and has undeniable historical value, but astrologers have given no plausible reason why it should have a role in our future.

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*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.** In Western culture until Newton the views of astrologers and scientists were not so very different. There was widespread belief that all phenomena in the inferior elemental world of nature were governed in some way by the motions of the superior and incorruptible celestial bodies. Not until Newton did the heretical idea arise that maybe these beliefs could be tested, which idea proved to be unstoppable.

**Note 2.** How successful are astrologers at making predictions? Different astrologers provide conflicting answers. Vaughan (1995) tells us that astrologers have, throughout medieval times, made many successful predictions, including predictions of death. On the other hand, Guinard (1997) says, "it remains true that for two thousand years, astrology by itself has strictly not predicted any major political or cultural event." Campion (1997) contends that there are no reliable techniques in astrology for making successful specific predictions. For example, consider predictions of death: "The prediction of death, astrologically, is a highly subjective business, and there can be no rules for predicting death, because if they applied in medieval times they would apply now -- but now we have a much longer life expectancy and the planetary cycles have not stretched.". It is also interesting to note that when successful predictions are made, there is no consensus in the astrological community regarding the predictions.

The successful predictions seem to be made by isolated astrologers with the vast majority missing the event entirely. While a number of astrologers contend that astrologers cannot predict specific events, they claim they can tell that "something" is going to happen. But astrologers did not predict world war 2 , and why did the vast majority of astrologers miss "the something" of the fall of the Berlin wall and breakup of Russia in 1990? And why did so many astrologers wrongly predict catastrophe at the turn of the twentieth century with the Y2K fiasco? [See Townshend's (1999) astrological site for a large number of astrologer's predictions of Y2K disaster].

The vast majority of astrologers completely miss important events, and the vast majority are wrong when they make specific predictions of major events. Interesting recent examples involve the predictions by astrologers of the outcome of the year 2000 USA presidential election, and the predictions of the 26 Jan 2001 earthquake in India (the worst in 50 years). As usual, only a few isolated astrologers made the correct calls. Let us view these in context. In a survey of ten prominent astrologers on the astrological site, Stariq (2000), four found multiple celestial indicators that Bush would win, four predicted Gore would win, and two hedged their bets and made no clear prediction regarding who the new president would be. These predictions follow the polls made of US voters who were equally divided.

After the election, astrologers made much that "Mercury stationed direct on the evening of November 7, 2000" (See Tarriktar 2001). If it was so obvious about Mercury, why did millions of astrologers around the world miss it? Also, does talk of stationary Mercury make astrological sense, given that Mercury retrograde is an isolated factor? Similarly, we are told (Stariq 2001) that at least two astrologers in India, out of perhaps a hundred thousand, predicted the earthquake of 26 Jan 2001 and "We can see the earthquake reflected in the transits to India's chart" (Wolfstar 2001). But again we are dealing with an isolated factor which is allegedly taboo in astrology. Furthermore, if it is so easily seen why didn't the astrological communities around the world (and especially in India) issue public warnings? And why did only a few out of the millions around the world see it coming? And what is the overall batting average (correct specific predictions versus incorrect specific predictions) of the astrologers making successful predictions? The reader is unlikely to learn from the astrological community that some Hindu astrologers predicted that an even bigger earthquake than the 26 January one would occur in India by 5 February 2001 (Yahoo, 2 Feb 2001). Happily, they were wrong that time. Given that astrologers not only possess all the same information that everybody else has, they are also supposed to have an additional source of information provided by the heavens.

One might expect astrologers to not only have far more consensus in their predictions, but also, as a group, consistently outperform everyone else. If there is so much diversity among astrologers regarding two-outcome predictions like elections, they surely cannot be trusted on more complex issues. For an interesting, historical discussion of prediction relevant to astrological prediction see Pickover (2001).

**Note 3.** The research of the late Michael Gauquelin and his wife Francoise have been consistently misunderstood and distorted by astrologers and those sympathetic to astrology (eg West 1991, 1996). For an account of the Gauquelin work see this website under Gauquelin.

It is of interest to note that the overall findings of Gauquelin are hardly supportive of astrology. As noted by Dean (2002), "astrologers do not claim that astrology fails to work for half the planets, for signs, for aspects, for character, or (on Gauquelin's figures) for the 99.994 percent of the population who are not eminent." Furthermore, when Gauquelin tested the ability of astrologers to predict people's character and behaviour using the whole chart, they invariably failed, which led him to conclude that horoscopes were of no useful value in understanding people (Gauquelin 1983).

Seymour (1990, 1996) has argued for the validity of a limited astrology based on the Gauquelin findings. He speculates that our neural networks respond to fluctuations in the earth's geomagnetic field which, in turn, interacts with the gravitational fields of the planets. McGillion (2002) has argued in favour of a pineal intermediary.

Unfortunately, while Seymour's and McGillion's theorizing do not contradict modern physical theories, to make a plausible case one needs more than an after-the-event fit to the Gauquelin results. Despite their appeals to the scientific status of their explanation, they fail to specify how their theories could be tested. For example they fail to address the mismatch between planetary and biological frequencies, and how an unborn child can pick up the difference between Jupiter and Saturn when the frequencies of their diurnal signals actually overlap, and how it can actually work when the causal chain from genetic heredity to personality is extremely complex and non-linear (see Turkheimer 1998). See also Dean (2000) for further criticisms.

**Note 4.** The quality of much astrological thinking is summarized by ex-astrologer Joanna Ashmun's descriptions of internet exchanges between astrologers:

Skepticism is not in evidence, and is in fact discouraged. ... The way astrologers treat researchers and skeptics is just the way they treat other astrologers who disagree with them -- continuing on as if they and their disagreements never existed ... The thing that I find least comfortable about astrology discussions (and not just on the internet) is their immateriality, their lack of grounding. Astrologers are less literate than average; they write badly and they read badly; there is almost no critical response; errors are ignored, corrections are not acknowledged. They answer off the top of their heads, quote from memory, claim that anything published anywhere at any time is general knowledge, and then get sidetracked into arguing about who's a liar instead of sorting out the facts of the original question. There is nothing resembling peer review, except in regard to political correctness. The fact is they don't look stuff up, not even when they disagree with you! Most astrologers would rather have an iffy quotation from Dane Rudhyar or C.G. Jung to support their opinions than some good research (Ashmun 1996, p.41-43).

**Note 5.** This way of dealing with conflicting ideas is quite common in the astrological world. It is often claimed that "Everything works" -- it just depends on one's point of view, line of approach, etc. Here speculation, devoid of accompanying argument, is often the rule. So in regard to conflicting house systems one can hear responses like, "Perhaps Regiomontanus works best for character and circumstances in life, whereas Placidus may give a better insight into events, and Koch works best for horse racing". But there is no agreement among astrologers on these claims nor even minimal agreement on how such speculation could be tested.

**Note 6.** The oft-heard claim in textbooks that "The stars incline, not compel" is contradicted by statements in any astrology book or magazine. So the British astrologer Campion (1987) tells us, "signs rule skills and talents" (p.45), "Artists are specifically linked to a strong Venus ... 5th house ... and sun in fifth house" (pp.17,47,49). No ifs or buts here.

**Note 7.** A variety of ad hoc rules could be used, for example, oldest = Sun, or (for opposite-sex twins) Male = Sun, or it could be whichever one on inspection fits best. At the end of the day all that matters to astrologers is having a practical strategy no matter how arbitrary.

**Note 8.** Actually, Freud did not discover the unconscious. There is a large pre-Freudian literature on the topic. What Freud did was use the term as a working tool that could be investigated psychologically (Fine 1973, pp.36-37). Further, the North Pole wasn't discovered at all. Everybody knew where and what it was.

**Note 9.** Owen (2000), writing in The Mountain Astrologer, praises sun-sign delineations because people can "recognize themselves" in them, which implies they are accurate, but is mystified by the public's appetite for sun-sign forecasts when they are so "consistently wrong". Unfortunately, she does not make clear the distinction between forecasts and delineations or why one and not the other could be seen as accurate.

**Note 10.** A more general underlying issue here is why astrologers themselves believe in astrology. As Dean, Mather and Kelly (1996) point out, the steps in belief are roughly:

1. Read astrology books, become aware of the system.
2. Learn more, calculate charts, see that they appear to work
3. Become dazzled by the history, majesty, and sheer appeal of it all.
4. Adopt the system as true, and reject attacks to avoid cognitive dissonance.

The sequence from 1 to 4 is not unreasonable. Students of astrology are not told to accept astrology without question, they are told to try things out for themselves, so at first sight, what could be fairer? The problem, of course, is that they are not made aware of all the pitfalls of personal validation (and the confirmation bias), nor are they told how to make controlled tests or to design research that actually tests astrological hypotheses and not auxiliary hypotheses. Nor are they presented with the vast body of criticism of astrological tenets, as is, for example, found in this article and references. Once they reach (4) then any internal inconsistencies and disagreements can logically be accommodated as minor hiccups due to the complexities of astrology or inevitable human fallibility (see Dean, Mather & Kelly 1996).

**Note 11.** Astrologers will often, in the same article or book, shift back and forth between causal and non-causal terminology. Cornelius (1998, p.10) mentions that this was noted by St Augustine almost two millennia ago:

[Augustine] observed that astrologers (when it suited them) will say "Mars caused the action of violence in that man" and, if then pressed on that point, will say "Mars is a symbol", but catch them another moment and they're back to talking as if Mars caused the thing.

Similarly the British astrologer Campion (1987) says, "Saturn causes delays, obstacles and material difficulties" (p.19) and "Uranus rules all new technology" (p.19).

**Note 12.** Johnsen (2000) points out that the debate between those astrologers who believed in divinatory astrology and those looking for physical explanations of astral influences was present in the second century AD. Almost two millenia later, the debate is still alive in astrological circles with about as much hope of being resolved as it was then.

**Note 13.** Consider as an analogy, the phrase "medicine works". This would likely be interpreted to mean that medicine as a discipline has demonstrated techniques that work. However, some medical claims about the functioning of the human body are strongly supported by evidence, some are moderately supported, and others weakly supported or dubious. Similarly, some techniques in medical practice have been shown by studies to work very well, others moderately well [but may still be used because of a lack of better alternatives, others not very well (e.g The PSA test for prostate cancer but may still be used because of a lack of alternatives despite high false positives and false negatives)].

Further, there is awareness in the medical community that some techniques may work for different reasons than those considered by advocates (see Beyerstein 1999). Medicine is buttressed by a large consensus in the medical community (on areas such as anatomy, mechanisms of many diseases) and is associated with a successful technology (X-rays, surgery, MRI, PET scans, etc). There is no comparable consensus within astrology about the comparative reliability of techniques or even how we might go about determining the reliability of the techniques.

**Note 14.** It might be argued by astrologers that many of the techniques are complementary rather than contradictory (various diseases may be cured by herbs, drugs, climate change, psychotherapy, etc.). But this depends on the astrologer and/or astrological school. Most astrologers do not seem to care about consistency in the systems they use, if only because most of them have either no idea of the technical details or of the philosophy behind them. Only a few schools in astrology (Ebertin, Hamburg, Ram, etc) know exactly what they are doing and hence reject systems that do not confirm with their ideas. As many astrologers see it, astrology is a pragmatic business. As long as it seems to work then they do not worry about (the absence of) consistency in techniques, philosophy, etc.

**Note 15.** West (1991) attempts to bypass the problem of how the astrological relationships could have been determined by pointing in another direction. He agrees that a complex system such as astrology could not have been built on observations but argues that this similarly holds for other bodies of ideas: "this system (astrology) ... is a whole. No amount of aimless observation, no matter how accurate or painstaking, could develop willy-nilly into such an elegant and internally consistent system. In the realm of man, nothing evolves mindlessly. No coherent body of knowledge -- such as astrology -- simply accumulates, taking form as it goes" (p.38).

However, astrology is not a coherent body of knowledge but a body of ideas, and ideas do not have to be true to be coherent (eg Tolkien's world, Star Trek, etc.). Also, the historical inconsistencies and differences among astrological systems throughout the world show that astrology is not the generic internally coherent system that West makes it out to be. Furthermore, bodies of knowledge in the social and natural sciences have theoretical conceptual structures that have become more refined over time in response to research findings which, in turn, direct and facilitate research (Whitt 1992). In contrast, astrology has shown no progress in solving its empirical and conceptual problems. Unlike many other theories, astrology doesn't have diverse evidence that converges on its central claims, has no plausible explanation for its putative correlations, there is little worldwide agreement on central tenets, and anomalies that were pointed out by critics centuries ago still remains as persistent difficulties (See Dean , Mather & Kelly 1996, pp.62-64; Dean, Ertel, Kelly, Mather & Smit 2000).

**Note 16.** Dane Rudhyar began the move in the United States away from traditional ideas. In their psychological orientation Rudhyar and Perry overlap, the main difference being that Rudhyar is more inclined to Eastern mysticism and religious concepts. A critical examination of Rudhyar's astrology can be found in Kelly and Krutzen (1983). A thorough consideration of the development of psychological astrology in the early twentieth century would also acknowledge the theosophist ideas injected by the British astrologer Alan Leo and the American astrologer Marc Edmund Jones (Zoller 1998).

**Note 17.** A useful critique of non-physical /dualist views of mind can be found in Parsons (2000).

**Note 18.** Astrologers are forever trying to increase the surface plausibility of astrology by associating it with the latest theories that have caught the public imagination. So Blumenthal (1994, p.19) appealed to the relevance of fuzzy logic to astrology, while Perry alluded to chaos theory (1994, p.34) and the new physics exemplified by Fritjof Capra and David Bohm. Townley (1994) informs us that "the more advanced areas of systems mathematics [complexity theory, information theory] and neuroscience [could] be very friendly to the type of structural thinking that the best of astrology has to offer and to which astrology could make important contributions" (p.43). Jewsbury (1988) notes how Rupert Sheldrakes principle of formative causation "should remove the objection that astrology is impossible", adding in an interesting circularity that "astrology itself is a further pointer to its truth". Astrologers just assert, without providing details, that Bell's theorem, Bohm's holonomic theory of quantum mechanics, the Anthropic Principle, and purposive evolution are, both all compatible with each other, and support the principles upon which astrology is based.

A negative feature of these astrologers' writings is their penchant to be crucially vague at critical points. We are not provided with specifics of how these juxtapositions will take place. We are only given promissory notes. It is never made clear how the new physics and other modern disciplines can provide support for the supposition that specific planetary configurations can *symbolize* fundamental human needs, or motivational drives (eg. How Sun square Mars symbolizes overall strength and vigor in the personality) [See Stengler (1995, 1996) for critical comments on misinterpretations of Quantum Mechanics by advocates of New Age claims, and Guttman (2005) for what he sees as Capra's naive and misleading writings].

Further, such modern approaches in physics do not explain why the planetary positions of a moment in the past (birth) describe the supposedly continuing nature of a person in the present. And what about the "birth" of a country, a company, a resolution, a domicile, and so on, all of which astrologers confidently take as having their own natal charts? (Jones 1996).

The astrologer Cornelius (1998) has pointed out that this is an old game that astrologers have always played, namely that astrology has survived by disguising itself as part of the science and philosophy of each particular time period. The modern disguise being, according to Cornelius, depth psychology (Jungian archetype psychoanalysis) and modern physics. Apart from giving the impression that modern theories in physics hold the key to astrological explanation, many astrologers mix in modern theorizing in the social and biological sciences with their symbolic interpretations, creating a very uneasy alliance. Since the theories in the social sciences change in response to new discoveries and evidence, it is interesting how easily astrologers relate planetary conjunctions with completely different findings and theories over time.

For example, Banfield (2000) in "The Astrology of Depression" refers to findings in the psychological literature that there may be a link between "adult depression and being hypersensitive, shy, introverted, and timid when young." These childhood signatures, Banfield claims, can be identified in the natal/birth chart and may be suggestive of future depression. For example, "Astrological indicators for sensitivity and vulnerability are linked to a strong natal emphasis on the receptive planets ... emphasis on the water signs ... and water houses ... and suppression of the fire element in the chart" (Banfield 2000, p.77). On the other hand, Angelfire (1999) considers depression in terms of excessive Saturn and has no need of such theorizing.

So we find some astrologers relating planetary configurations to psychological theorizing and others ignoring such findings. This adds further chaos to the already bloated set of astrological techniques and consequent disorder in the entire field. We have also heard it all before. In the past, the same confidence was expressed by astrologers with every prominent theory of the period. The two millennia of failures provides some good inductive grounds for believing that the confidence of present-day astrologers is as misplaced as that of their predecessors. Such represents the triumph of hope over experience.

More recently astrologer Ken McRitchie (2004) has made an attempt to provide academics with a theory to explain why astrology works. He identifies key psychological concepts such as "values", "skills", "urges", and "development", casts around for a classification scheme whose numbers are a convenient match to astrology (eg a classification of urges into ten categories that numerically match the ten planets), and proceeds from there. Along the way he makes key statements that are glaringly wrong, for example "Few [matching] tests have been conducted" (p.28) and "personality is not well understood today as a science" (p.32), and aggressively ignores the existence of hidden persuaders. Ironically he stresses that his book is "without hypotheses or testing" (p.14), so the end result boils down to speculation and passing the burden of proof. Precisely the things astrology does not need, nor the things that would satisfy academic demands for a theory.

**Note 19.** We are told that "astrology was never disproven by the methods of science. Rather, its invalidity was a presupposition. The issue was not one of proof, but of paradigm" (Perry 1991/2000, p.4).

However, in the history of science and ideas, theories and paradigms do not have to be disproven to be replaced or superceded. Both Popper and Kuhn (two prominent philosophers of science in the 20th century) were aware that astrology was not disproven. Popper (1959), argued that, on the contrary, astrologers go out of their way to develop immunizing strategies to make sure that no evidence will ever seriously threaten their theory. Their one-size-fits-all theories are so elastic that any disconfirming evidence can be explained away.

Kuhn (1970a,b), along related lines, contended that astrology fails because practitioners did not and do not learn from failures. They have not set up reliable procedures to determine the causes of mistakes, learn from them, and improve their theories. While astrologers have acquired multiple outs for failures they do not have agreed means of reducing these alternative explanations of failure and identifying specific astrological claims that need rejection or revision.

We might also point out that the views of astrologers in the medieval and middle ages (which are often at variance with much present day practice) have also not been disproved by present day astrologers (eg see Crane (1999) for a review of such approaches in medieval times). Rather, such views are just out of fashion in the astrological community. One interesting example is the doctrine of sect, where charts of daytime and nighttime births are read differently (Hand 1995). In this approach, the planets change their meanings in day and night charts, which would seem to mean that on average the world's astrologers must be getting it wrong half the time. Why don't they notice?

**Note 20.** Astrologers could get around this problem by having astrological symbolism restrict itself to the basics of human nature as claimed by bio-psychological researchers and psychometricians. This would turn astrology into a science that could be investigated by the quantitative methods used in the social and life sciences. This does not seem, however, a path most astrologers seem willing to pursue.

**Note 21.** A similar situation arises in counselling and psychotherapy. However, an examination of astrology books compared with clinical and counselling texts show important differences. The psychological texts, unlike texts for astrologers, present overviews of the research literature, and compare and contrast differing perspectives in terms of strengths and weaknesses (see Capuzzi & Gross 1999 for a typical example). Further, in-depth research based discussions of what is currently known about which treatments are most effective for various psychological disorders can be found in the psychological literature (eg Nathan & Gorman 1998), but similar research-based comparisons of techniques are absent in the astrological literature.

The theories in psychology also do not require the extravagant and problematic transcendental and supernatural assumptions that underlay astrology. Astrology complicates our view of the universe without providing an increase in understanding.

**Note 22.** Astrologers often claim, in a loose, unsystematic way, that astrology can arrive at a quicker, in-depth understanding of a person than can psychologists. So Tyl (in Phillipson 2000, p.62) says, "There are hundreds and hundreds of people who have said 'My God, it took my therapist six months (or a year) to get to that!' ". First of all, the same stories occur in psychology, when clients change to a therapist with a different orientation, so the situation is hardly unique to astrology. It often happens within astrology itself when clients consult a different astrologer.

Second, what can we infer from this? Not much without complete transcripts of the interviews. Third, such stories create other problems for astrology, since the same situation can arise when wrong birth information is used. The psychologist/astrologer Niehenke (1983) reports, "One of my clients had consulted four other astrologers before she came to me. She judged my interpretation as the most adequate of all, and showed me for comparison the work of my colleagues. I thus realized that I had made an error of 20 years on her birth date" (p. 37).

**Note 23.** The seductive phrase "experiential evidence" (or "clinical evidence") is problematic. Practitioners of psychological approaches Perry disavows (eg Skinnerian behaviourism, orthodox Freudian psychoanalysis) and the many competing schools of astrology in both the East and West, many of whom would contest Perry's approach, all cite testimonial evidence and case studies in support. But if we can all cite experiential evidence for our positions, it can hardly, by itself distinguish the good from the bad, the better theory from the worse. As Meehl points out:

the scholarly authors of Malleus Maleficarum pursued ... an enterprise detailing symptoms that diagnose witchcraft. Despite their scholarly efforts, we know today there are no persons who have made a solemn pact with Satan and thereby gained preternatural powers. If asked to support their theoretical system and the technical procedures warranted by it, [they] would doubtless have invoked the medieval equivalent of "clinical experience" (1995, p.1021).

A salutary lesson here is provided by other non-mainstream approaches such as phrenology, graphology (handwriting analysis), and palmistry which cover the same ground as psychological astrology. Phrenology was immensely popular in the nineteenth century and both phrenologists and their clients were very satisfied with phrenological readings. Graphology has been around for some centuries and is still very popular. It is instructive to compare the following endorsements of psychological astrology, phrenology, graphology, and palm reading:

(1) "[T]he client's character and life story inevitably conform to the range of potentials symbolized by the [horoscope], often in extraordinary specific ways" (Perry 1994, p.35).

(2) "The phrenologist has shown that he is able to read character like an open book, and to lay bare the hidden springs of conduct with an accuracy that the most intimate friends cannot approach" (Alfred Russel Wallace, cited in Severn 1916, p.6).

(3) "Your handwriting is all-revealing. To the trained eye it lays open your secret mind. Every whirl or line you pen exposes your true character and personality" (Marne 1988, p.2).

(4) "A study of the hand tells much about ... the physical body ... health, vitality ... the emotional nature -- love potential ... the will and individuality ... success in business ... talent ... creativity ... fame ... Self-fulfilment -- travel, life experience, spiritual development" (Wilson 1971, pp.7-8).

Astrology is only one of a very large number of contenders, past and present , which rely on magical thinking and purport to yield knowledge unattainable by materialistic science. No plausible reasons have been provided that all of these extra-science contenders are interconnected, or mutually supporting (Loptson 1996). Planets or head-bumps or palms or handwriting, at least one of them is redundant. Astrology is in the unenviable position of having to show either that it provides genuine insight into areas not covered by the social sciences and related disciplines, or to show that it can meliorate our understanding in the same domains covered by contemporary psychological and sociological theories. Astrologers have to show they can provide insight or benefits beyond those provided by non-astrological theories.

Third, many sources of bias operate in such personal experiences that can lead clinicians to claims of personal knowledge that are invalid, despite their association with high levels of conviction (Dean, Kelly, Saklofske & Furnham 1992; Dawes 1994, 2001; Grove & Meehl 1996).

**Note 24.** The astrologer Pottenger (1994) said "Opponents of astrology like to quote 'extraordinary claims require extraordinary proof' without giving any proof that 'as above so below' is an extraordinary claim. It is only extraordinary in some philosophies, especially materialistic frameworks which deny meaning" (p.37). As it stands, what Pottenger stated is trivially true. No matter what is postulated (barring logical impossibilities), it will always be more "plausible" within some worldview(s) than others. For example, fairy bubbles, goblins, and guardian angels are extraordinary claims in materialistic conceptions of the world (and perhaps many others as well). That they are more plausible in worldviews based on say Santa Claus or Peter Pan does not provide any reason to believe in their existence.

Similarly the claim that the universe has *meaning* and provides us with signs/portents does not imply that the signs are to be found "up there", they might only be found in entrails, the tracks and movements of nature, or only in messages from angels or similar beings, or in a number of other forms. It does not follow that an animistic/magical universe *must* have, or even might have, *meaning* reflected everywhere. We need cogent reasons to prefer the animistic universe of astrologers to other possible animistic universes, just as we need evidence for a particular astrological universe as opposed to alternatives.

There are also an incredibly large number of possible pairings between *as above, so below*. The possibilities are even larger for a system based on the symbolic meaning of signs. For example, there are probably more possible pairings of two things in, say, Jungian symbolism than if we confine ourselves to putative causal (material) relationships; so it is even more incumbent on astrologers to provide a reason for their pairings than it would be on materialists.

**Note 25.** Perry (1999, p.1) informs us, without supporting argument, that "I believe the purpose of life is to progressively evolve a deeper and wider connection to this parent consciousness until we ultimately realize our at-one-ment with it." The issue of purpose in life is a very complex one with diverse answers both within and among cultures. The expression "a deeper and wider connection to this parent consciousness" is less than helpful, since it would have vastly different interpretations in Eastern and Western traditions. It would also need a great deal of explication as to how astrology can help us to realize this purpose. Many would deny Perry's claim that any transcendental purpose(s) are even knowable by human beings. Further, it is unclear whether any transcendental claims to meaning and purpose really help since we can step back from any proposed spiritual perspective and doubt its point as well (Nagel 1980).

Finally, the notion of purpose is an ambiguous one in that if there is no cosmic purpose to the universe, it does not follow that individual human beings cannot live meaningful/purposeful lives (Ames 1999; Sharpe 1999; Taylor 1999).

**Note 26.** The "underlying intelligence" also seems from Perry's perspective to be benevolent rather than indifferent or vindictive (since it is "always assisting us"). Presumably, this is why we should "trust the universe". This notion comes face-to-face with the argument from evil (see Weisberger 1999). Given that this "Intelligence" plays a large role in the transcendental aspect of many astrologies, one might expect an elaboration, along with some awareness of the extensive debate in the philosophical and religious literature on this topic.

**Note 27.** Contrast this to the debates in modern physics over the nature of reality. Physicists, unlike astrologers, are very forthcoming in the weaknesses and shortcomings of their theories and their willingness to embrace new paradigms (see economist.com 2000; Johnson 2000). Astrologers, unlike physicists, like new paradigms as long as they don't challenge basic astrological practice or fundamental beliefs.

**Note 28.** Astrology is viewed in different ways by astrologers. Most astrologers, if implicitly, hold a realist view, that is, that astrology conveys truths about the universe and the human situation. While such a perspective indicates a need to arbitrate conflicting astrological views, there is a general reluctance in the astrological community to do so. However, "Basinger"s Rule" surely applies to astrology as it does with religion:

If we want to maximize truth and avoid error, we are under an obligation to attempt to resolve significant conflict between astrological claims. Astrologers have an obligation to identify and assess the reasons why astrologers with whom they disagree hold their positions (Basinger 2000; see also, Trigg 1998). Other astrologers are non-realists since they would contend that astrological claims do not rest on evidence, but rather express commitments to a way of life or particular values. While non-realist theologians may talk of "God" and "life after death", they would reject realist talk of an objectively real God or actual physical survival of our deaths. Similarly, non-realist astrologers like Kochunas (1999) contend that astrology is more in line with drama and poetry. It does not provide factual meanings but can still add value, interest, and meaning to our lives.

**Note 29.** Many astrologers seem to be simultaneously universalist and relativist. They claim that their astrology is shown to work by their own experience and holds for all people on the planet, but they also acknowledge the existence of conflicting traditions of astrology that work as well. A similar problematic situation occurs when astrologers purport to be both post-modernist and embrace astrology as a universal Grand Narrative. Astrology is, ironically, a paradigm example of the kind of universalist, all-encompassing self-described repository of received wisdom that post modernism opposes (see Sim 1998, pp.vii- ix).

**Note 30.** Venus was widely believed at the time to be a cold planet, whereas Mars was characterized as hot and dry. Hot, cold, wet, and dry were the four qualities underlying the four elements considered by Greek philosophers to be the basic constituents of the physical world. So they had Earth (cold and dry), Air (hot and wet), Fire (hot and dry), and Water (cold and wet). Elements with common qualities were able to change into each other, eg Water (cold, wet) could change into Earth (cold, dry) because both had the quality of coldness. Most Greek scholars, of course, considered science (as we know it today) to be an insignificant part of philosophy, which meant that their world view was based mainly on philosophical ideals rather than empirical observations. So hot and cold, etc do not necessarily correspond to what we today call hot and cold, etc.

**Note 31.** The diversity in symbolisms used by astrologers with apparently no rules about being consistent are noteworthy. Davison (1963) bases his astrological symbolism variously on physical attributes of the planets and on attributes of the Greek gods. The astrologer Press (1993), on the other hand, utilizes other mythologies and adds another dimension of physical characteristics to her symbolism, such as a celestial body's proximity to other celestial bodies. Which particular magical correspondences are perceived as relevant are in the eye of the beholder, and there are many different astrologer beholders.

**Note 32.** On the whole, astrologers will recognize some combinations easier than others. They will recognize Venus 0/90/180 to Saturn, or Venus 0/90/180 to Uranus, or Venus 0/90/180 to Neptune, or Venus 0/90/180 to Pluto as a "cause" or contributor to divorce. After all, Venus is the love planet, and the other planets mentioned are all considered disruptive "forces" when connected in negative aspect with Venus (Saturn = coldness, Uranus = unable to tie the knot, Neptune = deceit, and Pluto = oppression).

**Note 33.** Some astrologers view *as above, so below* in the widest sense possible to encompass any correlations (including physical correlations) between heavenly and terrestrial events. On this view, sunspot effects on radio transmissions on earth, gravitational or electromagnetic effects (however variable) on animals and plants, or daily cycles in animal metabolism are subsumed under the astrology label even though astrologers did not postulate the nature or form of the obtained relations, or contribute to research uncovering such relationships. Somehow such research is supposed to confirm the notion that the rest of astrology is supported. A difficulty with this vague position is making clear how one goes from such physical correlations to astrological symbolic claims like the herb garlic is ruled by Mars, or the area of the sky called the Seventh House is associated with marriage, or how a snapshot of the sky captured at a particular moment (expressed in an astrological chart) should have an enduring strong relationship with almost all aspects of a person's life (see also Kelly & Dean 2000 for a critical examination of this position).

**Note 34.** Astrologer Valerie Vaughan (2000) criticises studies conducted by skeptics that failed to uncover significant results with "which astrological theory is he referring to?"

**References**

Allen JM (2001). Herbal Medicines and Dietary Supplements: A Risky Health Gamble. *Skeptical Inquirer* 25 (1), 36-42.

Ames R (1999). The Meaning of Life (A Chinese Approach). *Philosophy Now*, 24, 22-23.

Anderson KG (1997). *An Astrological Research into Gender Dysphoria.* Self-published. Available from author at Shangri-La, L'Esparterola 46, 46760 La Drova, Barx, (Valencia), Spain.

Angelfire (1999). William Styron: The Astrology of Clinical Depression. http://www.angelfire.com/sd/binah/styron.html

Ankerberg J & Weldon J (1989). *Astrology: Do the Heavens Rule our Destiny?* Eugene, Oregon: Harvest House.

Arroyo S (1993.) *Relationships and Life Cycles* (2nd ed). London, England: Centre for Psychological Astrology Press.

Ashmum J (1996). Astrology on the Internet: Quality of Discussion. *Correlation*, 15, 35-51.

Aveni AF (Ed) (1992). *The Sky in Mayan Literature*. New York: Oxford University Press.

Baigent M (1994). *From the Omens of Babylon: Astrology and Ancient Mesopotamia*. London: Penguin Arkana.

Barton T (1994). *Ancient Astrology*. London: Routledge.

Benski C, Caudron D, Galifret Y, Krivine J, Pecker J, Rouze M, & Schatzman E (1996). *The 'Mars Effect': A French Test of Over 1000 Sports Champions*. Amherst NY: Prometheus Books.

Blumenthal M (1994). Commentary on Dean & Mather. *Correlation*, 13, 19.

Bok B & Mayall M (1941). Scientists Look at Astrology. *Scientific Monthly*, 52, 233-244.

Botherston G (1998). Political Landscape and World Origins In Mesoamerican Texts. In D. McCaskill (Ed). *Amerindian Cosmology*. Special joint issue of The Canadian Journal of Native Studies and Cosmos. The Traditional Cosmology Society, Edinburgh.

Bourque A (1997). *Astrology: An Assessment of It's Validity, Appeal and Potential Harm*. MA thesis. Dept. of Religion, Carleton University.

Campion N (1987). *The Practical Astrologer*. Hamlyn: Twickenham

Campion N (1993). *Born to Reign: The Astrology of Europe's Royal Families*. London: Chapmans

Campion N (1996). Richard Dawkin's Attack on Astrology. *Astrological Journal*, 38, 133-134.

Campion N (1999). Interview With Nick Campion. Part 1. (By Garry Phillipson). *Astrological Journal*, May/June. Part 2 in July/August.

Campion N (2000). The Start of the Age of Aquarius. *Correlation*, 19 (1), 7-16.

Capuzzi D & Gross D (1999). *Counselling & Psychotherapy: Theories and Interventions*. Upper Saddle River NJ: Merrill.

Carter C (1925). *Principles of Astrology*. London: TPH London.

Cazeau CJ & Scott SD (1979). *Exploring the Unknown: Great Mysteries Re-examined*. New York: Plenum Press.

Christensen A & Jacobson NS (1994). Who (or What) Can Do Psychotherapy: The Status and Challenge of Nonprofessional Therapies. *Psychological Science*, 5, 8-14.

Cioffi F (1998). *Freud and the Question of Pseudoscience*. La Salle, IL; Open Court.

Cooper D (1974). *The Gullibility Gap*. London: Routledge & Kegan Paul.

Cornelius G (1994). *The Moment of Astrology*. London: Penguin Arkana.

Cornelius G (1998). Is Astrology Divination and Does it Matter? Paper presented at the United astrology Congress. Atlanta, Georgia. May 22.

Cornelius G, Hyde M, & Webster C (1995). *Astrology for Beginners*. Trumpington Cambridge: Icon Books.

Couderc P (1951/1974). *L'astrologie*. Paris: Presses Universitaires de France.

Couttie B (1988). *Forbidden Knowledge: The Paranormal Paradox*. Cambridge UK: Lutterworth Press.

Crane J (1999). *A Practical Guide to Traditional Astrology*. Reston, Va: Arhac Publications.

Crain W (2000). *Theories of Development: Concepts and applications*. (4th ed). Upper Saddle River NJ Prentice hall.

Crews F (Ed) (1998). *Unauthorized Freud: Doubters confront a Legend*. New York: Viking.

Crick F (1994). *The Astonishing Hypothesis: The Scientific Search for the Soul*. New York: Scribner's.

Crowe R (1990). Astrology and the Scientific Method. *Psychological Reports*, 67, 163-191.

Culver R & Ianna P (1988). *Astrology: True or False? A Scientific Evaluation*. Buffalo NY: Prometheus Books.

Curry PA (1992). *A Confusion of Prophets: Victorian and Edwardian Astrology*. London: Collins & Brown.

Danien EC & Sharer RJ (Eds) (1992). *New Theories on the Ancient Maya*. Philadelphia: The University Museum, University of Pennsylvania.

Davidson RC (1963, 1987). *Astrology*. Sebastopol, California: CRCS Publications.

Dawes RM (1994). *House of Cards: Psychology and Psychotherapy Built on Myth*. New York: Macmillan.

Dawes RM (2001). *Everyday Irrationality: How Pseudo-Scientists, Lunatics, and the Rest of Us Systematically Fail to Think Rationally*. Boulder CO; Westview Press.

Dean G (1985). Can Astrology Predict E and N: The Whole Chart. *Correlation*, 5, 2-24.

Dean G (1992). Does Astrology Need to be True? In K Frazier (Ed), *The Hundredth Monkey and Other Paradigms of the Paranormal* (pp.279-319). Amherst NY: Prometheus Books.

Dean G (1993). Astrology Strikes Back -- But to What Effect?: Review of Parry's 'Astrology's Complete Book of Self-Defense' and West's 'The Case for Astrology'. *Skeptical Inquirer*, 18, 42-49. Also on this website under Book Reviews.

Dean G (1997). The Truth of Astrology Competition; A Summary of Each Entry, and some Implications for Researchers. *Correlation*, 16, 2, 40-56.

Dean G (2000). Attribution: A Pervasive New Artifact In the Gauquelin data. *Astrology Under Scrutiny*, 13, 1&2, 1-72.

Dean G (2002). Is the Mars Effect a Social Effect? *Skeptical Inquirer* 26(3) 33-38. Followed by supportive letters from two readers in 26(5), 66, and an interchange with Ertel in 27(1), 57-59, 65.

Dean G & Loptson P (1996). Some Philosophical Problems of Astrology. *Correlation*, 14, 32-44.

Dean G & Mather A (1977). *Recent Advances in Natal Astrology: A Critical Review 1900-1976*. Rockport, Mass.: Para Research, Inc.

Dean G. & Mather A (1994). Rejoinder to Dr Glen Perry. *Correlation*, 13, 47-48.

Dean G & Mather A (1996). Sun Sign Columns: An Armchair Invitation. *Astrological Journal*, 38, 143-155. Also on this website under Sun Signs.

Dean G & Mather A (2000). Sun Sign Columns. *Skeptical Inquirer*, 24 (5), 36-40. An expanded version is on this website under Sun Signs.

Dean G, Loptson P, & Kelly IW (1996). Theories of Astrology. *Correlation*, 15, 17-52.

Dean G, Mather A, & Kelly IW (1996). Astrology. In G. Stein (Ed), *Encyclopedia of the paranormal* (pp.47-99). Buffalo NY: Prometheus Books.

Dean G, Kelly IW, & Mather A (1999). Astrology and Human Judgement. *Correlation*, 17 (2), 24-71.

Dean G, Mather A, & Kelly IW (2001). Does Astrology Work? Astrology and Skepticism 1975-2000. In P Kurtz (Ed), *Skeptical Odysseys*. Amherst NY: Prometheus Books, pp.191-207.

Dean G, Nias DKB, & French C (1997). Graphology, Astrology and Parapsychology. In H Nyborg (Ed), *The scientific study of human nature: Tribute to Hans J. Eysenck* (pp.42-60). London: Elsevier.

Dean G, Kelly IW, Saklofske DH, & Furnham A (1992). Graphology and Human Judgement. In B Beyerstein & D Beyerstein (Eds), *The Write Stuff: Evaluations of Graphology* (pp.342-396). Buffalo NY: Prometheus Books.

Dean G, Ertel S, Kelly IW, Mather A, & Smit R (2000). Chapters 9 & 10. In G Phillipson (Ed). *Astrology In the Year Zero*. London: Flare Publications. An expanded version is on this website under Doing Scientific Research.

Dennett DC (1996). *Kinds of Minds: Toward an Understanding of Consciousness*. New York NY: Basic Books.

De Wohl L (1951). *Astrologie*. Copenhagen.

Doane DC (1956). *Astrology: 30 years Research*. Hollywood, CA: Professional Astrologers Inc.

Douglas G (1999). Why is Venus Green? A Morphological Approach to Astrology. *Correlation*, 18(1), 3-20.

Duran J (1990). Philosophical Difficulties with Paranormal Knowledge Claims. In P Grim (Ed). *Philosophy of Science and the Occult*. Albany, N.Y: State University of New York Press.

Durant J & Bauer M (1997). British Public Perceptions of Astrology: An Approach From the Sociology of Knowledge. *Culture and Cosmos*, 1 (1), 55-71.

Dwyer T (1985). *How to Write an Astrological Synthesis: A Guide for Students*. Romford: Fowler.

Economist.com (2000). New Realities. The Economist: Science and Technology. http://economist.com/displaystory.cfm?story\_id=387866

Eisler R (1946). *The Royal Art of Astrology*. London: Michael Joseph.

Elliot R (1993). Astrology and God. *Astrological Journal*, 35 (5), 280-290.

Elwell D (1999). *Cosmic Loom: The New Science of Astrology* (Revised and updated version). London: The Urania Trust.

Equinox (1999). Astro\*Carto\*Graphy: Bill Clinton, Britain & Ireland. http://www.astrology.co.uk/UK.htm July 12.

Ertel S (1992). Update On the 'Mars Effect'. *Skeptical Inquirer*, 16, 150-160.

Esterson A (1993). *Seductive Mirage*. Chicago: Open Court.

Evans H (1994). Critical Review of West's 'The Case for Astrology'. *Journal of Scientific Exploration*, 8, 411-415.

Eysenck HJ & Nias DKB (1982). *Astrology: Science or Superstition?* New York: Penguin Books.

Farha B (2001). Astrologers: Wanna Be Psychotherapists? *Rocky Mountain Skeptic*, May/June, 3-6.

Fine R (1973). *The Development of Freud's Thought*. New York: Jason Aronson, Inc.

Finn R (2001). StarIQ Advisor. January 25, 2001.

Flanagan O (1991). *The Science of the Mind*. (2nd ed). Cambridge, Mass.: The MIT Press.

Flanagan O (1992). *Consciousness Reconsidered*. Cambridge, MA: MIT Press.

Flew A (2001). *Merely Mortal? Can You Survive Your Own Death?* Amherst, N.Y: Prometheus Books.

Freedland N (1972). *The Occult Explosion*. London: Michael Joseph.

French R (1996). Foretelling the Future: Arabic astrology and English Medicine in the late Twelfth Century. *Isis*, 87, 453-480.

Gabay J (Ed).(1999) *The Meaning of Life: Reflections and Insights From All Walks of Life*. London: Virgin.

Gailing S (2000). Herbal Astrology: Valerian. http://www.stariq.com/Main/Articles/P0001699.HTM Nov 6

Gallant R A (1974). *Astrology: Sense or Nonsense?* Garden City NY: Doubleday.

Gauquelin F (1980). *Traditional Symbolism in Astrology and the Character Traits Method*. LERRCP, Paris, France.

Gauquelin M (1955). *L'Influence des Astres: Etude Critique et Experimentale*. Paris: Editions du Dauphin.

Gauquelin M (1966/1970). *Astrology and Science*. London: Peter Davies. (Originally published in French, 1966).

Gauquelin M (1969/1979). *Dreams and Illusions of Astrology*. Buffalo NY: Prometheus Books. (originally published in French, 1969).

Gauquelin M (1983). *Birthtimes: A scientific Investigation of the Secrets of Astrology*. New York: Hill and Wang.

Gauquelin M (1988). *Written in the Stars*. Wellingborough: Aquarian Press.

Geneva A (1995). *Astrology and the Seventeenth Century Mind: William Lilly and the Language of the Stars*. Manchester: Manchester University Press.

Genuth SS (1997). *Comets, Popular Culture, and the Birth of Modern Cosmology*. Princeton, N.Y: Princeton University Press.

Goode E (2000a). How Culture Molds Habits of Thought. New York Times: http://www.nytimes.com/library/national/Science/health/080800hth-behavior-culture.html

Goode E (2000b). *Paranormal beliefs: A Sociological Investigation*. Prospect heights, Illinois: Waveland press.

Goodman L (1971). *Linda Goodman's Sun Signs*. New York: Bantum Books.

Gordon R (1993). *The Alarming History of Medicine*. London: Mandarin Paperbacks.

Grafton A (1998). Girolamo Cardano and the Tradition of Classical Astrology. *Proceedings of the American Philosophical Society*, 142(3), 323-354.

Greene L (1996). *The Outer Planets and their Cycles*. (2nd ed) London, England: Centre for Psychological Astrology Press.

Grove W.M & Meehl P E (1996). Comparative efficiency of Informal (Subjective, Impressionistic) and Formal (Mechanical, Algorithmic) Prediction Procedures: The Clinical-Statistical Controversy. *Psychology, Public Policy, and Law*, 2, 293-323.

Grunbaum A (1993). *Validation in the Clinical Theory of Psychoanalysis*. Madison, CT: International University Press.

Guinard P (1997). Astral Matrix and Matricial Reason in Astrology. Paper presented at the Kepler Day International Research Conference, London, England. Nov 22.

Guttman BS (2005). How do you solve a problem like a (Fritjof) Capra? *Skeptical Inquirer*, 29 (4), 38-44, with 13 references.

Haack S (1998). *Manifesto of a Passionate Moderate*. Chicago: The University of Chicago Press.

Hand R (1981). *Horoscope Symbols*. Rockport, MA: Para Research.

Hand R (1995). *Night & Day: Planetary Sect in Astrology*. Reston, Va.: Arhac Publications.

Hand R (2000). Astrology and Magic 14-23: Astrology By Hand. http://www.stariq.com/AstrologyBy HandLib.HTM

Harding M (1992). *Hymns to the Ancient Gods*. London: Arkana.

Harding M (2000). Prejudice in Astrological Research. *Correlation*, 19 (1), 17-33.

Harvey C (1982). Review of Eysenck & Nias, 'Astrology: Science or Superstition?' *Correlation*, 2, 47-48.

Harvey C (1994). Foreward to Roberts & Greengrass, *The Astrology of Time Twins*, Pentland Press, Bishop Auckland.

Harvey C (1995). Different Approaches to Astrological Research. In M Pottenger (Ed), *Astrological Research Methods: Vol 1. An ISAR Anthology* (pp.49-54) Los Angeles, CA: ISAR

Hick J (1997). Religious Pluralism. In PL Quinn & C Taliaferro (Eds) *A Companion to the Philosophy of Religion*. Oxford: Blackwell.

Hines T (1988). *Pseudoscience and the Paranormal: A Critical Examination of the Evidence*. New York: St. Martin's Press.

Jacobs M (1995). Bringing it Down to Earth: a Fractal Approach. Kepler College Resources. http://www.kepler.edu/resources/articles/jacobs.html

Jerome L (1977). *Astrology Disproved*. Buffalo: Prometheus.

Jewsbury A (1988). A New Hypothesis to Explain Astrology. *Astrological Journal*, 30, 298-301.

Johnsen L (2000). A Unity of Stars: The Neoplatonic Astrology of Plotinus. *The Mountain Astrologer*, 92, 83-86, 108-109.

Johnson G (2000). 10 Physics Questions to Ponder For a Millennium or Two. The New York Times on the Web. August 15. http://nytimes.com/library/national/Science/081500sci-physics-questions.html

Jones P (1996). Foundations of Astrology. *Astrological Journal*, 38,5, 281-285.

Kanitscheider B (1991). A Philosopher Looks at Astrology. *Interdisciplinary Science Reviews*, 16, 258-266.

Kochunas B (1999). Why Astrology Works. http://www.mountainastrologer.com/kochunas.html

Kelly IW (1979). Astrology and Science: A Critical Examination. *Psychological Reports*, 44, 1231-1240.

Kelly IW (1994). Comments on Dean and Mather. *Correlation*, 13, 28-29.

Kelly IW (1998). Why Astrology Doesn't Work. *Psychological Reports*, 82, 527-546.

Kelly IW (1999). Debunking the Debunkers: A Response to an Astrologer's Debunking of Skeptics. *Skeptical Inquirer*, 23(6), 37-43.

Kelly IW (2000). Critical Comments on Valerie Vaughan's 'Rebunking the Debunkers'. On this website under Objections.

Kelly IW & Dean GA (2000). Are Scientists Undercover Astrologers? On this website under Objections.

Kelly IW & Krutzen R (1983). Humanistic Astrology: A Critique. *Skeptical Inquirer*, 81, 62-73.

Kelly IW & Saklofske DH (1994). Psychology and Pseudoscience. In *Encyclopedia of Human Behavior* (Vol 3, pp.611-618). San Diego: Academic Press.

Kelly IW, Culver R, & Loptson P (1989). Arguments of the Astrologers. In SK Biswas, DCV Malik & CV Vishveshwara (Eds), *Cosmic Perspectives* (pp. 207-231). New York: Cambridge University Press.

Kelly IW, Dean G, & Saklofske DH (1990). Astrology: A Critical Review. In P Grim (Ed), *Philosophy of Science and the Occult* (2nd ed, pp.51-81). Albany NY: State University of New York.

Kelly IW, Rotton J, & Culver R (1996). The Moon was Full and Nothing Happened. In J. Nickell B. Karr & T. Genoni (Ed), *The Outer Edge* (pp. 16-34). Prometheus, Amherst NY.

Kemp S (1990). *Medieval Psychology*. New York: Greenwood Press.

Kerr J (1993). *A Most Dangerous Method*. New York: Random House.

Kuhn T (1970). *The Structure of Scientific Revolutions* (2nd ed). Chicago IL: University of Chicago Press.

Kuhn T (1970). Reflections on My Critics. In I Lakatos & A Musgrave (Eds) *Criticism and The Growth of Knowledge*. Cambridge: Cambridge University Press.

Kurtz P, Nienhuys JW & Sandhu R (1997). Is the Mars Effect Genuine? *Journal of Scientific Exploration*, 11, 19-39.

Leahey TH & Leahey GE (1983). *Psychology's Occult Doubles: Psychology and the Problem of Pseudoscience*. Chicago: Nelson-Hall.

Leary DE (Ed) (1994). *Metaphor In The History of Psychology*. Cambridge: Cambridge University Press.

Le Bon T (2001). *Philosophy For Counsellors*. NY: Continuum Interest Publishing Group.

Lilley-Harvey S (1981). The Synastry of Prince Charles and Lady Diana. *Astrological Journal*, 23, 167-170.

Lindeman M (1998). Motivation, Cognition, and Pseudoscience. *Scandinavan Journal of Psychology*, 39, 257-265.

Loptson P (1996). Rejoinder to Astrologers. *Correlation*, 15, 61-62.

Louis A (2000) Jupiter-Saturn and the Election. (Letter, 9/11/2000). http://www.stariq.com/pagetemplate/feedback.asp?articleid=1683%mode=L

Macmillan M (1991). *Freud Evaluated*. New York: Elsevier.

Malville JM & Swaminathan RN (1998). People, Planets and the Sun: Surya Puja in Tamil Nadu, South India. *Culture and Cosmos*, 2 (1), 3-15.

Marinoff L (1999). *Plato, Not Prozac*. New York: Harper Collins.

Marne P (1988). *The Concise Graphology Notebook*. Slough: Foulsham.

Martens R & Trachet T (1998). *Making Sense of Astrology*. Amherst NY: Prometheus Books.

Mather A (1979). Response to Critics. *Zetetic Scholar*, 1, 15-18.

Mayo DG (1996). Ducks Rabbits and Normal Science: Recasting the Kuhn's-eye View of Popper's Demarcation of science. *British Journal of Philosophy of Science* 47, 271-290.

McDonough M (2000). Every Astrologer a Researcher. Keynote address at Astro2000. Denver, CO, April 21, 2000.

McGillion F (2002), The Pineal Gland and the Ancient Art of Iatromathematica. *Journal of Scientific Exploration* 16(1), 19-43, followed 39-43 by Dean's commentary and the author's rejoiner.
McGinn C (1999). Freud Under Analysis. *The New York Review of Books*. XLVI, 17, (Nov.4), 20-24.

McGrew JH & McFall RM (1992). A Collaborative Vernon Clark experiment. *Correlation*, 11, 2-10.

McRitchie KD (2004). *Environmental Cosmology.* Cognizance Books, Toronto, 140 pages.

Meehl P (1995). Psychoanalysis is Not Yet a Science. *Journal of the American Psychoanalytic Association*, 43, 1015-1023.

Merkur D (1990). The study of spiritual alchemy: mysticism, gold-making, and esoteric hermeneutics. *Ambix* 37, 35-45.

Montgomery S (1996). Naming the Heavens: A Brief History of Earthly Projections. *Science as Culture*, 5, 546-587.

Nagel T (1980). The Absurd. In S Sanders & DR Cheney (Ed). *The Meaning of Life*. Englewood Cliffs NJ: Prentice Hall.

Nathan PE & Gorman JM (Eds) (1998). *A Guide to Treatments That Work*. New York: Oxford University Press.

Nhgre A (1998). A Transdisciplinary Approach to Science and astrology. http:cura.free.fr/quinq/02negre2.html

Neher A (1990). *The Psychology of Transcendence*. New York: Dover.

Nias DKB & Dean GA (1986). Astrology and Parapsychology. In S Modgil & C Modgil (Eds), *Hans Eysenck: Consensus and Controversy* (pp.357-371). London: Falmer Press. Updated in Dean, Nias & French (1997).

Niehenke P (1983). The Whole is More than the Sum of its Parts. *Astro-Psychological Problems*, 1, 33-37.

Nienhuys JW (1997). The Mars Effect in Retrospect. *The Skeptical Inquirer*, 21, 24-29.

Nisbett R, Peng K, Choi I, & Norenzzayan A (2001). Culture and Systems of Thought: Holistic vs. Analytic Cognition. *Psychological Review*,

Parker D (1970). *The Question of Astrology: A Personal Investigation*. London: Eyre & Spottiswoode.

Parsons KM (2000) Further Reflections on the Argument from Reason. *Philo*, 3 (1), 90-102.

Pasnau R (1997). *Theories of Cognition in the Later Middle Ages*. New York NY: Cambridge University Press.

Penrose R (1994). *Shadows of the Mind: A Search for the Missing Science of Consciousness*. Oxford: Oxford University Press.

Perry G (1988). Astrology as a Diagnostic Tool in Psychotherapy. *The Astrotherapy Newsletter*, 1, 1-6.

Perry G (1991). The New Paradigm and Post-modern Astrology. *Astrological Journal*, 34 (3), 139-146. Also see http://cura.free.fr/quinq/05perry.html

Perry G (1993). Toward a Postmodern Astrology: A Hierarchical Model of the Psyche. *Journal of Astro-Psychology*, 6, 1-14.

Perry G (1994). Response to 'Is the Scientific Approach Relevant to Astrology?' *Correlation*, 13(1), 32-36.

Perry G (1995a). How Do We Know What We Think We Know? From Paradigm to Method in Astrological Research. In M Pottenger (Ed), *Astrological research methods: Vol 1. An ISAR anthology* (pp.12-48) Los Angeles, CA: ISAR. (Reprinted with some modifications in *Astrological Journal*, 1997, 39(1), 4-10, (2), 42-57, (3), 49-61).

Perry G (1995b). Assessing the Feasibility of Correlating Psychological Tests with Astrology. In M Pottenger (Ed), *Astrological Research Methods: Vol 1. An ISAR Anthology* (pp.121-127) Los Angeles, CA: ISAR

Perry G (1999). Psychological Versus Predictive Astrology. http://kepler.edu/resources/articles/perry.html

Perry G (2000). Response to 'Astrology by Hand-3' on Psychological Astrology (7/6/2000). Http://www.stariq.com/pagetemplate/feedback.asp?articleid=1273&mode=L

Phillipson G (2000). *Astrology In The Year Zero*. London: Flare Publications.

Pickover CA (2001). *Dreaming the Future: The Fantastic Story of Prediction*. Amherst NY: Prometheus Books.

Placidus (1657/1983). *Primum Mobile. A translation by John Cooper in 1814 of 'Tabulae Primi Mobilis'*. Reprinted in 1983. Bromley, Kent: ISCWA.

Popper K (1959). *The Logic Of Scientific Discovery*. London: Hutchinson.

Pottenger M (1994). Comments on Dean & Mather. *Correlation*, 13, 38.

Premanand B, Bhatty M, & Risbud MS (1993). *Astrology: Science or Ego-trip?* Indian Committee for the Scientific Investigation of Claims of the Paranormal: 10 Chettipalayam Road, Podanus 641023 (Tamilnadu) India.

Press N (1993). *New Insights Into Astrology*. San Diego, California: ACS Publishing.

Raabe P (2001). *Philosophical Counselling: Theory and Practice*. CT: Greenwood Publishing.

Risbud M (1998). Astrology: With and Without Planets; Both of Them are Hollow. *Indian Skeptic*, 11, 25-28.

Russell E (1972). *Astrology and Prediction*. London: Batsford.

Searle J (1992). *The Rediscovery of the Mind*. Cambridge, MA: MIT Press.

Severn JM (1913). *Popular Phrenology*. London: Rider.

Seymour P (1990). *Astrology: The Evidence of Science*. (Revised ed). New York: Viking Penguin.

Seymour P (1996). Astrology: The Case for the Defense. *Astronomy Now*, 11, 43-46.

Sharpe B (1999). In Praise of the Meaningless Life. *Philosophy Now*, 24, 15.

Sim S (Ed) (1998). *The Icon Critical Dictionary of Postmodern Thought*. Cambridge: Icon Books.

Sladek J (1974). *The New Apocrypha: A Guide to Strange Science and Occult Beliefs*. New York: Stein and Day.

Spence DP (1994). *The Rhetorical Voice of Psychoanalysis: Displacement of Evidence by Theory*. Cambridge, MA: Harvard University Press.

Spencer W (1997). Written In The Stars? The History and Psychology of Western Astrology. *Skeptical Intelligencer*, 2,1.

Spencer W (2000). Are the Stars Coming Out? Secularization and the Future of Astrology in the West. Paper presented at the British Sociological Association (Sociology of Religion Study Group). University of Exeter March 29-April 1.

Standen A (1977). *Forget Your Sun Sign: An Outline of Anti-astrology*. Baton Rouge, LA: Legacy Publishing.

Stariq Astrological Site. http://stariq.com/ArticleLibrary.HTM

Stariq (2000). Election 2000: Who Will Win? (2/11/2000) Http://www.stariq.com/Main/Articles/P0001683.HTM

Startup M (1981). The Accuracy of Astrologers' Keywords: The Origin of the Planetary Types. *Correlation*, 1, 24-36.

Stenger V (1995). *The Unconscious Quantum: Metaphysics In Modern Physics*. Amherst NY: Prometheus Books.

Stenger V (1996). New Age Physics: Has Science Found The Path to The Ultimate? *Free Inquiry*, 16, 7-11.

Stewart JV (1996). *Astrology: What's Really in the Stars*. Buffalo NY: Prometheus Books.

Stich S (2001). Plato's Method Meets Cognitive Science. *Free Inquiry*, 21(2), 36-38.

Sulloway F (1992). *Freud, Biologist of the Mind: Beyond the Psychoanalytic Legend* (Revised ed). Cambridge, MA: Harvard University Press.

Tarrikator T (2001). The Day Mercury Stood Still: Charting the US Election Chaos. *The Mountain Astrologer*, Feb/March, 24-32.

Taylor R (1999). The Meaning of Life. *Philosophy Now*, 24, 13-14.

Terpstra B (1994). Comments on Dean & Mather. *Correlation*, 13, 39-42.

Tester SJ (1987). *A History of Western Astrology*. New York: Ballantine Books.

Thagard P (1980). Resemblance, Correlation and Pseudoscience. In M. Hanen M. Osler & R. G. Weyant (Eds), *Science, Pseudoscience and Society* (pp.85-102). Ottawa: Wilfrid Laurier University Press.

Thomas RM (2000). *Comparing Theories of Child Development*. Stamford CT: Wadsworth.

Thomen AA (1938). *Doctors Don't Believe It*. London: Dent & Sons.

Townley J (1994). Comments on Dean & Mather. *Correlation*, 13, 42-43.

Townshend MT (1999). The Grand Alignment in the Year 2000: Is Y2K 'The End Of The World as We Know It", or Mainly The Fall Of The USA ... Our Latter-Day Roman Empire? http://astrostar.com/alignment.htm (January, 2000).

Trigg R (1998). *Rationality and Religion*. London: Blackwell.

Turkheimer E (1998). Heritability and Biological Explanation. *Psychological Review*, 105, 782-791.

Van Rooij J (1994). The Whole Chart and Nothing but the Whole Chart. *Correlation*, 13(1), 54-56.

Van Rooij J (1999). Self-concept in Terms of Astrological Sun-sign Traits. *Psychological Reports*, 84, 541-546.

Vaughan V (1995). The Art of Self-Defence for Astrologers: Lesson 1-Fighting at the level of your opponent. *NCGR Member Letter* (Aug/Sept). Revised version at http://www.onereed.com/articles/revise.html

Vaughan V (1998). Debunking the Debunkers. *The Mountain Astrologer*, 80, 11-17.

Vaughan V (2000). Rebunking the Debunkers. www.onereed.com/articles/rebunk.html

Webster R (1995). *Why Freud was Wrong: Sin, Science, and Psychoanalysis*. New York: Basic Books.

Weisberger A (1999). *Suffering Belief: Evil and the Anglo-American Defence of Theism*. (Toronto Studies in Religion 23). New York: Peter Lang.

West JA (1991). *The Case for Astrology*. New York: Viking Penguin.

West JA (1996). Letter to Editor. *Journal of Scientific Exploration*, 10, 177-182.

Whitt LA (1992). Indices of Theory Promise. *Philosophy of Science*, 59, 612-634.

Wilber K (1999). *One Taste: The Journals of Ken Wilber*. Boston: Shambhala.

Wilson J (1971). *The Complete Book of Palmistry*. New York: Bantam.

Wolfstar (2000). Harrison Ford & Melissa Mathison: Their 17-year Love Fades. http://www.stariq.com/Main/Articles/P0001836.HTM (Dec 1)

Wolfstar (2001). India's Karmic Earthquake. NewsScope on Stariq. http://www.stariq.com?NewScope.H.T.M (January 29, 2001).

Wright JP & Potter P (Eds) (2000). *Psyche and Soma: Physicians and Metaphysicians on the Mind-Body problem from Antiquity to Enlightenment*. New York: Oxford University Press.

Yahoo! Headline (2001). Astrology Fuels Panic In Quake City. Feb 2, 7:27 pm. http://www.uk.news.yahoo.com/010202/80/az7l4.html

Zusne L & Jones WH (1989). *Anomalistic Psychology: A study of Magical Thinking* (2nd ed) Hillsdale, NJ: Lawrence Erlbaum.

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