

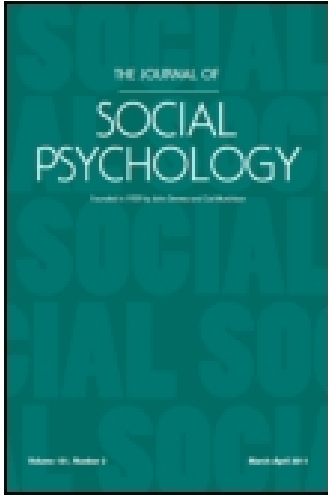
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### An Empirical Study of the Relation between Astrological Factors and Personality

J. Mayo<sup>a</sup>, O. White<sup>a</sup> & H. J. Eysenck<sup>a</sup>

<sup>a</sup> University of London

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AN EMPIRICAL STUDY OF THE RELATION BETWEEN  
ASTROLOGICAL FACTORS AND PERSONALITY\*

*University of London*

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J. MAYO,<sup>1</sup> O. WHITE, AND H. J. EYSENCK

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SUMMARY

This study reports a test of an astrological prediction according to which extraversion is related to being born under the odd numbered zodiacal signs, and introversion to being born under the even numbered zodiacal signs. Also tested is the hypothesis of greater emotionality for people born under the so-called water signs. Nine hundred seventeen male adult Ss and 1407 female adult Ss were administered the Eysenck Personality Inventory, and their birthdates ascertained. Results for males and females separately and jointly support the predictions made on the basis of astrological writings at a high level of significance. Possible causes for this finding are discussed, but it is concluded that artifacts are unlikely to have produced the results obtained.

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A. INTRODUCTION

In a recent issue of the journal *The Humanist*, 186 famous physical scientists signed a letter condemning astrology for being unscientific, their main argument being lack of acceptable evidence (2). Their failure to consider such evidence as exists to demonstrate a relationship between planetary position, or birth sign, and personality and other factors allegedly influenced by these astrological aspects of a person's birth (5, 6, 7, 8, 11, 12, 13, 14, 16) makes their arguments less persuasive than they might otherwise be. Another type of objection is voiced by Popper (19), who states that astrologers "by making their interpretations and prophecies sufficiently vague, . . . were able to explain away anything that might have been refutation of the theory, had the theory and the prophecies been more precise. In order to escape falsification they destroyed the testability of their

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<sup>1</sup> Reprints are available from the first author at the address shown at the end of this article.

theory" (p. 37). This criticism, too, is only partly true; astrology contains perfectly straightforward and precise predictions, and these can be tested by the usual methods of scientific inquiry. It is the purpose of this paper to describe one such attempt.

Traditional astrological theory states that when certain zodiacal signs are "strongly emphasized" in a birth chart, there will be a tendency for the *S* to be either more extraverted or more introverted, according to the sign or signs emphasized. The hypothesis states unequivocally that odd-numbered signs (Aries, Gemini, Leo, Libra, Sagittarius, Aquarius) show a tendency to *extraversion*, while even-numbered signs (Taurus, Cancer, Virgo, Scorpio, Capricorn, Pisces) show a tendency to *introversion* (3, 4, 15, 17, 18, 20). A secondary prediction, less clearly indicated but perhaps more widely known, is the alleged relation between the water signs (Cancer, Scorpio, Pisces) and emotionality; this would suggest that persons born under these signs would have elevated *N* (neuroticism) scores as compared to the rest.

#### B. METHOD

In order to test these two hypotheses, 917 male adult *S*s and 1407 female adult *S*s were administered the E.P.I. (9), and their E and N scores calculated. These *S*s had all asked the senior author for astrological predictions and agreed to filling in the questionnaire. The mean age of the sample was 35.

#### C. RESULTS

Table 1 shows the mean E scores for males and females, respectively, born under each of the 12 zodiacal signs, numbered consecutively from 1 Aries to 12 Pisces. The combined male and female scores are plotted in Figure 1; this shows clearly the expected saw-tooth pattern, with all six odd-numbered sign groups having E scores higher than average, and all 6 even-numbered sign groups having E scores lower than average. Figure 2 shows the values for males and females separately; considerable congruence will be noted. Table 1 also shows the mean N scores for males and females, respectively, born under each of the 12 zodiacal signs, again numbered consecutively; the water signs are numbers 4, 8, and 12. It will be seen in Figure 3, which shows the combined male and female values, that these three signs show peaks of high scoring, with all other signs except Aries having below-average means on N. The results are thus very much in line with the prediction.

Of all the predictions made, Aries seems the only one which is partly

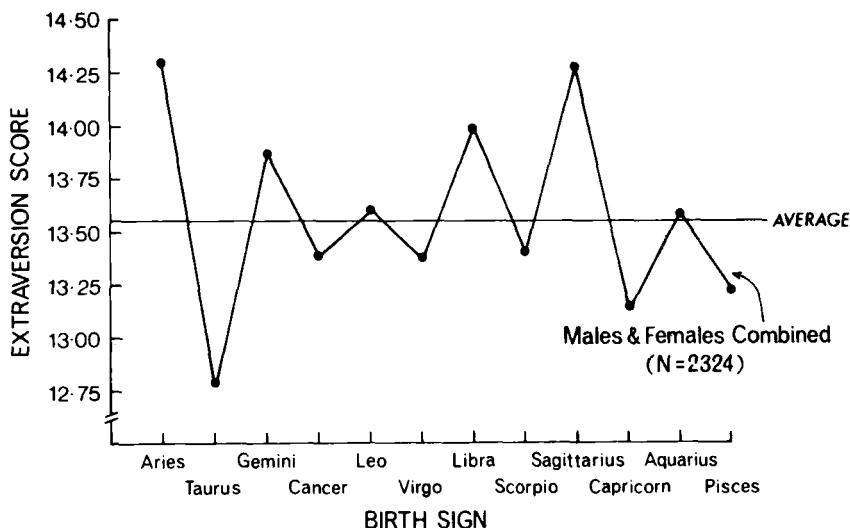


FIGURE 1  
EXTRAVERSION SCORES OF MALES AND FEMALES COMBINED FOR PERSONS HAVING  
DIFFERENT BIRTH SIGNS

misplaced. Persons born under this sign emerge as high on N and high on E, whereas only high E was predicted. The combination of high E and high N denotes in effect hysterical and psychopathic individuals (10); how does the actual pen-picture of Aries-born people, drawn up by astrologers, match up with reality? This is what Mayo (17, p.54) wrote concerning this type: "Essentially self-expressive, energetic and assertive, with qualities of enterprise and spontaneity. Is impulsive, self-assertive, restless, always wanting quick results and giving the impression of urgency. Develops initiative, enterprise, and pioneering and adventurous spirit. Naturally courageous and fearless. Attitude is 'me first,' rather than being naturally individualistic. Frank and direct. A go-getter, freedom-lover. Quick thinking, quick-witted, not reflective or philosophical." This description seems to fit the psychopath quite well, but of course this is hindsight, and should not be taken to explain away the failure of the prediction.

To test the hypothesis that persons born under the odd signs score higher on extraversion than do persons born under the even signs a three factor analysis of variance was carried out. The first factor with two levels was sex (S). The second factor, also with two levels was odd *versus* even (O). The third factor was a dummy factor (D) with six levels corresponding to

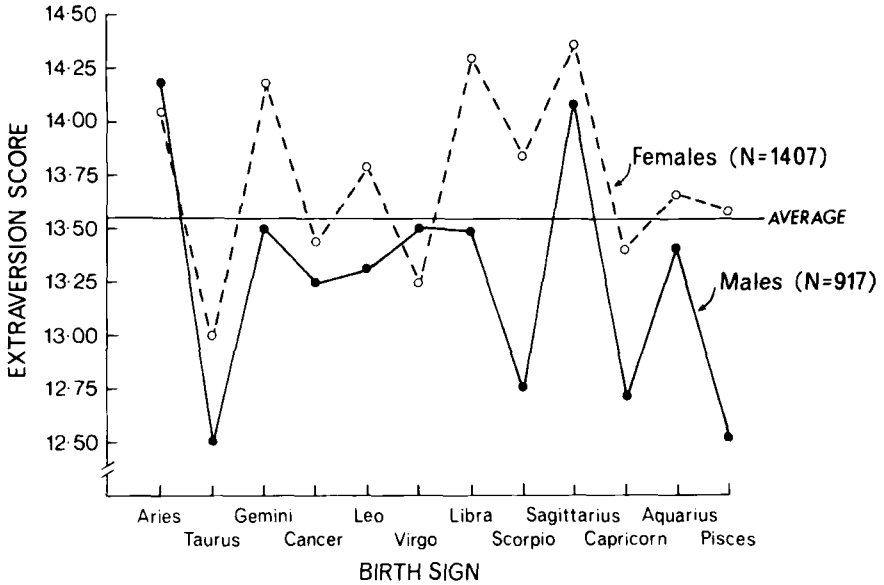


FIGURE 2  
EXTRAVERSION SCORES OF MALES AND FEMALES SEPARATELY HAVING DIFFERENT BIRTH SIGNS

the columns in Table 1. In this analysis all main effects and all interactions were tested against the pooled within cell variance ( $df = 2300$ ) as error term. Because of the arbitrary cell frequencies the parameters in the model are not statistically independent. Thus, for each significance test the parameter(s) for hypotheses are tested after the remaining parameters are eliminated.

The results of the analysis are summarized in Table 2. The hypothesis that *Ss* born under odd signs show higher extraversion scores is clearly supported. Although female *Ss* scored higher on average than male *Ss*, the odd-even differences are essentially equal for both sexes and for all 12 of the pairwise odd-even differences.

A similar analysis was carried out for *N*; the results are also shown in Table 2. Sex differences are the only significant ones to emerge, showing that as usual females have higher *N* scores. (With such large *N* values, *p* values greater than .025 will not be considered as significant.)

In order to test the hypothesis that *Ss* born under the "water" signs show higher neuroticism scores than do other *Ss* a second analysis of variance

TABLE 1  
MEAN EXTRAVERSION AND NEUROTICISM SCORES FOR MALES AND  
FEMALES BORN UNDER EACH OF THE 12 ZODIACAL SIGNS

Zodiacal sign	Extraversion				Neuroticism			
	Males		Females		Males		Females	
	Mean	N	Mean	N	Mean	N	Mean	N
1. Aries	14.16	74	14.05	112	13.66	74	14.76	112
2. Taurus	12.52	81	12.98	111	12.26	81	14.25	111
3. Gemini	13.53	91	14.13	117	11.84	91	14.22	117
4. Cancer	13.24	75	13.49	138	13.07	75	14.22	138
5. Leo	13.32	71	13.84	129	12.31	71	13.97	129
6. Virgo	13.53	70	13.22	111	11.93	70	13.90	111
7. Libra	13.51	76	14.32	100	12.49	76	13.08	100
8. Scorpio	12.76	79	13.84	113	12.63	79	14.47	113
9. Sagittarius	14.11	66	14.42	118	11.97	66	13.75	118
10. Capricorn	12.70	74	13.42	113	12.00	74	13.63	113
11. Aquarius	13.44	88	13.70	126	12.18	88	14.25	126
12. Pisces	12.54	72	13.61	119	13.64	72	14.77	119

was carried out on the neuroticism scores. In this analysis the three water signs (Cancer, Scorpio, and Pisces) were contrasted with the remaining signs separately for males and for females and the two degrees of freedom were pooled for a single test. The mean-square ratio of 4.4920 when

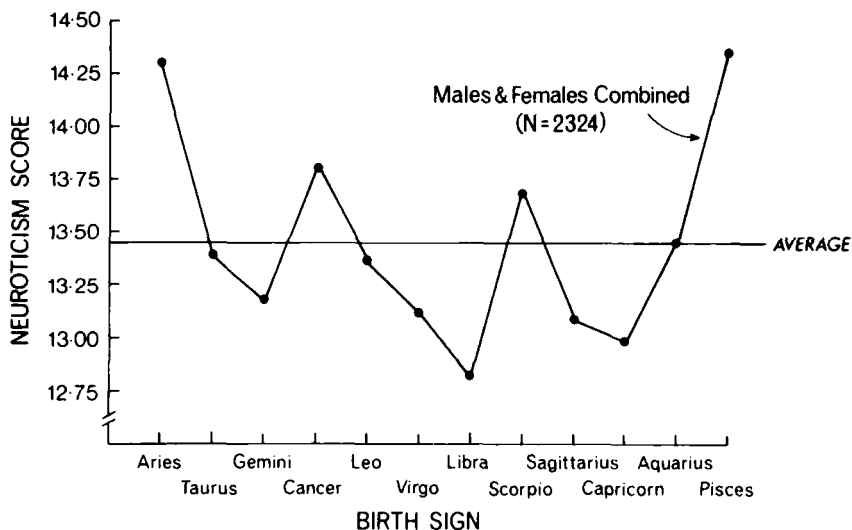


FIGURE 3  
NEUROTICISM SCORES OF MALES AND FEMALES COMBINED HAVING DIFFERENT  
BIRTH SIGNS

TABLE 2  
ANALYSES OF VARIANCE ON EXTRAVERSION AND NEUROTICISM SCORES

Source	df	Extraversion		Neuroticism	
		MSR	p	MSR	p
Sex (S)	1	8.83	.003	69.58	.0001
Odd versus even (O)	1	20.83	.0001	.98	.32
Dummy factor (D)	5	.45	.81	2.35	.04
S × O	1	.22	.64	.0031	.96
S × D	5	.63	.67	.21	.96
O × D	5	1.34	.24	2.43	.03
S × O D	5	.63	.68	1.12	.35

compared to the *F*-distribution on 2 and 2300 degrees of freedom yields a significance level of .0113.

#### D. DISCUSSION

It is clear that the results are in good agreement with the hypotheses outlined at the beginning of this paper: Is there any alternative explanation to that suggested by astrology? The only alternative which occurred to us is that some of the *Ss* might have known about the connection between personality and zodiacal birth sign traditionally posited by astrologers, and that consequently they might have altered their questionnaire responses in agreement. There are two reasons for disbelieving this hypothesis. In the first instance, the relation between the water signs and emotion is much more widely known than that between extraversion-introversion and the odd-even numbered birth signs; yet the former hypothesis was much less strongly supported. Our alternative hypothesis would have led us to expect the opposite. In the second place, about one-third of the *Ss* had some knowledge of astrological principles, two-thirds did not. An analysis of the scores obtained from these two groups did not show any significant differences, suggesting that knowledge of astrological principles was not a casual factor. We cannot in the nature of things rule this alternative hypothesis out completely, but it does not seem to us to account for the facts. It is a weakness of the study that only *Ss* are included who requested astrological predictions from the senior author—i.e. who were not a random sample of the population. It is difficult to see how any selection along these lines could have produced the results obtained however, and we do not believe that this constitutes a serious weakness of the experiment.

What we may conclude from this study is surely that the astrological hypotheses tested have not been disconfirmed; using the usual standards of



psychological testing we may say that the hypotheses have in fact been strongly supported. In view of the unusual nature of the connections found, it might be safer to wait for confirmation before making any claims for these findings; let us merely state that they may present some difficulties to those who maintain the negative position vis-a-vis astrology characteristic of the signatories of the "objections to astrology" group, or of Popper and other like-minded philosophers.

Critics might justifiably point out that the effect observed is rather slight; differences are of the order of 1 point or so for both E and N. This should be seen in relation to *SDs* of between 4 and 5. Such an objection would of course reduce the practical value of our finding (even assuming it could be replicated); it cannot argue away the fact that highly significant relations were found in the investigation, and that these relations were in the predicted direction for the most part. This finding still requires an explanation.

Our results, should they be found replicable, are not to be derived from any theoretical considerations likely to be discovered in textbooks of psychology. The predictions made by astrologers are presumably made in terms of more or less systematic observations over the centuries, and our own observations merely make these more precise; there is still no obvious theoretical under-structure. This is possibly supplied by Addey (1), whose work on harmonics in astrology certainly links our findings with a much wider circle of theoretical and empirical studies. It would be idle at the moment to enter into a detailed discussion of the possible relevance of his hypotheses to our findings, but should replication be forthcoming it might be worth looking at the results from his point of view.

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*The Mayo School of Astrology*

*Piper's Wood*

*Slackhead*

*Milnthorpe*

*Cumbria, England*