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COMMENTARY

The Mars Effect Is Genuine: On Kurtz, Nienhuys, and Sandhu's Missing the Evidence

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Abstract—Kurtz, Nienhuys, and Sandhu (1997), instead of explaining the anomaly in their planetary data that we discovered (Ertel and Irving, 1997), launch a broadside attack against all claims of Gauquelin-type correlations. In our rejoinder, we provide evidence for highly significant Mars-effect results based on the skeptics' own samples. Regarding CSICOP's data problem, we suggested an inoffensive explanation, but Kurtz, Nienhuys, and Sandhu have, to date, precluded access to their original documents. Moreover, after looking at additional cues introduced by the skeptics themselves, we found the significance of CSICOP's data anomaly more conspicuous ($p = .001$) than with our earlier finding ($p = .02$). The skeptics' rejection of our evidence is thus unfounded.

Keywords: Mars effect — planetary correlations — skeptics — CSICOP — selection bias — IMQ-ISMQ

Introduction

An anomaly was uncovered in CSICOP's birth data of athletes. The validity of Kurtz, Zelen, and Abell's devastating verdict (1979/80) on the Mars effect was therefore questioned (Ertel and Irving, 1997). Rather than reply to our critique, Kurtz, Nienhuys, and Sandhu (1997) take two tacks. First, they discredit all planetary correlations ever reported by the Gauquelins, Ertel, or Müller. Second, they resort to ad hominems, accusing us of "tactics, tricks, tinkerings, irresponsible insinuations," usage of "abstruse" methods and "statistical manipulations," etc. We will deal with the first only, except where the second can be addressed by factual corrections. We also provide new results regarding our original question: Where did the anomaly in CSICOP's data come from?[1]

[1] The Kurtz, Nienhuys, and Sandhu (1997) article ignores nearly all of the 50 comments on an earlier draft we offered prior to its publication.

The Athletes' Mars Effect

Our critics' attack on planetary effects fails in view of compelling counterevidence: Gauquelin's Mars-effect results are *replicated by the data of his most critical opponents.* Frequencies of athletes' births occurring while Mars is crossing the 36 sectors of its daily circle are given with deviations from expected frequencies (Figure 1).[2] The dashed curve is based on Gauquelin's total (N = 4,384), the solid curve on the skeptics' total (N = 1,664) to which Committee PARA (CP) (Belgian), CSICOP (United States), and CFEPP (French) contributed (by N = 535, 408, and 1,066, respectively), with overlap cases among skeptics excluded. It can be seen that the skeptics' and Gauquelin's results hardly diverge, and Kendall's Tau correlation between the two curves is highly significant (z = 3.44, p = .0003).[3]

Is there a Mars effect, i.e., an above-chance deviation of people born with Mars in "sensitive" sectors (generally designated as G%)? Narrow and Gauquelin-extended definitions of planetary G% have been proposed:

1. The narrow (classical) definition is as follows: The percentage of births with the planet in *primary* sectors—i.e., sectors 1, 2, or 3 (region after rise) and 10, 11, or 12 (after culmination). "Main sectors" (abbreviated *M*) is an alternative term.
2. The Gauquelin-extended definition is the percentage of births as per the narrow definition plus the percentage of births in *initial* sectors 36 (just before rise) and 9 (just before culmination) (abbreviated *I*).
3. According to the Nienhuys-extended definition, the percentage of births in sectors 19, 20, and 21 (after set) and 28, 29, and 30 (after lower culmination) are added to the percentage of the Gauquelin-extended definition. Nienhuys called the set and lower culmination sectors, along with initial sectors 9 and 36, "*secondary* sectors" (abbreviated *S*).

Is Definition 3 justified? Gauquelin had noticed early on that births of sports champions clustered in secondary sectors, although less conspicuously than in primary sectors. However, he never considered them, as in Definition 3, nor did he mention them in the course of the Mars-effect debate with skeptics. Secondary sectors were also generally neglected in the skeptics' studies. Definition 1 was generally taken as binding.

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[2] Figure 1 shows deviations from expectancies, not expectancies; zero deviations thus represent a straight line (dotted horizontal) even though the expectancies are not quite uniform as in Figure 2 for births of physicians (expectancies are almost identical for Figure 1 athletes and other samples).

[3] Thirty-two percent of the skeptics' athletes are part of the larger Gauquelin sample. But this does not explain why the skeptics' and Gauquelin's Mars-effect deviations are alike. If the effect were due to Gauquelin's selection bias, it should not reappear in a sample gathered entirely by those highly skeptical of the effect. The Belgian sample was mildly affected by Gauquelin who assisted the data collectors (Ertel's discovery of 1996). However, indications of a Mars effect are present even after amending the sample (by adding data formerly excluded from the sample) or by analyzing the skeptics' data without the Belgian contribution (Ertel, 1998).

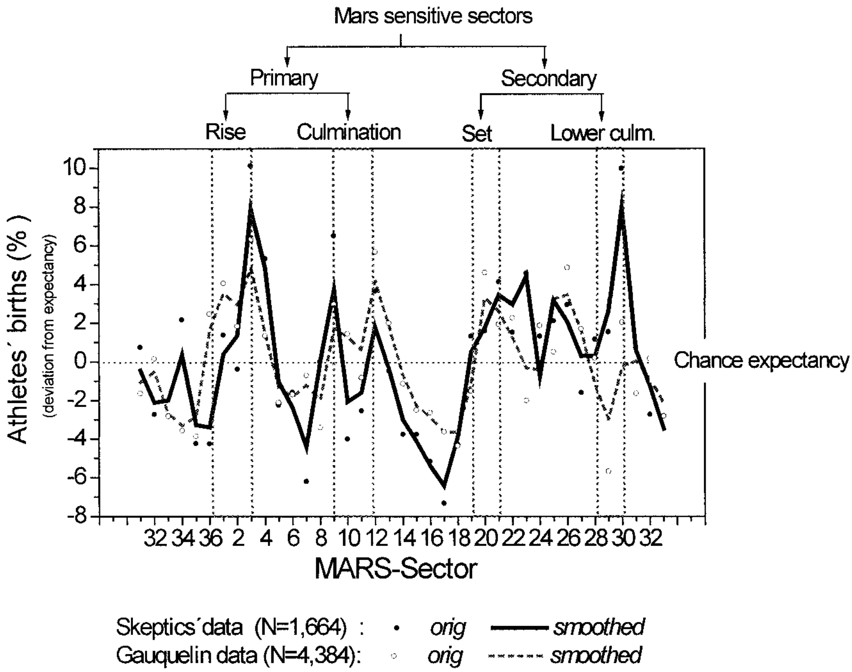

Fig. 1. Count of athletes' births (deviations from expectancy) across 36 Mars sectors, primary sectors (rise, culmination), and secondary sectors (set, lower culmination). Samples: skeptics (CP, CSICOP, CFEPP, N = 1,664), solid line and full circles; Gauquelin (published and unpublished, N = 4,384), dashed line and open circles.

Interestingly, Nienhuys observed a considerable surplus of births in secondary sectors among data that Gauquelin urged the CFEPP to consider for its study (Benski et al., 1996, p. 125ff). He took this as support for the view that Gauquelin's data selections were biased without realizing that such insinuation was astray, because by adding Gauquelin's secondary sector cases, the CFEPP's Mars effect (by the agreed-upon Definition 1) cannot increase; on the contrary, the effect drops. Because Nienhuys took secondary sectors to support the skeptics' case, we deem it legitimate to consider them too expecting that via Definition 3, they will actually add pertinent information.

Mars birth percentages (G%) for the above three definitions are given in Table 1, separately for the Gauquelin, the skeptics', and both samples combined. (The raw data, birth frequencies across all 36 Mars sectors, are available on a Web-site.[4]) The binomial test shows that for the combined sample

[4] Check with Internet URLs from Jim Lippard and Ken Irving: http://www. discord.org/skeptical/astrology and http://www.primenet.com/kirving. Quite a few articles and discussions on the Mars-effect debate, book reviews, and a chronology of pertinent events are accessible there.

TABLE 1
Main Results Based on the Gauquelin and the Skeptics' Data Sets for Mars-Effect Definitions 1, 2, and 3 (Narrow, G-Extended, and *N*-Extended)

		1	2	3	4	5	6
Data	Definition	*N*	Obs.	Exp.	Mars G%	*p*	Kappa
Gauquelin	1	4,384	851	766	19.4	.0003	.023
	2	4,384	1,129	1,020	25.8	.00004	.032
	3	4,384	1,824	1,711	41.6	.0002	.042
Skeptics	1	1,664	305	291	18.3	.17	.010
	2	1,664	404	388	24.3	.16	.013
	3	1,664	700	651	42.1	.005	.050
Combined	1	4,839	913	846	18.9	.004	.017
	2	4,839	1,214	1,126	25.1	.001	.024
	3	4,839	1,985	1,889	41.0	.002	.033

Note: N = total number; Mars G% = percentage of cases with Mars in G sectors; Obs. = observed frequencies; Exp. = expected frequencies (percentages 17.4, 23.2, and 39.0 for definitions 1, 2, and 3 respectively); p = error probability; Kappa = effect size.

and the Gauquelin sample alone the Mars effect is statistically very significant, whatever its definition. For the skeptics' sample alone, the Mars effect reaches this level only with Definition 3.

The skeptics' lower G% and less extreme *p* values are due, above all, to the inclusion of less eminent athletes (Ertel and Irving, 1996)[5] apart from the smaller size of their sample.

Regarding effect size, though it is lower for the skeptics' G% with Definitions 1 and 2, it is larger with Definition 3. In view of the above results and of additional evidence for the Mars effect in the skeptics' data (Ertel, 1994, 1996), our critics' allegation that the Mars effect is a mere "illusion" (Nienhuys in Benski et al, 1996) should be rejected.

The Physicians' Saturn and Mars Effects

Kurtz, Nienhuys, and Sandhu (1997, footnote 10) discredit Müller and Ertel's (1994) test of planetary effects with members of the French Académie de Médecine. The aim of that study was to replicate Gauquelin's 1955–1960 planetary correlations, based on the 1939 edition of the academy's directory ($N = 576$ members), now using the larger 1972 edition with $N = 915$ members.

Counts of the physicians' births across Mars and Saturn sectors are shown in Figure 2. Birth excess occurs in rise and culmination zones. The error prob-

[5] Effects by Gauquelin's selection bias were undone by reuniting his unpublished cases (N = 1,503) with his published cases (N = 2,880). By contrast, the skeptics' samples remained uncorrected. Benski et al. (1996) refused to correct them, even in those cases where they acknowledged Gauquelin's criticisms as justified.

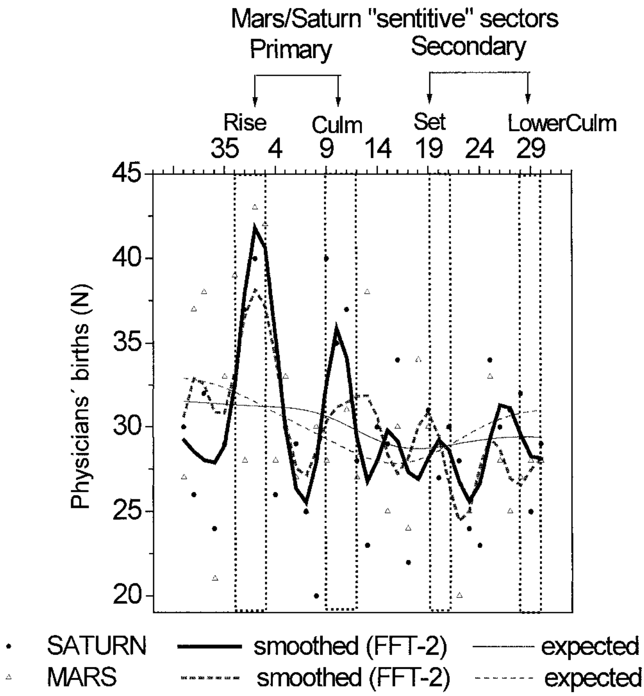

Fig. 2. Count of births of members of the Académie de Médecine across Saturn and Mars sectors. (Saturn: solid line and full circles; Mars: dashed line and open triangles; expected frequencies: thin lines, Saturn solid, Mars dashed.) (From Müller and Ertel, 1994, N = 1,083.)

abilities for Mars G% and Saturn G%, using Definitions 1, 2, and 3 are .06, .05, and .08, and .00007, .0005, and .03, respectively.[6] Birth frequencies across 36 Mars and Saturn sectors, as deviations from expectancy, are significantly correlated (rho = 0.43, p = .004). Müller and Ertel´s study (1994) was in no way influenced by Gauquelin. Kurtz, Nienhuys, and Sandhu's (1997) discounting of planetary effects in this sample as due to a "Gauquelin bias" thus cannot apply.

Eminence Trends

Regarding tack two—the attempt by Kurtz, Nienhuys, and Sandhu (1997) to raise suspicion about their critics' trustworthiness—we restrict ourselves to the eminence issue. "The eminence hypothesis falls dead flat" (Kurtz, Nien-

[6] For physicians, unlike athletes, significance levels of G-sector percentages decrease from Definition 1 to Definition 3. Relative contributions of primary and secondary sector frequencies to overall effect indicators thus vary among professions. The problem, although interesting, is not crucial.

huys, and Sandhu, 1997, p. 32). Question: Does G% increase with eminence in Gauquelin's data only (Ertel, 1988)? Answer: No. Eminence trends are also present in the skeptics' data, as shown in Figure 3. The three slopes are based, from bottom up, on Mars-effect Definitions 1, 2, and 3, and as in the case of general effect size (see above), the correlations improve as the definition is extended. In fact, by Definition 3, all six G percentages are above the line of chance expectancy and the regression is almost perfect. For the skeptics' data, eminence trends by Kendall´s *S* for ordered contingency tables are significant (one-tailed tests), error probabilities being $p = .003$, $p = .001$, and $p = .0003$ for Mars-effect Definitions 1, 2, and 3, respectively.[7]

The results in Figure 3 are based on Ertel citation counts. Supposing these counts were flawed, as Kurtz, Nienhuys, and Sandhu (1997) would have it, the skeptics' own sources of eminence information should not replicate Ertel's results. Pertinent tests, however, checked by six independent researchers, strongly confirm them (see Ertel, 1998/99). In view of these results, Kurtz, Nienhuys, and Sandhu's (1997) quibbling on Ertel's eminence procedure lose weight. Our critics merely stir up error variance by pointing at alleged faults of our use of biographical dictionaries (that they also contain items "not related to sporting achievement," etc.), disregarding the simple fact that part of any observed variance is error variance. Objectivity, i.e., the desired exclusion of subjective judgment, demands an inevitable price, an increase of error variance which, however, is unsystematic and therefore harmless and tolerable. The question at issue is not the presence of error variance and a corresponding decrease of precision, but rather how to explain highly significant covariance between citation counts and G% *despite* such a decrease of precision.[8]

The Anomaly in CSICOP's Data

We remind readers of our earlier discovery (Ertel and Irving, 1997) that the CSICOP data showed an inflated IMQ (initial/main sector quotient) of 1.58 (IMQ was introduced in Ertel and Irving (1997), and it represents the birth frequencies in the initial sectors divided by the average of birth frequencies in

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[7] In Ertel (1996), using all Gauquelin professional data, differences between Definition 2 and 3 are investigated extensively. Definition 3 yields greater effect sizes generally while significance levels do not increase much, if at all. The choice among trend tests is arbitrary, but the results are generally alike. Significance levels by Kendall's Tau correlation for narrow, G-extended, and N-extended trends are .014, .014, and .005, respectively. For Spearman's rho, significance levels are .005, .011, and .009. Nienhuys criticized the eminence trend with Definition 3 as being "too good to be true." He alleged that it was due to "manipulations" performed "not blind," which in his view was "an alarming revelation" (Nienhuys, 1997). A charge of fraud is unmistakable. Unfortunately, the editor of Skeptiker did not allot any space for Ertel's defense consisting of abundant counterevidence. A reply appeared elsewhere (Ertel, 2000).

[8] Space allotment does not allow for providing grounds for rejecting Kurtz, Nienhuys, and Sandhu's (1997, p. 29) contention that Ertel and Irving's (1996) use of dictionaries was inconsistent.

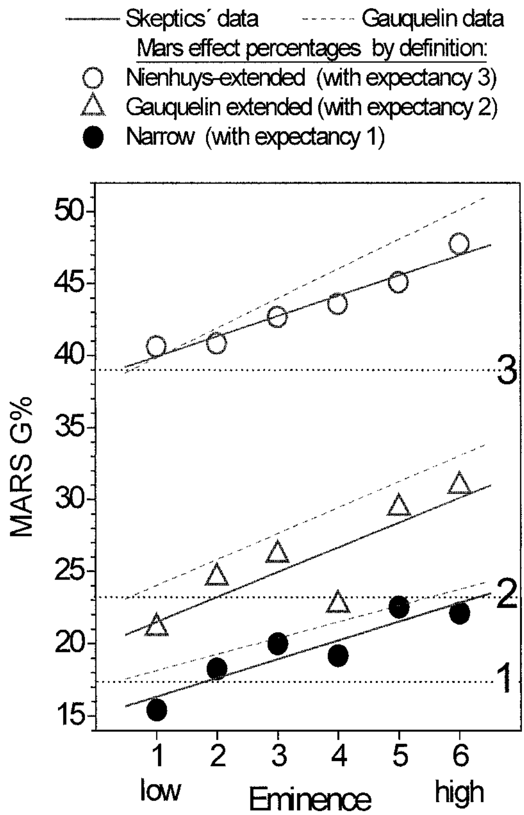

Fig. 3. Percentage of births with Mars in critical G sectors (Definitions 1, 2, and 3), breakdown for six eminence ranks. Data: The skeptics' athletes total (N = 1,664). Expectancies for Mars-effect Definitions 1, 2, and 3 are given as horizontal lines. Dashed slopes represent regression lines based on Gauquelin athletes (N = 4,384).

the main sectors). Here, the expected IMQ is 0.95. In other words, main sector athletes in the CSICOP data, which would be considered as desired candidates in regard to Gauquelin's Mars-effect hypothesis, seemed to be missing (i.e., missing denominator cases M raised IMQ from 0.95 to 1.58) compared to cases with Mars in the seemingly harmless initial sectors, who remained unaffected.[9] Was this due to rare chance, despite statistical significance (p = .02), or had CSICOP researchers excluded main sector athletes (leaving initial sector cases, not yet relevant at the time of their experiment, untouched), thus

[9] According to our estimate (details must be renounced), a deficit of about 25 Mars-positive cases exists in CSIOP's sample, which estimate is conservative (by adding 25 such cases, the corresponding IMQ would come down from an inflated 1.45 to an almost uninflated 1.09).

TABLE 2
IMQs and ISMQs for CSICOP's and Comité PARA's Data

1	2	3	4	5[a]	6
Sample	Sector category	f	Average per sector	IMQ ISMQ	p
CSICOP	Initial	29	14.5	1.58	.02*
(N = 408)	Secondary	115	14.4	1.57	.001**
	Main	55	9.2		
Comité PARA	Initial	27	13.5	0.69	.02*
(N = 535)	Secondary	121	15.1	0.77	.17
	Main	118	19.7		
Ordinary people	Initial	1,341	670.5	0.96	—
(N = 24,614)	Secondary	5,203	650.4	0.93	—
	Main	4,211	701.8		

Note: f = summed birth frequencies; IMQ = birth count average across initial sectors divided by birth count average across main sectors; ISMQ = as per IMQ, nominator includes births in secondary sectors. Ordinary people results are used for expectancies. Initial sectors are 9 and 36; secondary sectors are 9, 36, 19, 20, 21, 28, 29, and 30 (initial sectors are included); and main sectors are 1, 2, 3, 10, 11, and 12. Column 4 represents the average per sector for the two initial, eight secondary, and six main sectors. Column 6 represents X^2 goodness-of-fit test (expectancies from ordinary people).
[a] Examples for the first two values of column 5 are as follows: IMQ = 14.5/9.2 = 1.58 and ISMQ = 14.4/9.2 = 1.57 (numerator and denominator values taken from column 4).
* significant. ** very significant.

lowering G% of Definition 1, while increasing tampering detector IMQ? We did not feel entitled to draw ultimate conclusions. The question, legitimate in view of our observations, is still in want of an answer.

Fortunately, more pertinent information is provided by CSICOP's data. The "I" of IMQ is based on only two neglected sectors (9 and 36) considered in Mars-effect Definition 2. But, as noted earlier, Nienhuys introduced secondary sectors 19, 20, 21, 28, 29, and 30 in the Mars-effect debate, the sectors we added in Definition 3. We therefore feel entitled to replace IMQ with ISMQ (initial plus secondary sector birth counts divided by main sector birth counts). If CSICOP's inflated IMQ were fortuitous, as Kurtz, Nienhuys, and Sandhu (1997) would have it, the ISMQ—whose numerator IS (initial and secondary sectors) represents an average of births per sector for more than twice as many neglected sectors—should drop and might no longer be significant.

The results, provided in Table 2, contradict Kurtz, Nienhuys, and Sandhu's "rare chance" hypothesis, as the ISMQ does not drop (ISMQ = 1.57, IMQ = 1.58). The ISMQ's inflated level, based on more nominator cases than the IMQ's level, is in fact more significant (p[ISMQ] = .001 versus p[IMQ] = .02) (see Table 2[10] for the rest of the results).

TABLE 3
Counts of CSICOP Athletes' Births in Main, Initial, and Secondary Sectors (Columns 1–4), IMQ and ISMQ With Chance Probabilities (Columns 5–8), Breakdown for Unproblematic Batch 1 (Row 2) and Problematic Batches 2 and 3 (Row 3), and Differences (Row 4)

		1	2	3	4	5	6	7	8
Batch		*N*	Main sectors	Initial sectors	Secondary sectors	IMQ	p_{IMQ}	ISMQ	p_{ISMQ}
1	Total	408	55	29	115	1.58	.026*	1.57	.001**
2	Batch 1	128	25	6	35	0.72	NS	1.05	NS
3	Batch 2 & 3	280	30	23	80	2.30	.001**	2.00	.001**
4	Difference batch (2 & 3) vs. batch 1	—	—	—	—	1.58	.02*	0.95	.04*

Note: IMQ = birth count average across initial sectors divided by birth count average across main sectors; ISMQ = as per IMQ, nominator includes births in secondary sectors. *p* by chi square in rows 1 to 3. *p* by Fisher's exact test in row 4.
* significant. ** very significant.

ISMQ analysis allows for another scrutiny. As noted earlier, CSICOP researchers' data anomaly appeared in their second and third batches only, collected with an apparent fear of failure, not in their first batch collected with hope of success and thus without bias. Batch 1 results were surprisingly pro-Gauquelin. An inconspicuous IMQ and ISMQ (the two bias indicators) is therefore expected for Batch 1 while the two quotients should rise with Batch 2 and 3. Results in Table 3 are as expected (for IMQ, see columns 5 and 6, and for ISMQ, see column 7 and compare lines 2 and 3). An increase of IMQ and ISMQ from Batch 1 to Batch 2/3 is apparent in line 4 of Table 3, and both shifts are significant by Fisher's test.[11]

Despite an increase of evidence for the reported anomaly in CSICOP's data, it should be maintained that one cannot be absolutely certain that they are due to case selections corrupted by knowledge of Mars positions. But this question may be resolved by checking certain documents in the files at CSICOP's headquarters in Buffalo, New York. We suggested, "CSICOP might invite

[10] To avoid laborious randomization, ISMQ's significance was based on Fisher's exact test. Gauquelin's "ordinary people" (N = 24,614, see table 2) served as controls. Fisher´s significance level for CSICOP's IMQ (p = .02) compares to our former p = .02 from randomization and may therefore be trusted. An unexpected large *negative* deviation of IMQ for the Belgian (Comité PARA) data disappeared with the ISMQ and was thus apparently random. The only still unexplained anomalous results (IMQ and ISMQ) are CSICOP's.

[11] Kurtz, Nienhuys, and Sandhu (1997) attempted to reject our IMQ indicator through use of a computer simulation. A critique of this case must be renounced here. (The respective section of our paper is obtainable, on request, from S.E.)

critical non-CSICOP researchers to check the original lists of data and the correspondence with birth registry offices." Has CSICOP acted accordingly? To date, we know of no independent examination; one CSICOP-friendly associate who was invited to check with CSICOP's files eventually resigned.

Conclusion

The anomaly in CSICOP's database remains unexplained. Kurtz, Nienhuys, and Sandhu have ignored our readiness to invalidate, by finding appropriate proof among CSICOP documents, one reasonable, though possibly correctable, explanation.

But one need not insist on resolving this ambiguity. It is in fact inconsequential because, as Figures 1 and 3 and Tables 1 through 3 have shown, CSICOP's data, despite obvious distortions, still contribute to an unambiguous overall Mars effect. So do the data of the French Skeptics who wanted to get rid of it (Ertel, 1998/99). In our view, the evidence for Gauquelin's Mars effect today is stronger than ever before. It seems so strong, that the skeptic committees' allegation that "it isn't there" is almost as enigmatic as is the fact that it *is* there. It is time to face the reality of Gauquelin's tenacious planetary phenomena and to design the next stage of research .

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