

Tiptoeing through the Method: An Historical Review of Empiricism in Astrology 1900-1991

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"Hain't we got all the fools in town on our side? And ain't that a big enough majority in any town?"

Mark Twain¹

"Most people who put forward the claims of Astrology speak of it as Science and recommend it to sympathetic consideration because it is scientific. This has always seemed to me somewhat dangerous ground.... I am going to take up the position that Astrology is more closely related to History and the historical disciplines than to Science."

John M. Thorburn²

The word "statistics" was first used in German (Statistik) in 1749 by Gottfried Achenwall. The earlier name used was political arithmetic, which grew out of the belief that measuring the demographics of a country could be a basis for sound economic policy.³ Two examples from this early period were Malthus' ruminations on the relative rates of population growth versus growth of agricultural production, and Adam Smith's development of economics from a moral philosophy to social "science".⁴

When statistics was a tool of social planning, the fundamental belief was that any measure that could be shown to increase the population should be considered good. One of the biggest failures of this period was the inability to differentiate between quantitative growth of population and quality of life, a failure that still haunts us.

Statistics began to change character in the 19th Century primarily because of the influx of hard scientists, many of them from astronomy. Adolphe Quetelet was one of the early scientists who began to move statistics from the collection of facts to the formulation of a social science based on laws. Quetelet and later scientists realized that statistical analysis was actually a powerful tool for approaching periodic phenomena, a class of problems deeply embedded in astronomy and physiology.

Throughout the 19th Century statistics were used principally to describe phenomena. Our modern emphasis on analysis and the quantification of random variation was unknown.

This difference is extremely important in understanding how statistics came to be applied in the 20th Century, especially in the social and biological sciences, and ultimately to astrology. The passion for quantification of the 19th Century evolved into a passion for laws: laws that were supposed to be supported by quantitative methods. The use of statistics became a crutch to the belief that *all* (true) fields of knowledge are based on mathematical order. Statistical (i.e., quantitative) characterization became a substitute for absolute knowledge. This was especially insidious, because, as Levins and Lewontin show, often the dynamics which are then characterized mathematically may be completely hypothetical.⁵

Guenther Stent perhaps characterized the problem as well as anyone when he wrote:

"... most of the natural phenomena for which successful scientific theories had been worked out prior to about one hundred years ago are relatively

noise-free. Such phenomena were explained in terms of *deterministic* laws, which assert that a given set of initial conditions (antecedent situation) can lead to one and only one final state (consequent). But toward the end of the nineteenth century the methods of mathematical statistics came to be trained on previous inscrutable physical phenomena involving an appreciable element of noise. This development gave rise to the appearance of indeterministic laws of physics, such as the kinetic theory of gases and quantum mechanics. These *indeterministic* laws envisage that a given set of initial conditions can lead to several alternative final states."

"Now Mandelbrot [i.e., with his theories of chaos] asserts that science is presently at the threshold of what he calls a *second stage of indeterminism*, in that many of those noisy phenomena which continue to elude successful theoretical understanding will not only be inaccessible to analysis by old-style deterministic theories, but might prove refractory also to formulation in terms of latter-day, or first-stage indeterministic theories".⁶

Does astrological knowledge fit into the category of noisy phenomena? You bet! However, this does not mean that there is nothing useful which can come out of quantitative studies. It is simply crucial that we understand that these studies are merely one approach to the acquisition of knowledge. After a review of the literature, I shall return to these philosophical questions.

The use of statistics in astrology has passed through several overlapping stages. We need to define what constitutes an astrological study. In addition to the more expected psychological studies, there are also astro-physical effects such as phases of the Moon, or the effect of sunspot activity on terrestrial events. These are not necessarily - or even primarily - performed by astrologers.

The first of several research reviews was published by Eysenck and Nias.⁷ The largest volume to date has been compiled by Dean and Mather.⁸ Both Peter Niehenke⁹ and Michael Startup¹⁰ have more recently reviewed the literature extensively. Thus, the purpose of this review, beyond painting a broad picture of the research themes of the 20th Century, is to put this research into the context of astrology as a whole.

Many of the sources cited here have been published in multiple journals. In this article, I have favoured references in US or Continental journals, in part to provide British readers with a wider reading list.

The Early Phase: Krafft, Choisnard, Bradley

Paul Choisnard (1867-1930) was one of the earliest astrological statisticians.¹¹ His works featured astrological studies by house, and the dreaded Chi square. While pioneering, his works are primitive by modern statistical standards.

The French astrology of the early 20th Century was influenced by considerably different sources than were the British and American astrology of the time. While British astrology was under the sway of Theosophy, French astrology's major influence was Morinus. His *Astrologica Gallica* (1661)¹² was translated from Latin to French by Henri Selva in the early 20th Century.¹³ Morinus's influence is significant for our purposes because French astrology placed a higher value on prediction than did British astrology. Astrology in Britain had been reshaped by Alan Leo into a system which emphasized character delineation rather than prediction.¹⁴ A

predictive astrology is much more susceptible intellectually to empirical analysis. Character delineations are notoriously difficult to study, because generally one index (e.g., the Sun sign) has to be compared with a second one (e.g., the subject's response to a personality test). Personality is not directly measurable: only the response by the personality can be studied. It is much easier to devise an experiment based on a nondebatable "fact" such as profession, red-headedness, the change in a financial market or comparison with one's parents or children.

Not all the empirical work was statistical. For example, Karl-Guenter Heimsoth, M.D. was a trained psychologist. He published a work on homosexuality which was a series of case studies, redolent with Freudian jargon.¹⁵ His work was not significantly different from the psychiatric literature of the time.

Other directions were pursued as well. John Nelson began studying the periodicity of radio interference, and he found correlations with heliocentric planetary positions.¹⁶ This work was criticized in more recent times,¹⁷ and then vindicated.¹⁸

There were two parallel threads. The first is the development of a wide range of effects of lunar periodicities: on everything from human behaviour, animal reproduction, to algal egg development.¹⁹

The second line of research was the development of cycles theory, which was not necessarily astrological. The early thrust of this work aimed to establish the existence of economic cycles.²⁰ A massive amount of work was compiled by Edward R. Dewey²¹ (1895-1978), since when Dewey's work has been continued by the organization he headed, the Foundation for the Study of Cycles. This organization has published a number of studies which correlate various economic, weather, or other periodicities with, among other things cosmic activity. The late Neil Michelsen used to say that they do everything but use the "A" word. In addition to the studies, the Foundation has released a series of software programs which facilitate the analysis and isolation of separate and overlapping cycles, a tedious process to say the least. Once isolated, they can be correlated with other phenomena, even planetary cycles. Most of the planetary correlation work has been done more recently by financial astrologers like Bill Meridian, in following up the pioneering work like that of L. J. Jensen,²² who found correlations between the times of economic crises and solar and planetary cycles. The work of Theodor Landscheidt should also be mentioned in this context.²³

The next major statistical figure in astrology was Karl Ernst Krafft (1900-1945). Krafft repeated Choissard's earlier work.²⁴ He realized that large samples would be necessary for his studies, and he spent some time in Geneva collecting from birth registries. Eventually he presented his statistical results in a university seminar. While none of the faculty faulted his methods, neither was he allowed to continue his studies. Krafft also studied economic cycles and their correlations with planets, such as the Jupiter/Saturn cycle.²⁵ In addition to his specific experiments, he also published some valuable theoretical work, including a study on the impact of inaccurate birth times on sample variance.²⁶ During this period, other astrologers were also doing research with large samples. In the USA, there were two groups that were in competition: the Church of Light and the Llewellyn Foundation for Astrological Research. Elbert Benjamine, the Church of Light's president, published a work on the statistical analysis of vocations from a database of three thousand.²⁷ The responding salvo was from Donald Bradley: a study of 2492 eminent clergymen.²⁸

The Middle Phase: In the Shadow of Gauquelin

And then there was Michel Gauquelin. There are certain eerie parallels with Krafft's academic career. Like Krafft, Gauquelin did his early work while he was at university, in this case, the Sorbonne. Like Krafft, Gauquelin's initial work, published as *Influence des Astres*,²⁹ prevented him from being admitted to doctoral work. Unlike Krafft, he did receive his Diplôme.

Gauquelin's work, and that of his collaborator Francoise Schneider Gauquelin, was significant for several reasons:

- (1) He was the first to grapple successfully with statistical studies that properly considered astronomical anomalies;
- (2) Some of his work has been replicated successfully by others, most notably Suibert Eriel and Arno Müller; and
- (3) Through an aborted attempt to replicate his work unsuccessfully, the true Nature of some of the sceptics organizations was revealed.

Briefly, the work of the Gauquelins focused on three major types of studies: successful professionals, blood relations, and psychological profiles. In all cases, they found statistically significant results for planetary placements within the diurnal cycle: in areas that have come to be called the Gauquelin Plus Zones, or simply, the Plus Zones. The two major plus zones cluster near the Ascendant and Midheaven, but mainly on the cadent side.³⁰ These are not in diurnal placements that the average astrologer would have predicted.

However, John Addey produced an intriguing explanation for the cadent distribution. By superimposing a third and a fourth harmonic distribution, he produced a curve dramatically similar to the Gauquelin plus zones.³¹ Addey's harmonic analysis is functionally equivalent - although opposite in direction - to the cyclic analysis already mentioned.

While many astrologers have embraced the results as vindication, the more interesting consequence has been in the realm of scepticism. Thanks to the work of George Hansen,³² we can now properly document the rise of scepticism in the United States, which has had the dubious distinction of being the world leader in this area. Hansen has shown that the "sceptical humanist" movement as developed under the auspices of such persons as Paul Kurtz sprang directly from their interest in radical atheism. And the significance of this is that in a truly godless universe, a form of knowledge as intrinsically *divinatory* as astrology must be crushed as heresy.

Dennis Rawlins published an account of the bungled attempt by the Committee for the Scientific Investigation of Claims of the Paranormal (C.S.I.C.O.P.) and the Belgian Committee³³ to fraudulently claim that they had been unable to replicate Gauquelin's results - when they in fact had.³⁴ It is fascinating to see scientists like Kurtz engage in scientific fraud and yet not get drummed out of scientific circles. Such is the nature of belief - or anti-belief. Had the subject been something more mundane - like restriction enzymes or quarks - Kurtz and his cronies would have been gone from the scene. Yet we continue to see bad or fraudulent science - like physics graduate student Shawn Carlson's totally fallacious use of the MMPI personality inventory - published in scientific journals.³⁵ A number of researchers - notably Hans Eysenck and Teresa Weed Hamilton - have published highly critical reviews of Carlson's study. Not surprisingly, the critiques were not published in Nature!³⁶

On the positive side, there was the formation of the Society for Scientific Exploration (SSE). SSE was founded in large part by legitimate scientists who share the distinction of studying topics which are either considered illegitimate, or at least politically incorrect, by most other scientists. These topics include parapsychology, the Loch Ness Monster, reincarnation, and astrology. Succinctly put, this is a Society composed of scientists who are interested in studying any anomaly. It has occurred to many of them that anomalies are often the starting blocks for some of the most fascinating science which develops.

This attitude stands in marked contrast to the official positions of the sceptics organizations, which exude the position that astrology *cannot* possibly work. Interestingly, there is an interaction between SSE and the sceptical organizations through joint membership by a number of individuals.³⁷ Both Michel Gauquelin and Suitbert Ertel have published in the SSE's *Journal*.³⁸ Beyond providing an outlet for this kind of statistical research which is at least seriously read by some scientists, the *Journal of Scientific Exploration* has provided an essential outlet for information about the study of so-called anomalies in general.

Henry Bauer, current Vice President of SSE, published a very germane piece on belief and scepticism (in this case, concerning the Loch Ness Monster).³⁹ One of the reasons that believers and sceptics can reach opposite conclusions about the *same* study is that the typical researcher adjusts his or her standards depending on whether the research supports or opposes the individual's beliefs. In other words, the more another's conclusion challenges one's beliefs, the more rigor one expects from opposing experiments.

Bauer's thesis is especially appropriate in reviewing the position of such sceptics as Geoffrey Dean. In England, Dean has been taken seriously by the astrological community. In the USA, he is mostly ignored by the astrological community. Although Dean's training is not in statistics, he is well known for his statistical work and for his conclusion: that astrology may be more of a religion or an art than a science.⁴⁰ I would take no exception to this, except that the implication is that astrology is the lesser as a result! However, the method of "proof" is insidious. The major weakness in Dean's work is his tendency to emphasise the "negative" studies of astrology, ignore or trivialize the "positive" ones, and then group them together to "prove" that the overall effect is so minuscule that it is impossible for an astrologer to make accurate predictions based on what "little" has been statistically established.

Due to the tendency to bias amongst a number of these studies by scientists have gone beyond the borders of silly: Culver and Ianna in their debunking book, *The Gemini Syndrome*, include the following medical conditions which are not correlated with sun sign: acne, allergies, appendicitis, athlete's foot, broken bones, bronchitis, chicken pox, the common cold, congenital nervous disorders, constipation, dandruff, diabetes, diarrhoea, Down's Syndrome, congenital eye defects, and so forth. The credulous astrologer will also be crushed to learn that there is no correlation with sun sign and the ring finger size in either men or women!⁴¹

In fact, there are so many pointless studies possible on individual traits, that it is very easy to rack up a high negative result count. Sceptical scientists love to lure unsuspecting astrologers into this trap, because it is so hard to get a positive result. What they fail to mention is that the reason has nothing to do with astrology, and everything to do with astronomical artifacts, which are bound to distort results unless they are taken into account. Many of these problems are illustrated most clearly through the FAR programs written by Mark Pottenger and through the book that Pottenger compiled with Scott Vail.⁴²

The argument over these astronomical factors was central to CSICOP's criticism of the Gauquelins' work, mainly of the Mars effect. The objection raised in this case was relationship between the geocentric positions of Mars and the Sun. The CSICOP investigators hoped that the Mars effect demonstrated by Gauquelin could be totally explained by what Dennis Rawlins called the Mars/dawn effect: namely the clustering of dawn births, and hence the over-representation of Mars in the same area as shown in the above chart. However, the Mars/dawn effect was not sufficient to explain the Gauquelin results (the difference was between 17% expected Mars/dawn and 22% observed in the sports champions), but it could be enough to jeopardize projects if the researcher isn't careful.

The Post Gauquelin Phase

In the post-Gauquelin phase, we confront three themes:

Firstly there is the continued work of successful or unsuccessful replication of the basic Gauquelin studies. The bulk of this work is being carried on by Suitbert Ertel and Arno Müller.⁴³ In addition, Françoise Schneider Gauquelin continues to repeat experiments, especially concerning their earlier hereditary results. Secondly we find the application of different models and methods in astrological research. Five good examples are: Beverley Steffert's and later studies of whether and how people can identify chart descriptions of their partners;⁴⁴ the Hill and Thompson redhead study;⁴⁵ Teresa Hamilton's work with character trait clusters;⁴⁶ Nick Kollerstrom's chemical precipitation studies;⁴⁷ and Mark Urban-Lurain's application of multi-variate analysis to astrological studies.⁴⁹

Steffert's study of happy and unhappy couples, showed that the analysis of single factor (such as Venus-Sun) comparisons proved useless in distinguishing the couples, or in characterizing the two groups. However, when astrologers and psychologists were given the whole charts, or in the case of psychologists, a personality inventory and temperament schedule, they were able to distinguish the two groups. The significance of the Hill and Thompson study is that redheadedness is unquestionably a genetic trait, and not one subject to psychological interpretation. They deliberately designed their experiment to test an astrologically significant hypothesis: whether Mars tends to cluster near the Ascendant (i.e., Mars rising) in redheads. So far, their study is standing up to replication. Kollerstrom's work goes even further, because it doesn't even involve living organisms! He studied chemical reactions involving metallic salts at the time of aspects of planets ruling those metals.

Hamilton worked with trait clusters, rather than individual words. Her data suggested that the Gauquelin Plus Zones are not quite the same for all planets. The significance of Mark Urban-Lurain's work - which he has extended considerably while working on his Ph.D. with Hans Eysenck - is that his method works with groups of planetary factors. While too mathematical in method for most astrologers to conceptualize, the philosophical underpinning is the same as delineation the way most astrologers understand it: that results appear because of *multiple* rather than single factors.

Beyond Empiricism

The scientific method is only capable of testing a hypothesis, and any hypothesis is dependent on a number of assumptions. A particular hypothesis might be that there is a correlation between the diurnal movement of the planets and certain forms of

behaviour. Behind that hypothesis lie other assumptions: for example, that behaviour can be measured. If the hypothesis is not confirmed by the experiment, it indicates that either the hypothesis is wrong, the assumptions are wrong, or the hypothesis cannot be proved or disproved using the methodology selected. Earlier this century, it was believed that the work of Karl Popper and his school would provide a basis for a complete theory of knowledge based wholly on objectivism. This has since been shown to be unrealistic.⁴⁹

The term 'paradigm' was popularized in Thomas Kuhn's 1962 work, *The Structure of Scientific Revolutions*.⁵⁰ This work, which has received much attention both by scientists and philosophers of science, attempted to consider what constituted "normal" science. By studying "normal" as well as "extraordinary" science, he reached a number of conclusions about how scientists actually work.

Kuhn concluded that science is practised within a framework that he called a paradigm. A paradigm is a set of beliefs about how the world works. These beliefs affect the questions one asks, the experiments one performs, and the conclusions one reaches.

Kuhn found that scientists operated within belief systems that served a constructive purpose in suggesting certain questions to investigate. Eventually, the underlying paradigms would prove to be imperfect. Evidence which could not be explained by the paradigm would accumulate. Initially, this evidence would be treated as "anomalous," and attempts would be made to explain it away, or the evidence would simply be ignored. Ultimately, enough contrary evidence would accumulate, and then a new paradigm would be put forward. Initially, experiments would be designed to test the predictive ability of the new paradigm (prediction is considered a necessary element of a paradigm, because without it there is nothing to investigate, and hence, no science), and if the new paradigm "worked," then the process of paradigm shift would occur. This shift process is more or less painful, being dependent on the relative importance of the paradigm being replaced and the degree to which the old paradigm is entrenched.

The point which emerges from Kuhn's work is that contemporary scientific method cannot be understood separately to the philosophical position which underpins its validity. The philosophy itself is a product of the twentieth century and may not make sense in the twenty first. The method is therefore not a means to discover absolute truth, but to justify the scientists' philosophy. Kuhn was a historian and the historical approach examines what scientists actually do as much as what they say they do. The historical approach therefore liberates us from the belief that astrology must be 'proved' scientifically in order to be 'true'. Instead astrologers can adopt approaches which are more sympathetic, such as Hermeneutics, in which the question is whether a statement is meaningful rather than whether it is statistically significant.

In summary, I suggest that the history of statistical work in astrology is not capable of ever fully "proving" or disproving astrology. Neither is any other single method. Various approaches can complement each other. In any case, I suggest that while multiple approaches are necessary, each method be used with open eyes: that we know and acknowledge the limitations of the tool as well as the benefits.

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Astrology: From Pagan to Postmodern?

by Patrick Curry

In August 1993 I was invited to speak to the Cambridge University History Summer School about astrology, as part of a series entitled "Beyond Reason?" The printed handout summarized its theme as how "historians approach aspects of human behavior and belief which cannot be explained in purely rational or material ways." Such a focus leaves out very little in human history, so it encouraged me likewise to enlist some undefended initial assumptions and several sweeping generalizations, plus a time-span of a few thousand years, in order to keep matters short and simple.

Whether astrology is pagan or postmodern, of course, it would in either case (according to the most correct authorities) be irrational. Now, themes for lecture series have to be stated briefly. But I don't think it is unfair to ask whether *anything* can be explained in a "purely rational or material way", and also (leaving aside that rather provocative "purely") what exactly is meant by "rational" here. That is a very big and controversial subject among philosophers, so let us again stick to the basics. My dictionary defines "rational" in two ways: firstly, the process by which conclusions are drawn from premises, and secondly, sensible, sane, moderate, not foolish or absurd or extreme. But logic has absolutely nothing to say about premises, so the most insane programmes can be (and have been) quite logical - the Third Reich's Final Solution, for example. There is also the awkward historical fact that what was perfectly sensible and moderate at one time - such as the proposition that the Sun goes around the Earth - became equally foolish and absurd a little later. And we have no trans-historical way of knowing which of our current beliefs will be so revised in the future.

I am not suggesting that we can proceed as if we had no beliefs, or as if they didn't matter; or as if we can do without a concept of truth. Neither as human beings nor as historians is that possible. But in the light of what I've just said, it seems only rational, or at least sensible, to suspend any too-firm opinions about what is "really" rational; to avoid loaded and simplistic pejoratives like "irrational"; and to take a closer look instead at the historical processes whereby certain human behaviours and beliefs came to be *taken*, by and large, as either one or the other.

Some historians of science have been doing this very well in recent years, showing clearly how modern science became the paradigm of rationality. My subject, however, has been that much-despised (but strangely persistent) example of irrationality, astrology. So in keeping with the strategy I have just advocated, let us ask: who, exactly, says so?

Astrology has a very, even bizarrely, long history. The word has not always meant exactly the same thing, of course; but it cannot be denied that people have been using it in a few relatively definite ways - within the broad meaning of interpreting the human or terrestrial meaning of the stars, and within a self-conscious tradition of others doing the same - for over two thousand years.

Criticism of astrology too shows an astounding continuity. In the years A.D., it has been led in the West by roughly three successive and powerful movements. First, and for longest, the Christian Church; second, modern science and its supporters, beginning in the late seventeenth century; and third, professional intellectuals taking