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EDITORIAL

On a few previous occasions I've documented my misgivings over certain terminological fads or conventions in parapsychology. In fact, I've done so in this *Journal* (Braude 1998). I'm now writing an entry on macro-PK for a promising new handbook of parapsychology (a long-overdue update to Wolman 1977), and this exercise has reminded me about a concern I expressed many years ago (in Braude 1997), and which I hope is worth mentioning again.

One of the most widespread views within parapsychology is that there is a viable distinction between micro and macro forms of psychokinesis. The general (and rough) idea is that there's a difference worth making between (on the one hand) apparent PK on the kinds of systems used in most laboratory PK experiments (i.e. random event generators of one kind or another), and (on the other hand) PK of the sort reported from mediumistic séances and poltergeist cases (e.g., object levitations, apports, and materializations).[1] However, there are reasons for thinking that the distinction between micro-PK and macro-PK might not be worth making—or at the very least that it's in critical need of clarification. So let's look at it more closely.

Note, first of all, that that it's unclear how "psychokinesis" should be defined, even provisionally (see Braude 2002). Nevertheless, the following would be a reasonable and relatively undogmatic beginning. Let's define "PK" as "the causal influence of an organism's mental state on a region *r* of the physical world, without any currently scientifically recognized physical interaction between the organism's body and *r*."

This definition obviously leaves certain questions open. For example, because it doesn't specify that region *r* is *extra-somatic*, it leaves open the possibility that PK might operate on the organism's own body. Given our present (and still considerable) state of parapsychological ignorance, this feature of the definition would seem to be a virtue. Some have suggested that ordinary volition might be a form of PK in which an intention directly produces a bodily change. Similarly, psychosomatic ailments and self-healing through hypnosis might be classed as types of PK. For now, it would be hasty to rule out these possibilities by definition.

I realize many recoil at what they usually—and disparagingly—label *negative* definitions, that is definitions framed in terms of our ignorance, or in terms of what the thing defined is not. In fact, some would argue that when we say that a puzzling phenomenon is due to PK (or, similarly,

telepathy or clairvoyance) we're actually saying that the phenomenon can't be explained. But these objections are seriously confused. First, explaining a phenomenon in terms of PK as defined above actually does have content.[2] It entails (a) that the phenomenon is not produced by ordinary means (including trickery), and (b) that a necessary condition of the phenomenon's production is a mental state of some kind, even if rudimentary—either a conscious or unconscious willing or intending, or perhaps something more along the lines of an undirected emotional outburst (say, in a poltergeist case). It may also entail that the agent's state is an efficient or proximate (i.e. unmediated) cause of the phenomenon.

Second, although to explain a phenomenon in terms of PK (telepathy, etc.) is not to offer a *theory* of PK (telepathy, etc.), there's no reason to demand (as some do) that we be able to provide such a theory. In fact, anyone who thinks we need a theory of PK to invoke PK as an explanation simply doesn't understand the logic of explanation. As Michael Scriven correctly noted in connection with telepathy,

> To explain a remarkable performance by a stage mentalist by saying that he memorizes a list of key words may be perfectly legitimate, even though one cannot give an explanation of the phenomenon of memory. Explanations all come to an end; explanations all leave other things unexplained. Explanations [in terms] of telepathy are perfectly legitimate, even though telepathy is not explained. (Scriven 1976:193)

Now most parapsychologists use the categories of micro-PK and macro-PK as if they marked a distinction between genuinely different and possibly independent kinds of phenomena. Typically, parapsychologists use the term "micro-PK" to refer to those PK phenomena whose existence can be demonstrated only by statistical tests. The underlying idea is that REGs, if left to themselves, will inevitably produce apparently nonrandom sequences, and dice will land with a face up independently of any PK influence. What inclines us to regard certain such sequences or events as evidence for PK is their statistical improbability. By contrast, no quantitative analysis is needed to conclude that an apparent table levitation or materialization is an ostensibly paranormal phenomenon. So the distinction between micro-PK and macro-PK seems in practice to be no more than a distinction between two methods of determining ostensible paranormality. But in that case, it would seem more appropriate to rename it the distinction between quantitatively and qualitatively anomalous PK.

However, there's more here than meets the eye. If the distinction is so straightforward, why use the terms "micro" and "macro"? Why, for example, should dice tests provide evidence of micro-PK? One can understand the use of "micro" in connection with tests in which PK appears to affect (say) radioactive

decay or thermal noise. But dice are observable objects, and it seems odd to call PK influence on dice micro-PK simply because statistical tests are needed to determine whether a PK effect occurred. After all, if a die levitated, the phenomenon would probably not be considered an instance of micro-PK.

Nevertheless, there may be a reason for this peculiar terminology. It may be a holdover from a more traditional use of the micro/macro distinction in PK research, one that reflects an underlying general view of how PK works. (And incidentally, this common presupposition reveals another respect in which there's plenty of meat in the hypothesis of PK, defined "negatively.") To the extent there's a received view within parapsychology on the nature of PK, it's that every observable PK effect is a causal consequence of PK effects on systems too small to be observed by the naked eye. Presumably, the original use of "micro-PK" was to refer to these unobservable events, so that they could be distinguished from PK effects on observable systems. But curiously, from that theoretical standpoint it would seem as if the term "macro-PK" had little or no utility. One would think that if micro-PK and macro-PK were distinct phenomena, then macro-PK would be the direct PK influence on macroscopic systems, bypassing the sorts of microscopic causal interactions ordinarily thought to be causally necessary for the macroscopic events in question. But PK on observable systems, unmediated by PK on the micro level, is precisely what the received view rejects.

So it seems that the present confused situation in PK theory has at least the following two outstanding features. First, parapsychologists tend to use the term "micro-PK" in two distinct ways. According to one, it refers to

(a) PK phenomena detectable only by means of statistical tests.

According to the other, it refers to

(b) PK effects on systems too small to be observed by the naked eye.

Second, considering the prevailing view that primitive PK effects occur only on the micro level, sense (b) of "micro-PK" has no corresponding contrast with "macro-PK." On the received view of PK, it would be a mistake to treat REG deviations or thermistor fluctuations—but not table levitations, spoon bending, or materializations—as evidence for micro-PK. According to the received view, all PK evidence is ultimately evidence for micro-PK. But then there's no clear and non-arbitrary way in practice to distinguish micro-PK from macro-PK, because in order to have *evidence* of micro-PK, there must be some observable effect, whether it's an overt object movement, instrument reading, arrangement of balls in a cascade, or a flashing light.

So when "micro-PK" is used in sense (a), the micro/macro distinction has limited taxonomic value but no explanatory utility. And when it's used in sense (b), the distinction has at least possible explanatory value but no taxonomic utility.

As it happens, the explanatory value of the second sense of "micro-PK" is itself highly questionable. There are serious reasons for doubting the prevailing view that all observable PK effects result from PK interactions on the level of the very small. That's because it may be a deep mistake to suppose that observable PK phenomena can be explained in terms of underlying processes or mechanisms. However, that thread must be pursued on another occasion (but see Braude 1997 for more details).

At any rate, given the fuzziness of the micro/macro-PK distinction, it's hardly surprising that researchers display no more clarity when considering whether those two alleged forms of PK are nomologically continuous. For example, should we assume that PK influence on dice or RNGs results from processes fundamentally like those that produce object levitations, materializations, or D.D. Home accordion renditions? That is, should we regard all these forms of PK as manifestations of a single, and as yet mysterious, process? Or should we regard the superficial dissimilarities among the various PK phenomena as manifestations of deeper differences? Parapsychologists undoubtedly have hunches about which of these two general pictures of PK is closest to the truth. But research in the field is nowhere near the point where we can confidently choose one over the other. One would think, then, that theorizing about PK would reflect or acknowledge our ignorance concerning the possible unity of PK phenomena.

But in fact, a great deal of recent PK research and theory seems oblivious to that issue. For at least the last 30 years, most PK researchers have concerned themselves primarily with apparent PK effects on random processes (usually, only REGs), without considering whether their work has any bearing on the most interesting phenomena reported in poltergeist and mediumistic cases. To be sure, some parapsychologists do attempt to extend their conclusions or theories about statistically identified forms of PK to other PK phenomena. But with few exceptions they feel the need to account, at most, only for small-scale and relatively non-dramatic effects, such as slight movements of small visible objects (e.g., compass needles, pinwheels, or matches). Certainly, none of the recent experimentally rooted and superficially high-powered theories currently (or at one time) in vogue (e.g., the various forms of the "Observational Theory"—see, e.g., Schmidt 1975, 1976, 1984, Walker 1975) even pretends to explain, say, the better-documented cases of mediumistic materializations or object movements.[3]

Perhaps the most egregious recent example of this theoretical trend is "Decision Augmentation Theory" (or DAT), formulated initially as an attempt to reinterpret the evidence for laboratory PK, apparently retrocausally, as a form of precognitive ESP (see May, Spottiswoode, Utts, & James 1995, May, Utts, & Spottiswoode 1995a, 1995b). In a gesture

uncharacteristic of the technical theoretical literature on PK, the authors actually mention a possible form of non-laboratory PK. They concede at one point that DAT would not account for human levitation (May, Utts, & Spottiswoode 1995a:458, May, Utts, & Spottiswoode 1995b:200). But apparently they don't take the possibility of levitation and other forms of non-laboratory PK seriously, because they assert, "DAT leads to the idea that there may be only one underlying mechanism of all anomalous mental phenomena [their absurd proposed synonym for "psi"], namely, a transfer of information from future to past" (May, Utts, & Spottiswoode 1995b:198).

It's difficult to see how such scientific myopia could lead to any decent theorizing about psi generally or PK in particular. After all, for all we know at this stage, the motley array of phenomena labeled *PK* may be related in such a way that we can't adequately understand one of them in isolation from the others. If so, PK phenomena would resemble (say) the various forms of humor or aggression. We can't pretend to understand humor (or aggression), much less propose a theory of humor (or aggression), based on just one of its manifest forms—for example, slapstick (or overt physical assaults). Similarly, it seems foolish and misguided to theorize about the nature and mechanics of PK while ignoring the achievements of great and scrupulously investigated physical mediums.

* * * * *

While we're on the subject of PK, I should mention that researchers can now access digitized copies of many of the Ted Serios Polaroid photographs housed in the University of Maryland Baltimore County Library Special Collections. The url is http://cdm16629.contentdm.oclc.org/cdm/search/collection/Eisenbud. For more on the history of that collection, see my Editorial in *JSE* 25(3) Fall 2011 and also the chapter on Serios in Braude 2007.

* * * * *

Finally, as another year (and another *JSE* volume) draws to a close, I'd like to express my appreciation and admiration again for the splendid service rendered by my editorial colleagues: my hardworking (indeed, overworked) and mind-bogglingly patient Associate Editors, our alert and seemingly indefatigable Book Review Editor, David Moncrief, and our Managing Editor, Kathleen Erickson, who somehow pulls it all together and manages to make the rest of us look more competent than we really are.

Stephen E. Braude

Notes

[1] Interestingly, one common opinion within parapsychology (perhaps even the prevailing view) is that the only evidence for PK worth mentioning is the evidence for micro-PK. I can't examine the problems with that posi-

tion here, but (as I've argued elsewhere—Braude 1997, 2007) I'd say that the evidence for large-scale PK is much clearer and more compelling than the evidence for so-called micro-PK.

[2] See Scriven (1976) for a similar point, with respect to explanations in terms of telepathy.

[3] I should mention that Walter von Lucadou's Model of Pragmatic Information (MPI) has been applied, commendably, to both poltergeist and table tilting phenomena. But as far as I can tell it's still not applicable to many of the more interesting phenomena of physical mediumship. In any case, it seems that one can go only so far in maintaining, as the model does, that "psi is . . . a correlation in an entangled physical system" (von Lucadou 2001:13), or that "psi phenomena are . . . entanglement correlations in a generalized quantum theory" (von Lucadou, Römer, & Walach 2007:50). (See also von Lucadou 1995, von Lucadou & Zahradnik 2004.)

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RESEARCH ARTICLE

Hum and Otoacoustic Emissions May Arise Out of the Same Mechanisms

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Abstract—Hum, a low-frequency subjective tone, affects approximately 2% of the population. Spontaneous otoacoustic emissions are sounds emitted from the inner ear, which in some cases are also perceived as tinnitus. The mechanisms of their generation, however, are still not well understood. In this paper, it is demonstrated that many properties reported by hum-sufferers (derived from both questionnaires and my own measurements) are also found in spontaneous otoacoustic emissions. The similarities of such responses suggest that both phenomena may be formed by the same mechanism. A hearing model is proposed that overcomes the limitations of the current models and explains the occurrences of spontaneous otoacoustic emissions and hum.

Keywords: Hum—otoacoustic emission—Van der Pol-oscillator—hearing model—tinnitus

Introduction

Hum is most frequently described as sounding like the bass frequency of a diesel engine idling in the distance. Hum is a worldwide phenomenon, also known as "the Hum," "Taos hum," or "Kokomo hum," and according to Mullins and Kelly (1995) it affects approximately 2% of the population (called hearers) with an annoying low-frequency tone. Although many hum sufferers are convinced that their hum derives from an acoustic source, this source typically cannot be identified in the environment (Deming 2004). Everything that is heard without an external sound-equivalent is tinnitus by definition. Tinnitus is usually high-pitched, of central origin, and associated with hearing loss. It does not form beats with neighboring external sounds, does not discontinue for two to three days after long air travel, and does not stop during head rotations. The characteristics of tinnitus come from an analysis of numerous standard questionnaires answered by tinnitus patients (e.g., Stouffer & Tyler 1990). The tinnitus of hum is perceived differently,

a fact mostly unknown to otologists. In a questionnaire customized for hearers (Frosch 2008), 60% of hum-sufferers perceive a sound-interactive hum (SIH) that may form beats with, lock into, and match the frequency of an external sound. A time lag of two to three days until hum reappears after longer air travel has been reported by 55% of hearers in the questionnaire, and 37% of hearers report that they can stop their hum during purposeful head movements.

The evidence that hum does not derive from an acoustic source was supplied by eight hum-suffering musicians when they matched their hum with a sound generator at the same place and time to completely different hum-frequencies (Mullins & Kelly 1995). If the musicians perceived hum as a real external sound, they would have all matched to the same frequency, so clearly hum is not an audible external sound. Results were confirmed in 2003 by the IGZAB eV, the "Interest group for Research of the Hum Nuisance" in Bad Waldsee, Germany. The evidence that hum does not derive from any external electromagnetic source, which hum-sufferers sometimes assume next after discounting an external sound-source for their hum, was supplied in 2006, when IGZAB eV board member and researcher Franz G. Frosch reported that hum is perceived unchanged in two validated locales. The first of those locales is a custom shielded chamber in Bad Dürkheim consisting of electrolyte-copper sheets of $1 \times 1 \times 2 \times 0.001$ m. The second locale is a magnetically shielded chamber, specifically the BMSR2 chamber of the Physikalisch Technische Bundesanstalt in Berlin, with a shielding factor of more than 10^6 for frequencies of 0.01 Hz and upward. Hearers determined no difference in the hum-perception when stationed either inside or outside of these locales, therefore an instantaneous external electromagnetic cause for hum does not exist.

Spontaneous otoacoustic emissions (SOAEs) are sounds emitted from the inner ear, and these sounds may be measured via sensitive miniature microphones in the ear canal. SOAEs were first recognized by Kemp in 1978 and have proven to be a fascinating field of auditory research since then. SOAEs are a worldwide phenomenon and can be detected in approximately 50% of the population. In most cases subjects are not aware of their SOAEs; however, in some cases they become audible to the subjects as an incidence of annoying tinnitus (Penner 1988). Many lines of evidence support the hypothesis that SOAEs are produced by spontaneous mechanical oscillations within the cochlea, and perhaps by motile properties of the outer hair cells (OHCs). The mechanisms of SOAEs' formation, however, are still difficult to explain.

This study offers methods by which sound interactions can be used to determine the frequency, volume, and linear growth rate of an SIH-

oscillator. It supplies an application of these methods by employing a case study. The results, combined with information from questionnaires on hum, are compared with literature results on SOAEs to demonstrate similarities between the phenomena of hum and SOAEs. By integrating the inner ear's vestibule into the hearing process, the properties of hum and SOAEs can be explained.

Investigations on Hum

If not stated differently, the measurements are carried out by the author on his own hum in his right ear, and statistical information from hum-sufferers is derived from the above-mentioned specially designed questionnaires for hearers. According to the information from the questionnaires, the author's experience of hum is representative of the majority of hearers. Otologists consider them to have healthy ears with normal to above-average hearing functions. The author's hum appears as a continuous tone in the middle of the head and exhibits the characteristics of a hum, which is influenced by sounds, head rotations, and long air travels.

Slope (k), intercept (d), and Pearson's coefficient of determination (R^2) of all measurement results that follow the equation $y = kx + d$ are obtained with a least-squares linear regression analysis.

Sound Generation

Acoustic stimuli are delivered via a Sennheiser HD 580 stereo headphone. The headphone is calibrated with an artificial ear type 4153, Brüel & Kjær. It responds between 50 Hz and 200 Hz in an almost flat frequency course, which follows

$$EL_{\mathrm{dB}} = 42 + 20\log\,(0.35EL_n) \qquad (1)$$

EL_n denotes the sinusoidal voltage at the headphone, measured in millivolt peak to peak (mVpkpk), to produce an external sound (*ES*) at a frequency (EF_n) in Hz with a sound pressure level (EL_{dB}) in dB SPL, re 20 μPa.

All instruments and cables are shielded. At the beginning, during, and at the end of each experiment, frequencies, levels, or phases of acoustic sounds are calibrated, measured, or controlled with a digital two-channel oscilloscope Tekscope THS720 from Tektronix, including software designed for this type of oscilloscope to store and analyze data in a computer. Stimuli are produced with customary digital wave generator software in a personal computer, connected to the headphone via a custom-built switch with on/off and ear side change functions, and a cascade attenuator with 12

damping steps from −5 to −80 dB. The oscilloscope is connected parallel to the headphone. Data are read out and notated, then transmitted from the oscilloscope to a second computer for storage and further analysis. The wave generator software enables the installation and management of one or more wave generators at the same time. Each wave generator appears individually on the screen of the computer and can generate signals between 0.2 Hz and 22,050 Hz in 1 kHz, 10 Hz, and 0.1 Hz steps.

Sound Interactions

Hearing Levels (HLs)

To measure the hearing levels, the volume of an external sound is adjusted to the level at which the first audible difference in the hearing impression is noticed. For better signal-discrimination, the external sound is switched on/off occasionally. The hearing levels, shown in Figure 1, are measured during a time period of two to three days, when hum is not audible after more than 4 hours of air travel.

The time lag until hum reappears can sometimes be shorter or longer and can also occur after travelling by other types of transportation. Undoubtedly, only some unusual additional external influences may cause this strange effect. It probably has the same basic cause as the phenomenon of hum-

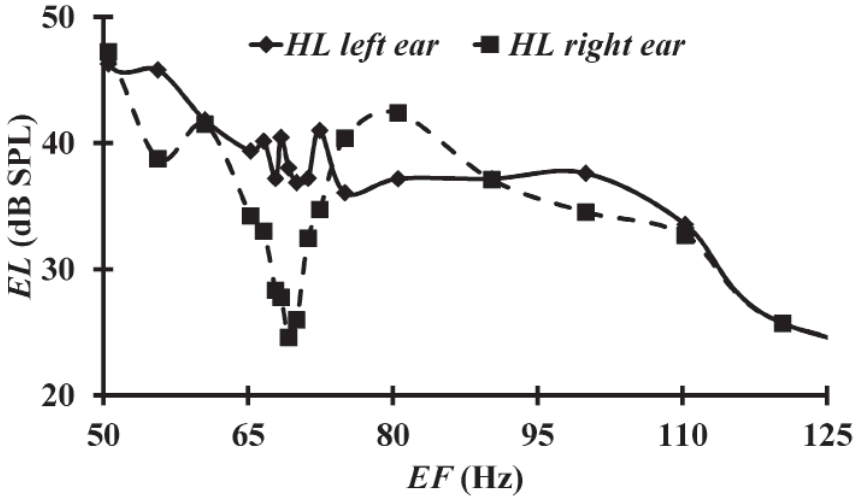

Figure 1. The hearing levels (*HL*s) of both ears are measured from 50 Hz to 125 Hz within 2 d after overseas air travel, when hum is not audible. They are performed with an external sound at frequencies *EF*s and volumes *EL*s. The right ear shows a dip in hearing level at 69 Hz, the hum frequency before air travel and again 2 d after. The hearing level of the left ear shows no dip.

sufferers not hearing their hum at certain locations and periods. Possible causes are exposure to abrupt changes of atmospheric pressure or of the gravity of earth, or to prolonged vibration and noise, all of which are known to affect the vestibule. During this lag time, the right ear can be treated as a band-pass filter with a quality factor Q_3 of 35 that filters external sounds or noise around the hum-frequency selectively to a sound-impression of hum.

Beat Frequencies (BFs)

A fixed number of consecutive beats is stopped with a calibrated customary electronic time clock with a manual start/stop function and a 7-digit display for hour, minute, second, and 1/100 second units.

The beat frequency is calculated by the use of Equation (2):

$$BF = \frac{\text{number of beats}}{\text{time in seconds}} \tag{2}$$

The typical audible interactions between an SIH and a monaurally presented external sound are illustrated in Figure 2. Note that below the hearing

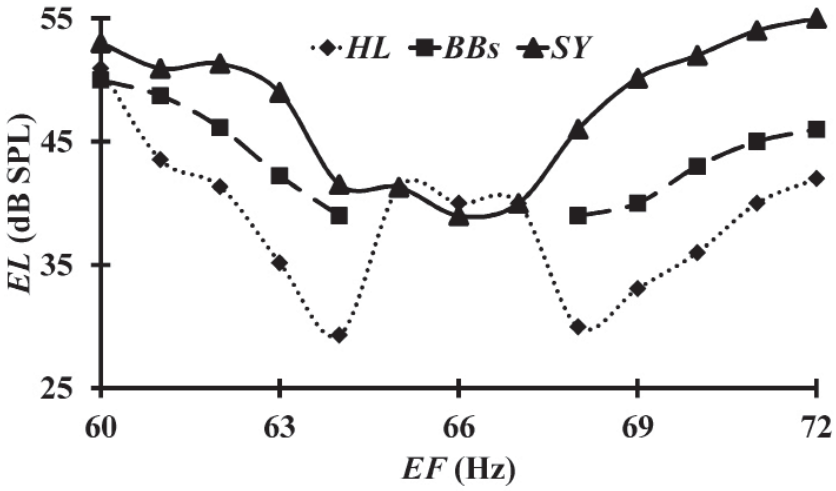

Figure 2. The interactions of hum with external sounds in the right ear, measured at external frequencies (*EF*s) from 60 Hz to 72 Hz in 1-Hz steps by adjusting the external volume (*EL*) to the appropriate volumes to get the hearing level (*HL*), best beats (*BB*s), and synchronization (*SY*). The measurements are typical and performed in one day, when the hum frequency (*HF*) is 66.0 Hz.

level, only hum is heard, and above the synchronization, only the external signal can be heard. Synchronization takes place when hum is locked into the external sound. In between both levels, beats are audible and optimally modulated along the lines of best beats (*BB*s); the beat frequencies increase almost linearly with the distance to the hum frequency (*HF*). At approximately $|EF - HF| < 1$ Hz no more beats are formed, and the hearing level merges with the synchronization. The hearing level curve next to the hum frequency corresponds to the synchronization and loudness match of the SIH into the external sound.

The right ear shows a remarkable dip in the hearing level around the hum frequency, which allows measurements in a broad interacting region between the hearing levels and synchronizations. This is not replicated in the left ear, where only poor modulation depths are possible before the SIH synchronizes. This situation becomes obvious when the hearing level-measurements are not falsified by the interaction with an SIH (Figure 1).

The sound interactions make it possible to measure the frequencies and volumes of hum and to simulate the Van der Pol (VDP)-oscillation.

Van der Pol (VDP)-Oscillation

Principles

The VDP-oscillator is a simple model widely used to simulate nonlinear biological oscillations because it closely imitates many biological phenomena. The simple harmonic oscillator is generalized by adding a nonlinear damping which is negative for small amplitudes, modeling instability, and feeding energy, and which becomes positive for large amplitudes. Because energy is fed into the oscillator, spontaneous sustained oscillation occurs even without periodic driving. The Van der Pol-oscillator has been used successfully to simulate SOAEs, which is an important proof that a nonlinear system drives the SOAE-oscillation. Formulas developed for the application in SOAEs are not suitable for measuring psychoacoustic sound-interactions of hum. In this manuscript, formulas are developed and applied to examine whether an SIH-oscillator can be treated as a VDP-oscillator. Several formulas applicable to psychoacoustic measurements on SIHs are worked out.

Basic Approaches

The equation of the forced VDP-oscillator

$$\frac{d^2n}{dt^2} - \left(\alpha - \beta n^2\right)\frac{dn}{dt} + {\omega_0}^2 n = A{\omega_0}^2 \cos\left(\omega_1 t\right), \tag{3}$$

as given by Gyergyek, Čerček, and Stanojević (1997) in their equation 1 and applied for an SIH-oscillator has n as the oscillating hum parameter, A as the effective external force amplitude of the sinusoidal sound at the oscillator, $\omega_0 = 2\pi HF$ as the angular frequency with HF as the frequency of the unperturbed (natural frequency) of the hum oscillator in Hz, $\omega_1 = 2\pi EF$ as the angular frequency with EF as the frequency of the external sound in Hz, α as the linear growth rate, and β as the nonlinear damping coefficient.

Appleton (1922) proposes a solution for the VDP-equation by splitting the oscillation into an internal oscillation term a and external oscillation term b. Gyergyek, Čerček, and Stanojević (1997) follow this concept and introduce a new quantity, a_0, in their equation 9,

$$a_0{}^2 = a^2 + b^2 = \frac{2\alpha}{\beta}, \tag{4}$$

which relates to the amplitude of the unperturbed VDP-oscillator. In their equation 10, they formulate a relation between a, b, ω, and A, (our study neglects a, because it is very small or zero) to get

$$b^2\left[\left(\frac{\omega_0{}^2 - \omega_1{}^2}{\omega_0{}^2}\right)^2 + \frac{\alpha^2\omega_1{}^2}{\omega_0{}^4}\left(1 - \frac{b^2}{a_0{}^2}\right)^2\right] = A^2 \tag{5}$$

as a suitable equation to find solutions for the SIH-interactions synchronizations, best beats, loudness matches, and periodic pulling between hum and an external sound to determine the hum frequency and volume as well as to simulate the VDP-oscillation.

Synchronizations (SYs)

The phenomenon of synchronization can also be described in the terms *phase locking* or *frequency entrainment*. This phenomenon can be simulated with an external sound, swept at a fixed volume toward the SIH-frequency until beats just come to a stop. As a result, the hum-oscillation is suppressed completely by the external sound, $a = 0$, and Equation (4) changes into $b^2 = a_0{}^2$. Using this boundary condition and the approximation $HF + EF_1 = 2HF$, Equation (5) results in

$$EL_1 = 2\left(HF - EF_1\right)\frac{1}{HF}\frac{a_0}{\mathrm{T}_1} \tag{6}$$

or

$$EF_2 - EF_1 = HF \frac{\mathrm{T}_1}{a_0} EL_1. \quad (7)$$

EF_1 and EF_2 are the lower and upper frequencies of the synchronization-boundaries of an external sound at the volume EL_1. The other parameters are the hum frequency (*HF*), the signal-strength of the hum-oscillator a_0, and the signal transfer factor T_1. T_1 corrects the change of the external force amplitude from the earphone EL_n to the hum-oscillator A_n:

$$EL_\mathrm{n}\, \mathrm{T}_1 = A_\mathrm{n}. \quad (8)$$

The approximation $HF + EF_1 = 2HF$ seems justified because the hum frequency and external frequency are usually 1 Hz to 3 Hz apart and never exceed a difference of more than 5 Hz, so that $HF + EF \approx 2HF \approx 2EF$.

A diagram with $EF_2 - EF_1$ as ordinate, EL_1 as abscissa, according to Equation (7) has the slope *S*

$$S = HF \frac{\mathrm{T}_1}{a_0}, \quad (9)$$

and rearranged is

$$\frac{a_0}{\mathrm{T}_1} = \frac{HF}{S}. \quad (10)$$

Equation (10) allows the calculation of a_0/T_1, which represents the signal-strength of the hum-oscillation, calculated as external sound travelling to the hum-oscillator. A typical synchronization chart with the upper and lower frequency boundaries EF_2 and EF_1 of the synchronization region dependent on the external volume is shown in Figure 3. The same data, plotted as shown in Figure 4, calculates the slope *S* of Equation (7). The hum frequency is measured before and after each experiment and represents the data at $EL = 0$. Equation (10) is used to calculate a_0/T_1.

Results: *hum frequency*: 67.16 Hz, 0.72, 10; *S*: 0.96 Hz/mVpkpk, 0.117, 10; R^2: 0.97, 0.018, 10; a_0/T_1: 70.96 mVpkpk, 8.90, 10. (*Measure*: mean, standard deviation, number of measurements, etc.)

Best Beats (BBs)

Best beats between an external sound and an SIH sound like beats between two equally loud external sounds. At the appropriate external volume, the

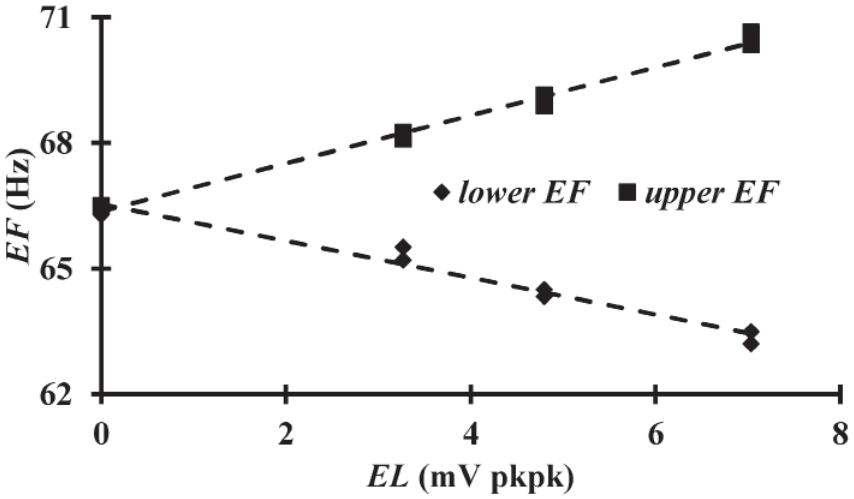

Figure 3. The synchronization-course of the hum in the right ear with external sounds is measured at three different volumes (*EL*s) between 3 and 7 mVpkpk by spreading the frequency for each volume into the boundary of the upper and lower frequency (*EF*) until synchronization appears. It is a typical measurement of one day at a hum-frequency of 66.3 Hz. The external frequency at the external volume *EL* = 0 corresponds to the hum frequency of that day.

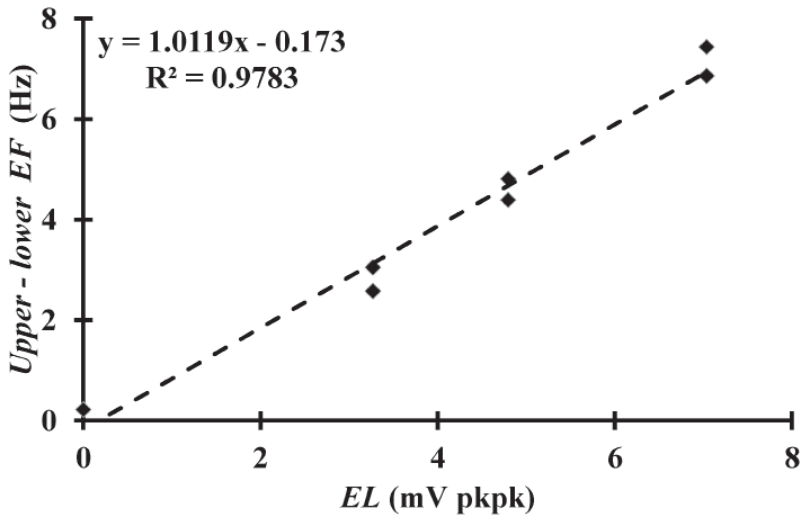

Figure 4. The synchronization-course of the hum with the same data as in Figure 3; however, the differences of the upper and lower external frequencies ($EF_2 - EF_1$) as a function of their external volumes (*EL*) are plotted. The slope of the line corresponds to $HF\,T_1/a_0$ in Equation (7).

internal and external oscillation terms of the VDP-oscillator are equal ($a = b$), and Equation (4) changes into

$$b^2 = \frac{a_0^{\,2}}{2}. \tag{11}$$

Using the boundary conditions of Equation (11), the approximations $HF + EF = 2HF$, and $EF^2 / HF^4 = 1 / HF^2$, Equation (5) changes into

$$EL_2 = \frac{a_0}{\mathrm{T}_1}\frac{1.41}{HF}\sqrt{\left(HF - EF_1\right)^2 + 0.00158\alpha^2}. \tag{12}$$

EL_2 denotes the volume of an external sound necessary to get best beat-interactions at the external frequency (EF_1). Synchronization- and best beat-curves cross each other when EL_1 of Equation (6) and EL_2 of Equation (12) are equal. At the crossing points, the distance between the upper and lower frequency is

$$EF_2 - EF_1 = 0.080\alpha \tag{13}$$

and the corresponding sound intensity is

$$EL_1 = EL_2 = 0.080\frac{\alpha}{HF}\frac{a_0}{\mathrm{T}_1}. \tag{14}$$

An external sound can no longer generate best beats with an SIH at frequencies between the two crossing points. Best beats can be formed easily in the right ear as shown in Figure 2, but, significantly, not in the left. Nevertheless, it is possible to determine SIH-frequencies in both ears.

Loudness Matches

At the loudness match, the external sound is adjusted to the SIH in frequency and volume until they cannot be differentiated from each other. The frequency differences disappear, $EF = HF$, and Equation (12) reduces to

$$EL_3 = 0.056\frac{\alpha}{HF}\frac{a_0}{\mathrm{T}_1}. \tag{15}$$

EL_3 is the volume of an external sound, which is necessary to match the loudness of the SIH-oscillator and in terms of figures to generate *BB*s at

$EF - HF = BF = 0$. At the beginning of each loudness-match experiment, the hum frequency is determined and the external sound is adjusted to this frequency. Then the external volume is increased stepwise, until it is noticeable as being just louder than the unperturbed hum. For better signal-discrimination, the external sound is switched on/off occasionally. The data are analyzed according to Equation (15).

Results: *hum frequency* (*HF*): 66.23 Hz, 0.85, 10; *volume loudness match* (EL_3): 1.61 mVpkpk, 0.40, 10; a_0/T_1: 66.43 mVpkpk, 16.39, 10, using Equation (15), and $\alpha = 34.35\ s^{-1}$ from the periodic pulling.

The volume EL_3 necessary for loudness match is identical to the volume of the unperturbed SIH-oscillation a_0, which, according to Equation (15), also depends on the hum frequency, the linear growth rate, and the transmission factor.

Hum Frequency (HF)

The frequency of an external sound (*EF*) is adjusted approximately 3 Hz above or below the hum frequency to a volume necessary to receive best beats with the SIH-oscillator. The time needed for 100 consecutive beats is stopped; the beat frequency (*BF*) is calculated with Equation (2), and the hum frequency with Equation (16).

$$HF = EF \pm BF \tag{16}$$

In the right ear, a series of 40 consecutive measures of the hum frequency, according to Equation (2) and Equation (16), has approximately normal distribution with a standard deviation of 0.145%, or 0.10 Hz. The fluctuation can be attributed to the short-time frequency-fluctuation of the SIH-oscillator because, in comparison, a series of 40 consecutive measures of two external sounds of 147 Hz and 150 Hz having 3 Hz difference and equal volumes generates normally distributed beat frequencies at a standard deviation of 0.002%, or 0.003 Hz, when related to the external sound of 150 Hz, which corresponds to the accuracy of this method.

The frequency of the SIH in the right ear drifts over 10 years at a rate of −0.44 Hz/year from 70 Hz to 66 Hz. For the left ear, the generation of best beats is not possible. Beats occur, though not optimally modulated, in a small range of the external sound only. Oscillations around 58 Hz are assumed to occur in the left ear.

Hum Volume

a_0/T_1 describes the volume of the hum-oscillation received by the interactions of external sounds with the hum-oscillator using formulas used for the Van

der Pol-oscillator. The volume of a conceivable SOAE, possibly induced by the hum-oscillation, can be estimated thereof. On the assumptions that $EL_3 = a_0$ and inward and outward transmissions are identical at $T_1 = T_{-1} = 0.03$, a SOAE would have a volume of 9 dB SPL; hence, it would be deeply embedded in the body's natural microvibration (Rohracher 1962).

Periodic Pulling

Periodic pulling describes the pulling of the frequency of an SIH toward the external frequency (*EF*). At frequency differences smaller than 2 Hz, the hum frequency (*HF*) is pulled significantly toward the external frequency. The beat frequency (*BF*) then becomes smaller than $|EF - HF|$. The formula

$$2\pi BF = \left(\left|\omega_1 - \omega_0\right|\right)\sqrt{1 - \frac{\alpha^2}{16\left(\omega_0 - \omega_1\right)^2}}, \tag{17}$$

as given by Gyergyek, Čerček, and Stanojević (1997) in their equation 30, squared and rewritten, results in

$$BF^2 = \left(EF - HF\right)^2 - \frac{\alpha^2}{64\pi^2}. \tag{18}$$

A diagram with $(BF)^2$ as ordinate and $(EF-HF)^2$ as abscissa has the y-intercept d as

$$d = -\frac{\alpha^2}{64\pi^2}, \tag{19}$$

and rearranged is

$$\alpha = 25\sqrt{-d}. \tag{20}$$

Equation (20) allows the calculation of the linear growth rate α.

To measure the periodic pulling, the frequency of an external sound is changed stepwise toward the direction of the hum frequency while keeping the volume constant. The beat frequency is measured between each step. This action is performed at a series of different volumes. The resulting data are analyzed according to Equation (18) and Equation (20). Figure 5 shows the relation between the beat frequency and external frequency of one typical

dataset. The same data plotted using Equation (18), as shown in Figure 6, has the y-intercept *d*, which allows the calculation of α with Equation (20). The hum frequency is measured before and after each experiment.

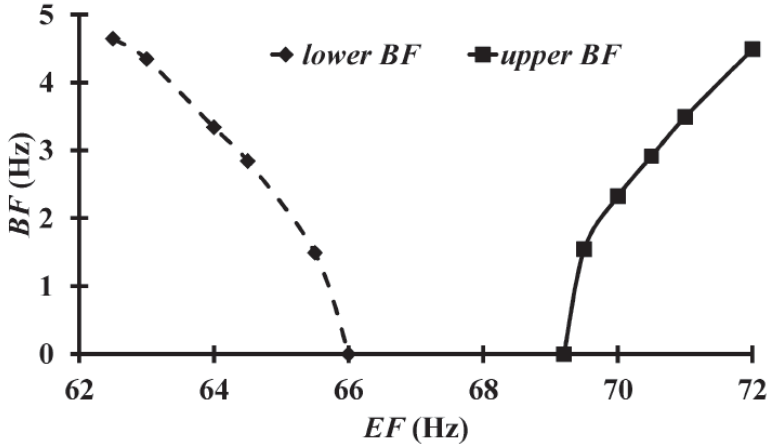

Figure 5. A typical periodic pulling is measured in one day, when the hum frequency is at 67.5 Hz. At a constant external volume of 3.3 mVpkpk, the beat frequency (*BF*) is measured for different external frequencies (*EF*s).

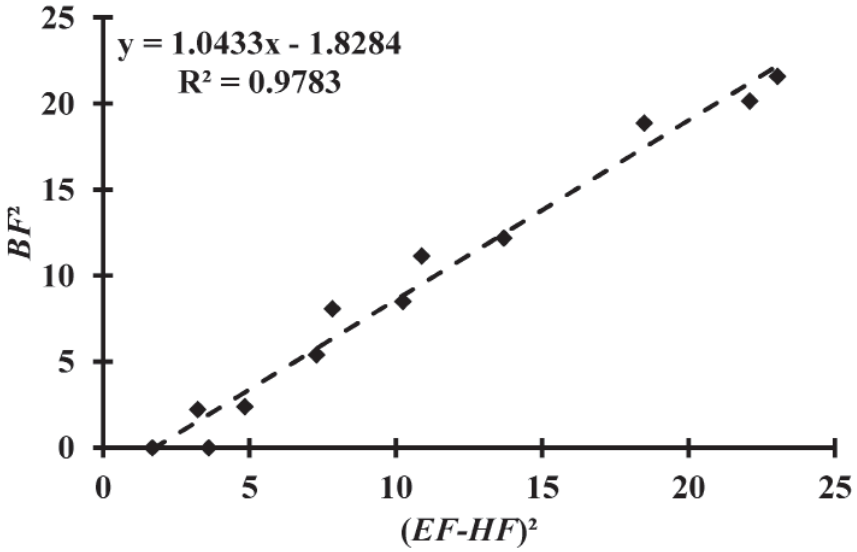

Figure 6. The measurements of the periodic pulling with the same data as in Figure 5; however, BF^2 against $(EF - HF)^2$ to get α from the y-intercept according to Equation (20) is plotted.

Results: *hum frequency*: 66.65 Hz, 0.853, 10; $-d$: 2.09 s^{-2}, 1.041, 10, R^2: 0.98, 0.025, 10; α: 34.35 s^{-1}, 8.455, 10.

Simulating the Van der Pol (VDP)-Oscillator

The values for a_0/T_1, obtained by loudness match in combination with periodic pulling, are not statistically different at a significant level ($p < 0.01$) when compared with the values obtained from synchronization-measurements. The two sample t-tests with equal sample size and unequal variance results in $t_{calc} = 0.768 < t_{table} = 2.878$. It is concluded that the sound-interactions of an SIH follow the rules of a forced VDP-oscillator.

The courses of the synchronizations and the best beats follow Equation (6) and Equation (12). By use of a_0/T_1 = 68.7 mVpkpk, HF = 66.5 Hz, and α = 34.4 s^{-1}. Figure 7 shows the courses for the best beats and the synchronizations, which partially simulate the measures previously shown in Figure 2.

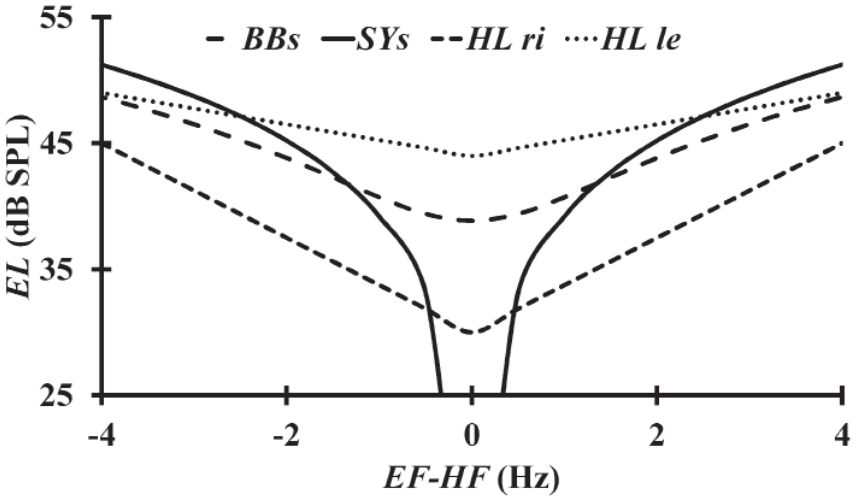

Figure 7. The hum-oscillation is simulated as a forced Van der Pol-oscillation. The hum parameters a_0/T_1 = 68.7 mVpkpk, α = 34.4 s^{-1} received for the right ear, allowing the calculation of the synchronizations (*SY*s) and best beats (*BB*s) with Equation (6) and Equation (12) and simulating the interactions of an external sound at the frequency (*EF*) and the volume (*EL*) with a hum of a frequency (*HF*). The hearing levels (*HL*s) for both ears are added for comparison.

Head Rotations

Active head rotations on the horizontal view-axis are performed over fixed angles; the subject sits in a chair one meter away from a mirror. The head rotates over the neck while the horizontally oriented eyes focus at a mark on the mirror. The angles vary from 2° to 96°, using a variable angle limiter, and movements are controlled in the mirror. Rotations are adjusted to a speed necessary to just discontinue the hum before 10 consecutive head orientations from the limit of one side to the limit of the other are stopped and averaged into one data point. 86 data points are plotted in Figure 8, resulting in an *x*-intercept of 0.09 s, which is interpreted as the time necessary to reverse the direction, and a slope of 306°/s, interpreted as the average velocity of the rotation needed to stop hum, which is independent of the rotation-angle. Some 37% of hearers in the questionnaire report that they can stop their hum during purposeful head movements. In our study, only horizontal head rotations influenced hum. Hum can also be influenced by minute head rotations, which move the location of the hum impression from the side of the head to the right ear (when rotating to the left) and to the left ear (when rotating to the right) without noticeable changes in

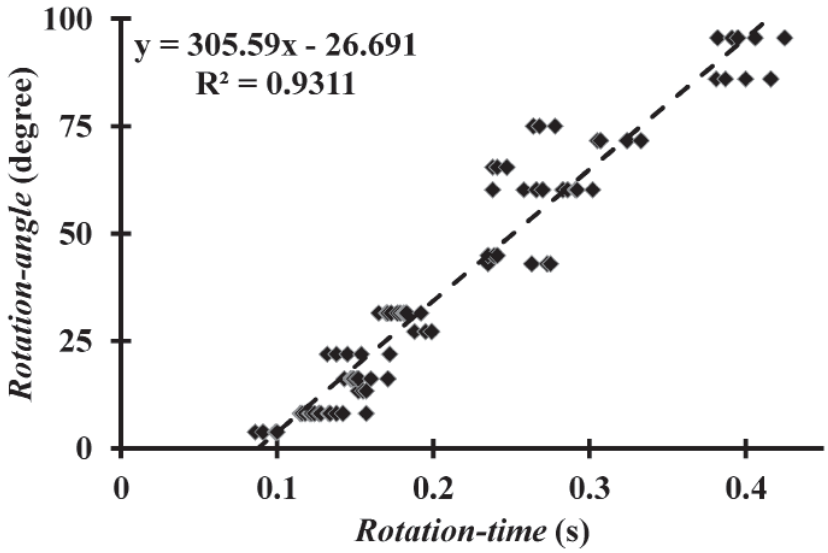

Figure 8. Voluntary head rotations are measured for horizontal rotation angles from 2° to 96°. The slope of the line represents a velocity of 306°/s, which is necessary to just stop hum.

the frequency or volume of the hum. Independent of the rotation direction, hum is removed above an angular velocity of 306°/s. Identical results are found for self-generated head-on body rotations and body rotations over the legs. Fixing one's gaze at a spot during rotation, visually following the rotation, or even closing one's eyes have no influence on the observed hum-influencing effect. This rules out muscle reflexes as the cause. Instead, hum involved acoustic elements present in the semicircular canals in order to influence hum by head rotations.

Hum can be differentiated from an external sound with the pitch of hum by head rotations. During active head rotations above 306°/s, hum is not audible, while the audibility of the external sound remains unchanged.

Similarities between Hum and SOAEs

Many of the same properties that hum-sufferers report via questionnaires, personal information, and the results of measurements described here are also reported for SOAEs. The results are qualitatively identical. For instance, the hum-frequency in the case study decreases at a rate of 0.6%/year, compared with a rate between 0.13%/year and 0.41%/year for SOAEs (Burns 2009). A sound interactive hum (SIH) can be simulated as a Van der Pol (VDP)-oscillator. The linear growth rate α of the oscillation has a value of 35 s^{-1} in our case study, compared with 40−500 s^{-1} found for SOAEs (Murphy, Talmadge, & Tubis 1995). Hum sometimes appears in local dips at the minima of the hearing level, with a high quality factor (Q_3 of 35 for the right ear in Figure 1), which is also found for SOAEs (Dallmayr 1985). Hum interacts with external sounds (as reported by 60% of hearers in the questionnaire) to form the synchronizations and periodic pulling demonstrated here, which is also reported for SOAEs (Schloth & Zwicker 1983, Talmadge, Tubis, Long, & Piskorski 1998). Approximately 2% of the population perceives an annoying hum (Mullins & Kelly 1995), therefore it is likely that SOAEs become audible as frequently and as annoyingly (Penner 1988). In our case study, an annoying hum was removed with a daily aspirin dosage of 2.4 g within the first day (confirmed by other hearers not in the study), which is comparable to the dosage necessary to remove an SOAE (Penner & Coles 1992) and may be comparable to that for monaural diplacusis, as found for the left ear and also reported for SOAEs (Bacon & Viemeister 1985, Long 1998). The sensation of hum may stop during head movements, as reported by 37% of the hearers in the questionnaire. In our study, it stops during horizontal head rotations above a velocity of 306°/s. These effects are comparable to head movements that reduce the volume of SOAEs (de Kleine, Witt, van Dijk, & Avan 2000, Büki et al. 2000).

As the effects observed for hum seem identical to those observed for SOAEs, audible SOAEs may underlie the same type of tinnitus. From these abundant similarities, it follows that because hum has been found to disappear temporarily after long air travel—reappearing after a time-lag of two to three days—the same temporary cessation may also occur for some SOAEs. On the other hand, when using a method tailor-made for hum-detection, the mechanical hum-oscillation also may be detectible objectively. An additional hearing pathway that involves the vestibular system seems necessary to explain these observations on hum and SOAEs.

Discrepancies in Current Hearing Models

Information about the phase relations of sounds cannot be received from the travelling wave, which considerably changes its group delay depending on frequency and/or volume (Serbetcioglu & Parker 1999, Palmer & Shackleton 2008). The arguments that the determination of the exact phase-information is received through the rate–place representations suffer from the fact that the firing rate of the majority of auditory nerve fibers is saturated equally and cannot discriminate the primary frequencies of beats. Auditory nerves do receive accurate rate information (Sachs & Young 1980); therefore, this information must come from another site. Knowledge of the frequency/phase relations is necessary to get information on sound-image and becomes crucial when several sounds interact. Speech recognition falls into this category when formants have to be analyzed (Young & Sachs 1979).

After sectioning the olivocochlear bundle at the floor of the fourth ventricle by cutting the lateral olivocochlear and medial olivocochlear efferent systems, there is no change in the fundamental aspects of the threshold response of cochlear afferents, including the relationship between threshold and spontaneous rates (Liberman 1990). Contrary to the conclusion of Thiers, Nadol, and Liberman in 2008 that the efferent system is not needed for these fundamental aspects, the above observation provides evidence that the vestibular system, including cochlear efferents and possibly consisting of paired afferent and efferent specialization, is indeed the primary route for information because they are not disconnected by the cut.

The cochlear microphonic potential recorded at the round window has not been found to be generated by travelling waves at the cochlear base but instead by the fluid pressures (condensations/rarefactions) induced in the cochlear fluids by sound-induced stapes footplate vibrations in an unknown fashion (Perez, Freeman, Sichel, & Sohmer 2007, He et al. 2012). This technical observation offers further evidence that the vestibular system is involved in the hearing process.

There is a preservation of frequency selectivity in the timing pattern of complex signals in view of saturation of both discharge rate and vector strength at moderate intensities to sinusoidal signals. As most fibers discharge at saturation level, it is difficult to infer the location of spectral prominences on the basis of the spatial pattern of rate activity. Neural synchronization is one means by which spectral information is preserved across a wide range of intensities in the presence of saturating and compressive nonlinearities. However, the physiological basis of frequency selectivity may actually be derived from other properties (Greenberg, Geisler, & Deng 1986).

The scientific consensus of the inner ear functions still strictly separates the vestibular system, consisting of three semicircular canals, the sacculus and utriculus, as being responsible for equilibrium only, and considers the cochlea to be the only system responsible for hearing. OHCs and inner hair cells are considered the primary auditory receptors, which sense sound through deflection of their hair cells, which is initiated by the deformation of the basilar membrane caused by the travelling wave or resonance (Dancer 1992, Ruggero 1994). It is still believed the first processing stage is the cochlea which performs a frequency analysis.

It is easily conceivable that the phase-information of a sound is generally built up by pressure waves arriving at semicircular vestibular hair cells from the oval window; Type II hair cells are found to be especially sensitive to hydrostatic pressure (Fraser, Cruickshank, & Shelmerdine 2003). The cristae ampullaris may function as pressure-to-displacement converters. Canal afferent fibers are capable of responding to stimuli at large frequencies (Highstein, Rabbitt, Holstein, & Boyle 2005).

Proposed Hearing Model

According to the found sensitivity of hum and SOAEs to head rotations, a modified hearing model for the inner ear that integrates the vestibular system into the normal hearing route must be proposed. A plausible solution can be developed as follows: A fast vestibular route is established, including an efferent feedback into the cochlea, to act in the timescale in front of the traditional route of the slower travelling wave. An external sound generates at the oval window longitudinal sound pressure waves into the scala vestibula; from here they spread synchronously from the cochlea to the semicircular canals. The vestibular hair cells then detect the primary time-information of a sound and transmit it in parallel running subsets of information through vestibular afferents into the brain. The brain merges all the subsets into one piece of phase/frequency information, performs a signal correlation with an existing frequency–place map, and sends the resultant phase/place/frequency information through a bulk of cochlear

efferents into the allocated location of the cochlea. It is possible that shunts between vestibular afferents and the closely spaced cochlear efferents speed up the transportation of the information via vestibulocochlear anastomosis directly from the vestibular afferents to cochlear efferents into the cochlea (Labrousse et al. 2005). Cristae ampullaris, in addition to their function as pressure-to-displacement converters, may also act as amplifiers supporting the oscillation mechanically or electrically. The traditional hearing route (the cochlear pathway) starts, as usual, at the same time at the oval window with the slower transversal travelling waves along the cochlea from base to apex, the outer and inner hair cells, and the cochlear afferents. With this proposed hearing model, the primary phase-information would be already available at the characteristic frequency of the cochlea through the fast vestibular route when the travelling wave arrives at this place. It sharpens the signal at that place in the cochlea, where the place-invariable phase of a bulk of efferent-influenced oscillating OHCs and the place-variable phase initiated by the travelling wave coincide and superimpose. This process can be easily deduced from observing flat phase changes in the scala vestibula that follow sounds, which would not occur without a phase-presetting activity of cochlear efferents onto a bulk of OHCs (Dancer & Franke 1980).

Chronologically, the information of the primary time-coded phase/frequency of a sound has to already be available as place-coded phase/frequency information in the cochlea when the travelling wave arrives at this site. This enables the analysis of formants and the establishment of the exact phase-information as a reference point for all signals contained in the travelling wave of the cochlea. If we were to make an analogy between sounds managed in the ear and an orchestra, the vestibular route (including the backward route into the cochlea) would behave as the conductor and the cochlear route (including the cochlear afferents) as the musicians.

Preconditions for the Generation of SOAEs and Hum

A sound generates in-phase oscillations along the middle ear and the scala vestibula of the cochlea only at limited frequency-ranges. This is the case at approximately 3 kHz (1000–8000 Hz) and less than 150 Hz for guinea pigs (Dancer & Franke 1980), and can be expected for humans at approximately 2 kHz (800–5000 Hz) for SOAEs (Dallmayr 1985), and 30–80 Hz for hum (Mullins & Kelly 1995). Within these frequency-ranges the phases of sound-pressure waves in the scala vestibula are almost identical to the phases in the middle ear and to the cochlear efferent feedback and do not damp each other. Sound-pressure waves generated in the scala vestibula by over-tuned OHCs may induce a feedback mechanism even without an external sound when they involve the semicircular canals and vestibular afferents and are

in phase retransmitted by cochlear efferents to the place/frequency site of the oscillating OHCs to support the oscillation and close the circuit. The oscillation may be detectable in the ear canal as SOAE and may generate a travelling wave, influence cochlear afferents at the characteristic frequency, and become audible.

Conclusions

Previous research establishes that hum is not an external sound and has no electromagnetic causes. This paper proposes that hum has the same origin as the more extensively studied SOAEs. Understanding the common origin of these phenomena will help hearers to cope with this annoying condition and encourage manufacturers to develop specially designed maskers.

The phenomena of hum and spontaneous otoacoustic emissions seem to start with an oscillation of a bulk of OHCs supported by a feedback circuit (including the vestibular system) to sharpen and stabilize a self-sustained oscillation, which makes it necessary to modify the current hearing model. Because of the small size of the auditory organs, and because animals cannot tell us what they hear when tested, it will be a long and difficult process to run experiments that determine the detailed functions of the ear and to potentially verify the hearing model of this paper.

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RESEARCH ARTICLE

A Case of a Japanese Child with Past-Life Memories

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Abstract—This article presents the case of a Japanese child who claims to remember his past-life memories. The case shows the pattern frequently observed in Cases of the Reincarnation Type (CORTs) extensively investigated by Dr. Ian Stevenson and others: At the age of three, the child started to talk about a life he claimed to have lived before, and showed behavior that is unusual in his family and unexplained by his current life, but that apparently matches the "past life;" he also showed a strong desire to go back to his previous mother. His memories, however, began to fade at about the age of seven and were almost completely gone when the child was interviewed at the age of nine. The unusual character of the present case is that the place the child claimed to have lived in is far away from his current place of residence. Despite the detailed information the child has given, the case is unsolved at present. The main contribution of this paper will be to report virtually the first Japanese CORT since the 19th century case of Katsugoro, one of the 44 cases that inspired Dr. Ian Stevenson to begin researching the topic.

Introduction

Dr. Ian Stevenson and his associates, as well as other independent researchers, have now found more than 2,700 cases of children who claim to remember their past lives from all over the world, including India, Thailand, Burma, Lebanon, Turkey, Sri Lanka, the UK, France, Germany, The Netherlands, Italy, Austria, Portugal, Hungary, Iceland, Finland, Canada, and the United States of America. However, virtually no cases from Japan have been reported in a scientific journal, which is regrettable considering the fact that the 19th century case of Katsugoro was one of the strong cases that inspired Dr. Ian Stevenson to research the phenomena.[1]

This article reports the case of a Japanese child who claims to have lived in Edinburgh, Scotland, in his past life. His statements are basically compatible with a possible life in Edinburgh, and some of them are quite striking. He shows a strong desire to go back to his previous mother. The

search for the past-life personality has not been successful and the case is at present unsolved. However, the present article shows the existence of a clear Case of the Reincarnation Type (CORT) in Japan.[2]

Summary of the Case and Its Investigation

The subject, Tomo, is a Japanese boy living in the Kansai region. He was born in January 2000.[3] When the subject was 11 months old, he began to show behavior that can be interpreted as related to his past-life personality. When he was 3.11 years old, he started talking about his past-life memories as a boy living in Edinburgh and continued to do so until his father took him to Edinburgh to look for the mother of his past-life personality when he was 7.6 years old. Although their search was not successful, the visit to Edinburgh seems to have soothed the subject's intense desire to go back to his "mother," and he gradually stopped talking about his past-life memories.

I came to know of the case through Dr. Ikegawa Akira, who conducted a large-scale questionnaire-based survey on children's birth and "in the womb" memories (Ikegawa 2005). I conducted two interviews, one with the subject and his mother on June 22, 2010, and the second time with the subject and his father on July 2, 2010. At the time of the interviews, the subject, who was 9.5 years old, no longer recalled any specific memories. Therefore, the information about the subject's statements and behavior came from the subject's parents, especially his mother, who kept a detailed diary. The authenticity of the essential part of the subject's statements, however, is not questionable because a psychiatrist who examined the subject wrote an essay about the subject's past-life memories in relation to autism (Miyao 2007).[4]

It is worth pointing out that at the time of the first interview, the subject was saying "I still have a visual image of my British mother," "I still want to go to the UK to meet my mother," and "You'll see, when I become old, I'll go there myself." He also remembered a phrase "John, John, very my John, John," which he repeatedly said when he recalled a dog he kept in his past life.

The Subject's Statements and Behavior

When the subject was 11 months old, he was very attracted by the roman letters he saw on TV commercials such as "AJINOMOTO," "TOYOTA," etc. Before he learned any Japanese letters, he learned some roman letters. At the age of 2.9 or 2.10, he signed his name as "tomo" using roman letters, as shown in Figures 1 and 2.

Also around this time (at the age of 2.9 or 2.10), when he heard the English song "Top of the World" for the first time, he was able to sing along, which greatly surprised his mother.

Figure 1. A picture drawn by the subject.

Figure 2. A second picture drawn by the subject.

At the age of 3.11, the subject and his mother had the following conversation (as recorded in the diary):

Subject: I want to peel garlic.
Mother: Why do you want to do that?
Subject: I did this before I came to be called "Tomo."
Mother: What? What do you mean?
Subject: I was a child of a restaurant in the UK before I came to be called "Tomo."
Mother: When was he born?
Subject: He was born on August 9th, 1988. I was called 'Geiris.'[5] I lived in a seven-story building.
Mother: Where is the former "Tomo" [referring to the past-life personality] now?
Subject: He had a high fever of 45 Celsius [113 F] and died.

Because the subject insisted on peeling garlic, the mother bought and handed garlic to the subject the next day. Then, the subject very skillfully peeled the garlic. The garlic he peeled at this time is shown in Figure 3. Also, as shown in Figure 4, he peeled garlic with his left hand, which is surprising because he is right-handed. He became left-handed only when he peeled garlic. The mother recorded the conversion he had on that day as follows:

Mother: Tomo, have you ever peeled garlic?
Subject: Yes. I have done this when I was "former Tomo."
Mother: Who is "former Tomo?"
Subject: Tomo who was born on August 9th.

At around the same time, (a) the subject, who had never taken a pill, said to the mother, "'British Tomo' was taking a pill, called EMD."[6] When asked by the mother "What pill?" he replied "Yellow and round;" (b) he said, when his mother read a picture book before he went to bed, "My British mother said, 'This much for today,' and did this [touching his forehead with a finger]." The mother interpreted this to indicate a good-night kiss, which Japanese mothers rarely do; and (c) when he saw a globe at a store, he pointed out the UK (the upper region) and said "Tomo lived around here." When they went back home and his mother showed him a map of the UK, the subject pointed to around Edinburgh and said "I lived in 'Edinbia.'"

After the above-mentioned event, the subject started to talk about his past-life memories intensively, as shown in Table 1.

TABLE 1
Statements the Subject Made between 4 and 5.6 Years Old

	Age	Statement
(1)	4 yearsr old (written 3x in the diary)	"I had a dog called John. He had yellow or golden hair with a long nose. His ears were on the upper head. We slept in the same room."
(2)	4 years old (written 3x in the diary)	"British Tomo went to a school, not a kindergarten [as the subject does now]. My teacher was a male. I had a friend called 'Suimenli.'"
(3)	4 years old	When he talked about the dog, John, he started to say "John, John, very my John." He kept on saying this for a long time. (As stated above, he remembered this phrase even when the author met him.)
(4)	4 years old	When he saw salmon eggs at the dinner table, he said "Gungu!" This might have implied "gungo peas," (or "pigeon peas") which he might have been familiar with if he was a child of a restaurant.
(5)	4 years old (cf. (22))	"When British Tomo died between 24th and 25th of October 1997, British mother looked troubled. She was saying, 'Now there are only five of us.' When the surprised mother asked him, 'What? Did you see that?' he replied, 'Yes. They buried me.'
(6)	4 years old	"There was no time before I was born. British Tomo had a watch."
(7)	4 years old	"British mother often said 'I love you.'" [Japanese mothers rarely say this.]
(8)	4 years old	(Pointing to his own legs) "I had a lot of hair here."
(9)	4 years old	"In the UK, I bathed in milk (bath)."
(10)	4 years old	Pointing to the washbasin, the subject repeatedly said "Washbasin" in English. He also said "Pleasure."
(11)	4 years old (cf. (15))	"In the UK, I took 'healing herb.'" Making his mother hold him, and imitate as if she gave a glass of healing herb to him, he said, "British mother said to me 'Take this, take this. It will help you feel better.' The herb was like trefoil, and it was green liquid when I took it. My (older) brother took leaves. We also used it like this (pretending to put a leaf on his forehead)."
(12)	4 years old	The subject tried to explain what he ate in his past-life. "With chopped carrots and Japanese radish-like vegetables, with cheese. We heated it for about 4 minutes and when the cheese melt, we eat it." When the mother asked "Is it gratin?," the subject said, "Oh, it's difficult to explain."
(13)	4.1 years old	"When I was British Tomo, on February 16th, white liquid came out of my penis for the first time." When his mother asked "What do you mean?" he said, "From the penis of British Tomo yellow pee and white juice came out."[1] (Surprised at the subject's remarks, the mother asked kindergarten teachers if they gave sex education. The answer was naturally negative.)
(14)	4.1 years old	"I got on a double-decker bus. The money I used was not yen, but pound."
(15)	4.2 years old (cf. (11))	"My mother made me drink 'healing grass' mixed with pineapple juice, but I knew it was medicine."
(16)	4.2 years old	"There was a special shopping mall in front of our restaurant. They sold Japanese soy sauce." (His mother thought this statement remarkable because it was unlikely that the subject, who had never been abroad, would know that soy sauce is Japanese seasoning.)

(17)	4.2 years old (cf. (18), (24), (25))	"British Tomo was hospitalized at 'Muginba Paresu' [as transcribed in the diary in Japanese letters] hospital.[2] At first no room was available. When room 4 on the 13th floor became available, four of us, father, mother, (elder) brother, and me went there by car. It was 115 kilometers from my house to the hospital. Since it was far away, we used a highway. My brother was five years older than me and 14 at that time. In the hospital, there was a place like a bath, and there was a doctor who put powder medicine into hot water and massaged me. The treatment didn't work and I had an operation. I had a fever of 40 Celsius [104 F] [figure different when he first stated about his death] and died."
(18)	4.7 years old (cf. (17), (24), (25))	Subject: (Seeing a picture in a picture book titled *Human Body*, in which food sticks in a person's throat) "Oh, no! This guy has become British Tomo!" Mother: "Did British Tomo die because something stuck in his throat?" Subject: "I had throat disorders. I was hospitalized and stayed on the seventh floor of a 13-story hospital. I felt so sick and died." Mother: "Did you die of asthma, perhaps?" Subject: "Yes. The healing herb didn't cure me, either. The former Tomo was weak and died young. So, this time I chose a strong body."
(19)	4.7 years old (also 5.6 years old) (cf. (24))	(Watching news of a train crash) "There was also a train accident in the UK, in Southall. I watched the news on TV. It said 'Accident! Accident!' Two trains collided, and a fire occurred. Eight people died."
(20)	4.7 years old	Subject: "The blood type of British Tomo was B. I was weak and couldn't exercise, and there were many things I wanted to do." Mother: "Why did you recall British Tomo?" Subject: (Crying) "I want to meet my British mom."
(21)	4.9 years old	(About a meal the subject ate in his past-life) "I ate Chili Con Carne. Red kidney beans were in it and it was hot." [He had never eaten the dish in the present life.]
(22)	5 years old (cf. (5))	Subject: "I died between 24th and 25th of October, 1997." Mother: "How did you know that you died?" Subject: "My British mother looked troubled. She said 'Now only five of us were left.'" Mother: "Did you see that?" Subject: "Yes, I did." Mother: "Then, what did you do?" Subject: "I was doing something like riding on a slide or on the escalator of a 25-story building."
(23)	5 years old	When the subject's family had a coffee break, the subject pointed out that what they drank is different from what the family of the past personality drank. "In the UK, I drank black coffee, my father with milk, and my mother with milk and sugar. Now, I can't drink coffee, but dad and mom can. You (dad and mom) drink coffee with milk."
(24)	5.6 years old (cf. (17), (18), (19), (25))	(After a thunderstorm at night) "British Tomo was hospitalized in Muginba Paresu hospital. At first there was no room available. Then, room 4 of the 13th floor became available, so my father, mother, brother, and I went there. We used a highway because the hospital was far away. It was located 115 kilometers to the north from my house. My brother was 5 years older than I, 14 years old. In the hospital, in a bath-like place, a doctor poured powder medicine into hot water and massaged me. It didn't work and I had an operation. But I had a high fever of 40 Celsius [104 F] and died. My house was about 30 seconds away from the station. There was news of a train crash. TV said 'News! News!' and I saw crashed trains on TV."
(25)	5.6 years old (cf. (17), (18), (24) (25))	From room 4 on the 13th floor, I could see fireworks. The hospital had a bath.

[1] See Note 7.
[2] See Note 5.

Figure 3. The subject peeling garlic skin.

Figure 4. The subject peeling garlic skin with his left hand.

Like many other CORTs, the subject showed a strong emotion to go back to see his "previous" mother (= (20)). Also, like other CORTs, the subject states that he had some unfinished job in his past life (= (18), (20)).

The subject's statements about his body (= (8), (13)) suggest that he indeed felt that his present body was different from the one he used to have.

Most of the statements listed in Table 1 concerning his life in Edinburgh seem to be compatible with a possible life in Edinburgh and beyond the knowledge an ordinary Japanese person, including the subject's parents, would have. Especially striking is the subject's statement about the train accident that occurred at Southall station in the UK (= (19)), which did take place on September 19, 1997.[8]

The subject's father, who had regarded the subject's statements as mere imagination, changed his attitude when he searched for the information about the train crash and found that there was an incident in the Southall station in 1997. He decided to take the subject to Edinburgh to look for his "British mother." From August 1st to 8th, 2008 (when the subject was 90 months old), the subject and his father went to the UK. The subject's mother didn't go with them because the subject's brother was too young (born on July 1st, 2005). They stayed in Edinburgh for three days, looking for the past-life personality's house in vain. The subject's father said, "I thought my son would easily find the way to his house once we got to Edinburgh. If I had known that this would not necessarily be the case, I would have made more preparation."

The notable points the subject's father told me about this trip is that (1) on the first day in Edinburgh, they found that Chili Con Carne is served in many pubs in town, which confirmed the subject's statement (21) in Table 1, and (2) on the morning of the second day in Edinburgh, the subject jerked awake and said "I have just felt my mother. She must be in this town!"

Although the trip was not successful in the sense that they could not find the subject's house from his past life, it seems to have somehow soothed the subject's desire to go back to his "former house," and the subject began to talk about his past life less and less, and soon stopped talking about it entirely.

The Investigation Concerning the Subject's Past-Life Personality

The investigation concerning the subject's past-life personality included an Internet search based on the subject's statements, calling for information from people connected to the UK, including members of the Society for Psychical Research and the Scottish Society for Psychical Research, and visiting Edinburgh myself in 2011. At present, however, the search for the past-life personality has been unsuccessful.

It turned out that no death comparable to the present case seems to be recorded in the city of Edinburgh. Since the subject clearly stated the specific dates of his birth and death, I expected that the Internet genealogy database service such as "ScottlandsPeople" or "Ancestry.co.uk," a subdivision of "Ancestry.com" would easily trace the past-life personality. However, contrary to my expectation, these types of service require the name of the person you are looking for, and, since the subject did not give the exact name of his past-life personality, they were not very useful. Finally, I consulted with the National Record of Scotland, whose role includes the administration of the registration of births, deaths, marriages, divorces, and adoptions in Scotland, and Mr. Blair Kane helped me with this search and checked all the death books for the Edinburgh area for the year 1997. According to Mr. Kane, there were no deaths of children in that age range. Nor were there any cases of asthma-related deaths in those months. He states that "It could well have been he died in the Edinburgh area but his death was registered in a different district."

Some of the Discrepancies

There are some discrepancies in the subject's statements. According to the subject, he was hospitalized in a 13-story building (= (17), (18), (24), (25)). According to Dr. Ian Tierney of the University of Edinburgh, there are no 13-story residential buildings in Edinburgh, nor have there ever been. The only 13-story buildings are a University research building and an office block built since 2000.

If the subject's statement concerning the hospital location in relation to the residence of the subject's past-life personality is correct (= (17), (24)), and the hospital is indeed in Edinburgh, despite the above-mentioned discrepancy, the place his past-life personality lived cannot have been Edinburgh. On the other hand, if the residence was indeed in Edinburgh, the hospital should be somewhere in the Highlands.

An Exceptional Character

The present case falls into a category of long distance cases, in which the subject's family belongs to a different community from the past-life personality's family (Stevenson 2001). The subject's family has no connection to the UK, nor were they in the country around the time of conception, which echoes the following words of Stevenson (2001:238): "[F]or the majority of long-distance cases I have no clues whatever as to why the subject was born in his family. Nor have the informants for the cases." Concerning long distance cases Stevenson also (2001:242) says that

"[t]he majority of the subjects of cases in which the two families are not related or acquainted speak of a life that was lived within a radius of twenty-five kilometers from the subject's home." The distance between Edinburgh and the subject's present residence (9,154 kilometers) is unusually long.[9] This exceptional characteristic makes the case all the more interesting.

Conclusion

This article reports a case of a Japanese child who claims to remember his past life. Despite the subject's detailed statements concerning his past life, the search for his past-life personality has not been successful and the case is "unsolved." However, some of the highly specific information the subject gave and the unusual behavior the subject showed are strongly indicative of the paranormal nature of the present case. The overall pattern of the development of the case shows that CORTs can be observed in modern Japan.

Notes

[1] Stevenson (1997:519–520) reports a Japanese case in which the subject has a birthmark behind his right ear that corresponds to the scar of an operation for otitis media that one of his older brothers, who had died before the subject was born, had undergone. The subject, however, has no memories of a previous life and the birthmark is the "sole item of evidence."

[2] The present case is also reported in Ohkado (2011) in Japanese in a different form.

[3] With the consent of his parents, part of his real first name is used here, which is of direct relevance to a piece of evidence for the subject's statements: The subject started signing his name as "Tomo" in roman letters before he began to write Japanese letters, as we will see below.

[4] The mother worried about the subject's unusual statements including past-life memories, and consulted the psychiatrist, who diagnosed him with Asperger's Syndrome.

[5] In the diary, the name is written as "ge-i-ri-i-su" in Japanese letters. The subject's mother, who does not speak English, naturally chose to write it down in Japanese, and if the subject had pronounced the word in English (or English-like pronunciation), the transcript might not be very reliable. It could have been even "James." Also, see item (17).

[6] There is a pharmaceutical company named EMD Serono, but it appears to only produce injectable medications, not pills.

[7] If Tomo's statement is correct, the previous personality died at the age of 9, which is unusually early but not impossible. Kinsey, et al. (1975:186)

state that "[e]ight, however, is the earliest age of first ejaculation known for apparently normal males."

[8] See: http://en.wikipedia.org/wiki/Southall_rail_crash. However, the number of the casualties the subject reported is larger than the actual number by one.

[9] I used the homepage "Ke!san" to obtain the figure: http://keisan.casio.jp/exec/system/1257670779.

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RESEARCH ARTICLE

Unidentified Aerial Phenomena: The VASP-169 Flight Brazilian Episode Revisited

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Abstract—The February 8, 1982, sighting of an unidentified aerial phenomenon by crew and passengers in the VASP-169 flight over Brazil had significant media repercussions at the time and is still referred to today by several UFO publications. In this paper we reinvestigate the occurrence in depth and suggest that the "object" was indeed the planet Venus, possibly distorted by an atmospheric mirage effect. An almost simultaneously occurring but lesser-known secondary case is also commented upon.

Keywords: UFOs—VASP 169 Brazilian case—planet Venus—mirages

Introduction

Thirty-one years ago, in the early hours of Monday, February 8, 1982, passengers of Brazilian flight VASP-169 from Fortaleza city to São Paulo were awoken by crew and informed that the aircraft was being accompanied by an unidentified object. The phenomenon was first observed near Bom Jesus da Lapa City, state of Bahia, in the northeast region of Brazil, and pursued the plane for 1 h, 25 min until its stop in Rio de Janeiro (see Figure 1).

The case had great repercussions in the media during the subsequent days and weeks, with declarations from several political, military, and scientific authorities. It was suggested that the plane's crew had mistaken the planet Venus for a UFO, but this conclusion generated much controversy. In this work, we carefully review the available evidence about that occurrence and conclude that Venus provides a valid explanation, although an atmospheric mirage effect must have also been invoked. We also comment upon and reject the alleged connection between the VASP-169 "object" and a ring-shaped luminous cloud seen over southern Brazil just two days before. The main source material for the present investigation is the official pilot report sent to the VASP aerial company (Britto 1982), as well as several important Brazilian newspapers and magazines from that epoch.

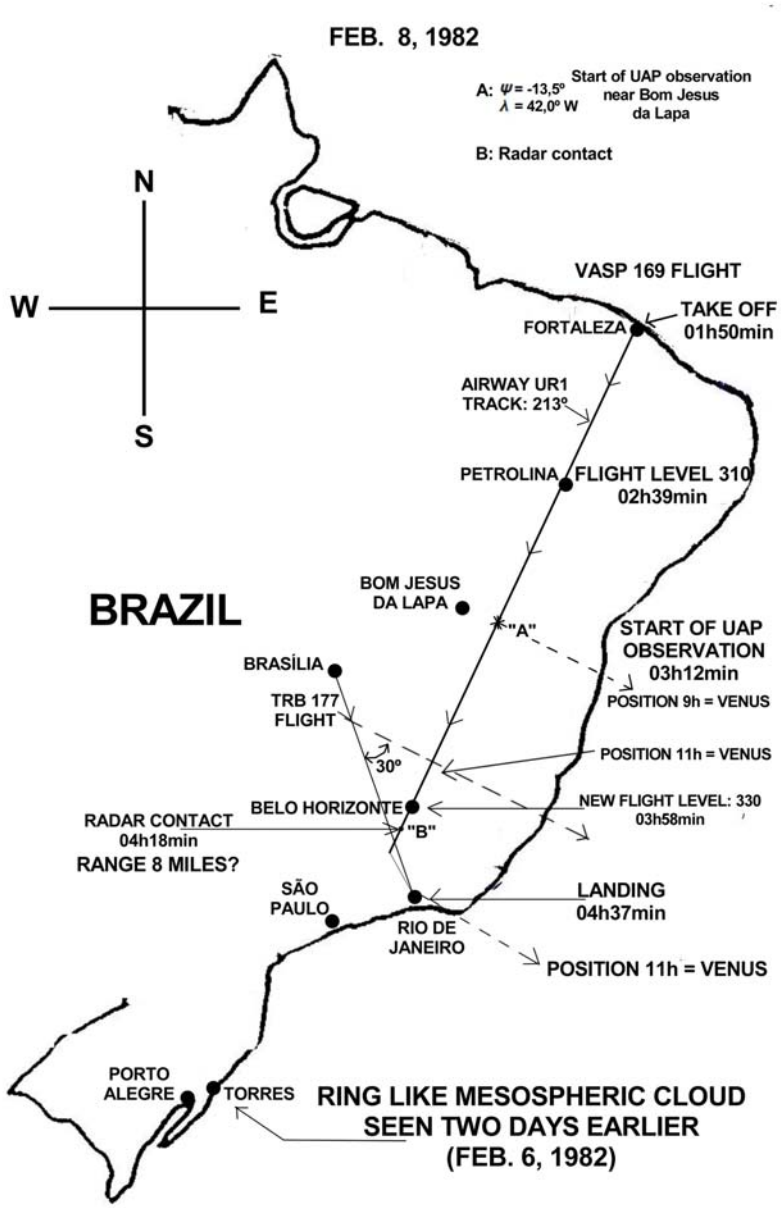

Figure 1. A timeline of flight VASP-169, with the relevant facts reported and discussed in this paper.

A Historical Review

There is some uncertainty about the exact position of the plane when the unidentified aerial phenomenon (hereafter, "UAP") was first observed by Mr. Gérson Maciel de Britto, commander of the 727-200 Boeing PP-SNG owned by the now-extinct Brazilian aerial company VASP. He reported "a strong light" to the left of the airplane, at the approximate position of Bom Jesus da Lapa City ($\varphi = 13.2°$ S; $\lambda = 43.4°$ W), over Bahia state, at 3 h, 12 min local time (GMT-3 h). Surprised, Commander Britto radioed a message to CINDACTA, the aerial traffic control center in Brasília, in order to check if there were other planes in that position. The answer was negative. The strange light then began to change color very rapidly. The reported colors were red, blue, and white. Minutes later, another pilot from an Aerolíneas Argentinas plane behind the VASP 169 but in the same route communicated that he was also seeing the unidentified light. A third report came at 3 h, 40 min from Mr. Milton Missaglia, commander, and Mr. Mário Pravato, co-pilot, who were aboard a 727-100 Boeing (Transbrasil flight number TRB-177, en route from Manaus to Rio de Janeiro). From Missaglia and Pravato's points of view, the UAP was located at position 11 h. Their plane then flew from Brasília to Rio de Janeiro.

When flight VASP-169 passed over Belo Horizonte city ($\varphi = 19.7°$ S; $\lambda = 43.6°$ W), CINDACTA operators reported a radar blip situated about 8 miles from the VASP 169 plane at position 9 h as seen from the pilot's cockpit. At that moment, the UAP was supposedly nearer, and Mr. Britto described it as "a flying saucer outline embedded in a flurry of lights activity." He added the object "was not a star. It looked like a fixed thing, a fixed outline with a luminous focus, although it showed vertical motions up and down from its point of origin" (Britto 1982). The supposed approaching and departing motions were made exclusively in the horizontal plane, that is, within the pilot's line of sight. Immediately, Commander Britto "tried to communicate with [the] saucer's crew, hoping to receive some kind of message." He also activated the external lights of his airplane, trying to send light signals. There was no answer.

Several passengers also saw the supposed object, but their descriptions, in most cases, are vague and imprecise. S. Del Rosso said that "the object shone as a mercury vapor street lamp." M. S. Marrocos affirmed that she "saw a very intense and variable light dot." More dramatic (and atypical) seems to be A. L. Ximenes's report: "What I saw was like a second moon." R. A. Lima notes that "the UFO shape was oval, its center more luminous, with clearer edges," and S. H. Vieira reported "an intense light approaching and departing." F. S. de Araújo described the UAP as "a circle with fluorescent lights, no doubt a UFO . . ." (Ricardo 2003).

When preparing to land in Rio de Janeiro, the "object" was still visible. According to Commander Britto, "the plane had passed through several cloud layers and the object appeared and disappeared." Maneuvering the airplane to land on runway number 14 of Galeão International Airport, Britto was informed that "a strange light was being observed starting two days before, and that a Brazilian Air Force (FAB) squadron was in alert state" (Anonymous 1982a). On February 10, that assertion was denied by the FAB.

A good general review about the flight VASP-169 case may be found in Gross (2005). A very extensive review (written in Portuguese) may be found in Martins (2011).

Some newspapers (e.g., Anonymous 1982b) reported other persons on the ground had observed "a strange object in the sky emitting multicolored lights" shortly before sunrise on February 9. One such report came from Virgínia Drummond, a psychologist living in the nearby area.

When interviewed later, Transbrasil commander Milton Missaglia declared: "The only thing I could see right on the announced position reported by Britto was the planet Venus. That night it was unexpectedly luminous." Even after he had received an alert from CINDACTA, Missaglia could only confirm seeing Venus.

Another (Almost Forgotten) Episode

Just two days before the flight VASP-169 incident, another intriguing atmospheric phenomenon was photographed by Mr. Guaracy Andrade in the small coastal city of Torres ($\varphi = 29.3°$ S; $\lambda = 49.7°$ W), southern Brazil. A professional photographer, Andrade captured the image of a beige ring-shaped luminous cloud moving slowly across the dawn sky. Local newspapers such as *Folha da Tarde* and *Zero Hora* divulged his photos on Wednesday, February 10 (Anonymous 1982b, 1982c). Excited, Mr. Andrade declared that he believed those photos revealed the same unidentified object seen by Commander Gérson Britto. One week later (Anonymous 1982d), both publicly confirmed that opinion based on a superficial comparison between those two phenomena. According to them, "at Torres, the UFO had a bluish color in its center and beige in the periphery. During flight VASP-169, it was seen with an intense blue-white core and red-orange borders." And there was more: "Commander Britto asserted his UFO kept a quasi-static position, just like the Torres UFO. Concerning the shape, the striking differences could perhaps be explained by different view angles: Britto would have seen it edge-on, while Andrade, face-on."

The Venus Hypothesis

Several astronomers suggested that the flight VASP-169 UFO was indeed the planet Venus. Among them were Almeida and Hodara (1982), who concluded based on a simulation made with a Zeiss Spacemaster planetarium projector that the UAP was "planet Venus possibly magnified by some type of rare anomalous atmospheric condition." However, some days later, the renowned scientific journalist Fernando G. Sampaio (Sampaio 1982a) pointed out that at that time, Venus was rising at about 4 a.m. Even taking into account the fact that the airplane flew at an altitude of about 10,000 m, causing a 3° horizon depression, Venus couldn't have been seen at 3 h, 12 min. At most, 3° would have produced a 12-minute anticipation in the Venus rising time, that is, roughly 25% of the 48-minute discrepancy.

Another important question was: Could experienced Commander Britto (then with more than 26,000 flight hours) realistically confuse Venus with a UFO? Many think this would be impossible. However, as the present investigation will show, even an experienced airplane commander can be wrong.

The UAP had been seen simultaneously from three different airplanes that were dozens or even hundreds of miles apart, with no important paratactic deviations reported. This fact clearly indicates that the phenomenon was at a great distance from the observers. In combination with the good meteorological conditions prevalent at that time, an astronomical object well beyond the terrestrial atmosphere seems to be a valid explanation. As seen from the airplane, the sky was clear, suggesting the local predominance of a tropical anticyclone (high atmospheric pressure cell—see Figure 2). Looking through the airplane cabin's windows, a careful and skilled observer would see the constellation Crux directly ahead and, to the left, the bright stars Alpha and Beta Centauri. To the starboard, 37° above the horizon (considering a 3° horizon depression caused by the plane's altitude), was the full moon, placed at the constellation Leo, at 303° azimuth. High, near zenith, the planets Mars, Jupiter, and Saturn were visible, relatively near to each other because of the already long-forgotten "great planetary alignment" which would occur the following month. Looking at larboard, the highest star one could see was reddish Alpha Scorpii (Antares), shining at about a visual magnitude 0.9. From the VASP-169 airplane position at 3 h, 12 min local time, Antares's horizontal coordinates were 113° azimuth and 36° high (horizon depression included). The azimuthal discrepancy between Antares's position and the UAP's position would be only 9.8 degrees.

Concerning the five bright naked-eye planets, only Mercury and Venus

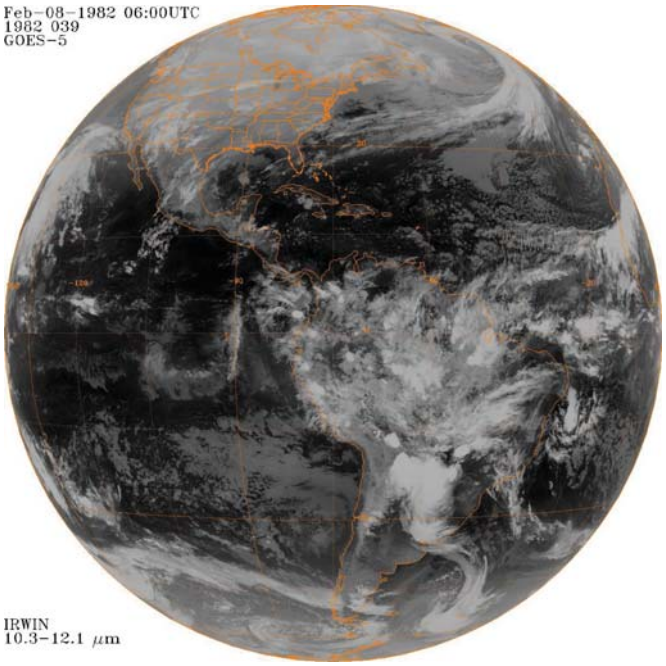

Figure 2. South America infrared satellite image (GOES 5) obtained at GMT-06 h February 8, 1982 (from NOAA files).

were not above the plane's horizon. The first was in retrograde motion at Capricornus, rising at about 4:45 a.m. and shinning at a magnitude of +1, lost in the twilight, and therefore definitely not visible from the airplane. The second planet, Venus, is an attractive possibility.

However, Commander Britto declared to the press that "he had seen Venus rising before seeing the UFO." This claim contains, at the same time, a clue and a contradiction. First, a clue because, if the reported UAP was not Venus, then Britto should have reported that he was seeing Venus in addition to the UFO near the position of the first. This never happened. Therefore, if Venus was already above the horizon, the only plausible possibility is that the Venus image merged with the UFO image (in such a case, it would be simpler and more logical to assume the UFO was, in fact, Venus). Second, we have a contradiction because Venus could not actually have been visible from the airplane's position and altitude at the reported time. Table 1 shows the results concerning Venus's visibility obtained from the author using several sky simulation computer programs calculated for Bom Jesus da Lapa City's position. From that table we definitively conclude that Venus

TABLE 1

Morning Visibility of Planet Venus on February 8, 1982, in Northeast and Southeast Brazil

Aircraft	Venus Rising Time	Azimuth	Position+	Elevation*
VASP-169 (j = −13.2° S; l = 43.4° W)	04h 02min[a] (50)	105°	9h	—
	04h 02min[b] (50)	105°	9h	−12.3° (−9.3°)
	04h 03min[c] (51)	—	—	−11.5° (−8.5°)
	04h 02min[d] (50)	104.5°	9h	—
	04h 01min[e] (51)	104.5°	9h	−12.2° (−9.2°)
Mean	**04h 02.0min (50.4)**			**−12.00° ± 0.25°**
TRB-177 (j = −20.0° S; l = 44.0° W)	03h 57min[a] (45)	105.0°	11h	−3.5° (−0.5°)
	03h 58min[b] (46)	105.0°	11h	−4.2° (−1.2°)
	03h 58min[c] (46)	—	—	−4.2° (−1.2°)
	03h 57min[d] (45)	104.5°	11h	—
	03h 56min[e] (44)	105.2°	11h	−4.3° (−1.3°)
Mean	**03h 57.2min (45.2)**			**−4.05° ± 0.19°**

[a] Data calculated with Cartes du Ciel software (© 2002 Patrick Chevalley)
[b] Data calculated with Cyber Sky software (© 2002 Stephen Schimpf)
[c] Data calculated with Sky Lex software (© 1997 Data Becker GmbH)
[d] Data calculated with Sky Map software (© 1994 C. A. Marriott)
[e] Data calculated with TASCO Sky Watch software (© 2000 TASCO Corp.)

* For the VASP-169 aircraft, this column lists the apparent elevation in degrees at 03 h, 12 min, local time (06 h, 12 min GMT) on February 8, 1982. For the TRB-177 aircraft, the reference instant is 03 h, 40 min, local time (06 h, 40 min GMT). In parenthesis, we have elevations corrected for a 3° horizontal depression corresponding to a 10,000 m altitude.

+ Positions seen from the pilot's cockpit, assuming a magnetic northeast–southwest route, for flight VASP-169.

( ) Numbers in parentheses refer to the minute of Venus rising minus 12 min, corresponding to the maximum anticipation possible caused by a 3° horizon depression.

was still below the horizon line at the beginning of UAP observation. So, must the Venus hypothesis be dismissed?

Perhaps not. The clues list is revealing. The UAP was low in the sky, permitting its observation through the left side windows of the passenger cabin. Its color was described as "white like a mercury vapor street lamp," which is exactly Venus's color. The "object" disappeared behind occasional clouds, suggesting a distant light source, possibly a celestial object. The astronomical azimuth for the Venus rising point at Bom Jesus da Lapa City's position was 105°, only 2 degrees off the reported UFO position (103°). In Rio de Janeiro, observations made two days beforehand suggest a recurrent apparition, which is also compatible with Venus observations. In 1982, the morning Venus apparition began on January 21 with its inferior solar conjunction. The planet then rapidly invaded the pre-dawn sky. For an observer placed in Rio de Janeiro, between January 30 and February 9, Venus rising times ranged from 04 h, 36 min to 03 h, 45 min—51 min in just 10 days, or 5 min earlier each day. This means Venus's rising time on February 8 would have been 03 h, 50 min. Venus's maximum brightness (visual magnitude –4.6) would be reached on February 24, so the planet was already very bright on February 8 (magnitude −4.13).

Many reports of anomalous Venus risings or settings can be found in literature. See, for example, Gray (1962), Rose (1914), Hollis (1915), Borthwick (1966), and Sinclair (1958). Even the reported motions described by Britto (1982) have been mentioned when Jupiter (Tennant 1888) or the Moon (Reade 1888) were near the horizon. Such phenomena can be explained in terms of abnormal refractions.

When flight VASP-169 landed in Rio de Janeiro at 04 h, 37 min local time, Commander Britto said he still could see the "object." The plane was then aligned with runway axis 14 of Galeão International Airport. The UFO position was estimated by Britto as 11 h. Today, Galeão runway 14 points to 146° (magnetic azimuth). In this case, the 11 h position corresponds to a magnetic direction of 146° – 30° = 116°. Correcting the 116° value for the magnetic declination of that epoch (−19.3°), we find an astronomical azimuth of 96.7°. At the instant of landing, Venus's astronomical azimuth on Galeão airport was 101.2°. Therefore, the difference between Venus's azimuth and the supposed UFO's azimuth would be only 4.5°. Such a discrepancy would be a bit larger if one remembers that in 1982, the magnetic azimuth of the Galeão runway 14 was about 2° lesser than 146°. Even so, a 6.5° discrepancy (see Figure 3) is equivalent to 0.2 h in the UFO estimated position, a very small error if we consider that the crew would have been very busy landing the aircraft. We therefore have strong evidence in favor of the Venus explanation for the reported UFO. Table 2 summarizes

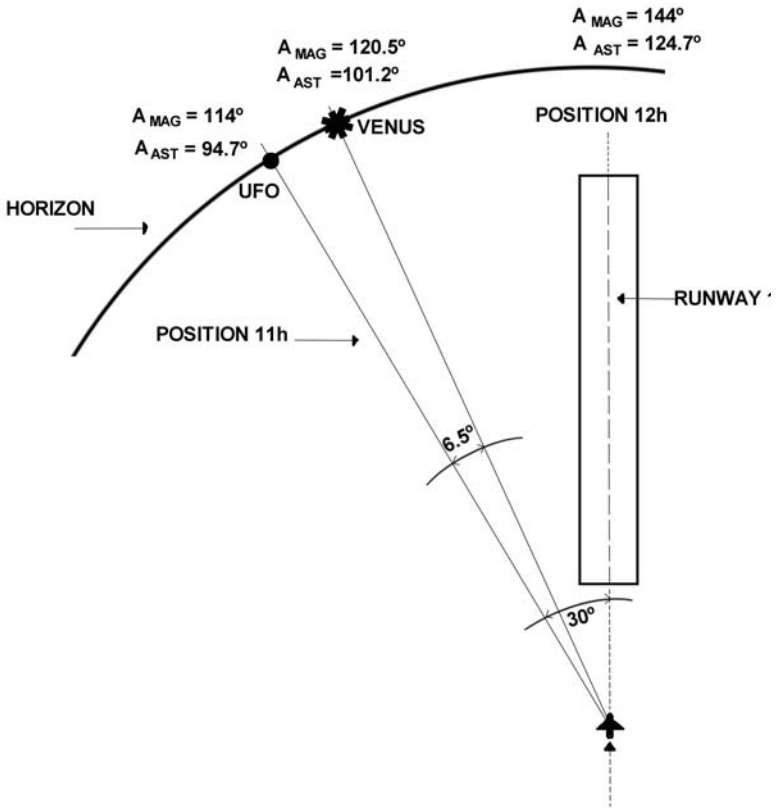

Figure 3. Comparison between UFO's and Venus' azimuthal positions at the landing time of flight VASP-169 at Rio de Janeiro (Galeão International Airport) on February 8, 1982, 04 h, 37min (local time, GMT-03 h). Magnetic azimuths refer to the year 1982.

the circumstances of Venus's visibility at Galeão airport at the exact time flight VASP-169 was landing. It is still worth mentioning that, even during landing procedures, Commander Britto did not recognize Venus as a planet, considering it to be a UFO flying over Guanabara Bay, just a few miles away (the planet was then 47 million km from Earth).

A Mirage Effect?

At this point in the discussion, it seems well-established that Commander Britto's UFO could indeed be planet Venus. But two problems remain. First, under normal circumstances, Venus could not have been visible from flight VASP-169's position at 03 h, 12 min local time. Second, something must

TABLE 2

Venus Visibility at Galeão International Airport, Rio De Janeiro*, Feb. 8, 1982, 04 h,37 min+

Software	Azimuth[a]	Elevation	Position[b]
Cartes du Ciel	102.5°	9.5°	11h
Cyber Sky	101.2°	9.9°	11h
Sky Map	99.7°	10.0°	11h
TASCO Sky Watch	99.7°	10.0°	11h
Mean	101.15° ± 0.57°		

* j = 22° 48′36″S; l = 43° 15′02″W; h = 0 m.
+ GMT – 3 h.
[a] Astronomical azimuth. Add 19.3° to obtain 1982 magnetic azimuths.
[b] Assuming a 12 h direction defined by the Galeão airport runway 14 axis (1982 magnetic azimuth @ 144°).

have occurred so that Venus became unrecognizable. Both facts could be explained by the occurrence of an atmospheric mirage effect.

If the crews of flights VASP-169 and TRB-177 believed they saw Venus when, in reality, it was still –1° to –9° below the horizon (see Table 3), some type of abnormal effect must be invoked.

Of particular interest to our study are two types of mirages, known as Fata Morgana and Novaya Zemlya. Both of them have been known for centuries. Fata Morganas produce curious effects, such as the projection on the air of images from ships and even entire cities situated near or slightly beyond the observer's horizon (see, e.g., Charton 1870). The Novaya Zemlya effect was first observed in 1597 by Dutch polar explorer Willem Barents (c. 1550–1597) when he was in the Russian Artic region northeast of Finland (Sampson 1993). Such a mirage can anticipate the rising of a celestial body by conducting its light rays along a curve way sandwiched between two air layers with different temperatures during a thermal inversion (see Figure 4). Such thermal inversions are more frequent before dawn, because they rarely survive diurnal atmospheric heating. In fact, nighttime mirage conditions may persist for long stretches. Hence, it seems possible that a similar effect accompanied Venus rising that morning and, at the same time, distorted its image. A typical mirage may cause a variable but intense concentration of light rays. Scintillations and apparent brightness variations would simulate the approximation motions reported by Commander Gérson Britto. Based

TABLE 3
Venus Height During Flight Vasp-169 on Feb. 8, 1982

City	Time (GMT-3h)	Height	Notes
Fortaleza (j = 3.7° S; l = 38.5° W; h = 0 m)	01 h 50 min	−43.9°	Takeoff
Petrolina (j = 9.4° S; l = 40.5° W)	02 h 39 min	−29.3°*	
Bom Jesus da Lapa (j = 13.2° S; l = 43.4° W)	03 h 12 min	−9.0°*	Start of observation
Belo Horizonte (j = 19.7° S; l = 43.6° W)	03 h 58 min+	−10.7°*	
South Belo Horizonte	04 h 18 min		Radar blip
Rio de Janeiro (j = 22.6° S; l = 43.3° W; h = 0 m)	04 h 37 min	+10.0°	Landing

* Taking into account a 3° horizon depression as seen from the VASP-169 airplane flying at an 31,000 ft altitude.
+ Exact time not informed by the pilot. After Belo Horizonte city, the plane climbed to level 330 (33,000 ft high).

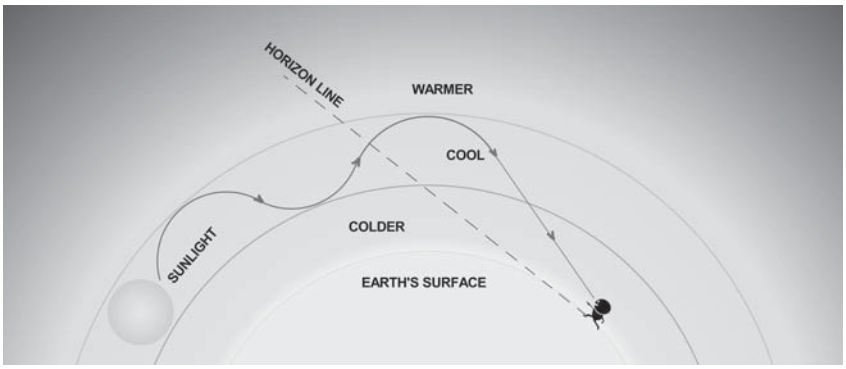

Figure 4. Basic mechanism involved in the Novaya Zemlya mirage. Illustration adapted from Sampson (1993).

on the official report of the incident (Britto 1982), the only observed motions of the UAP were the apparent approaches and departures along the direction perpendicular to that of the airplane route. No lateral translations

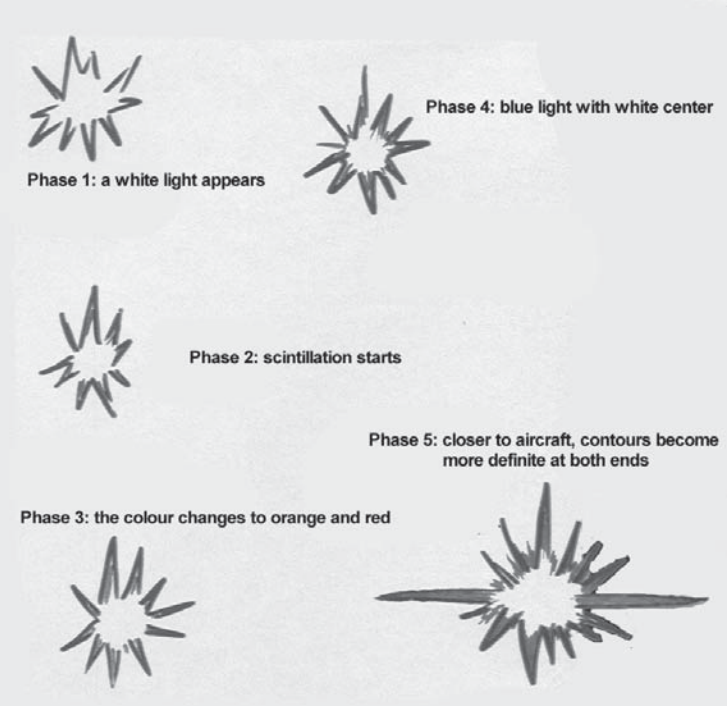

Figure 5. Drawings of the UAP seen by Commander Gérson Britto on Feb. 8, 1982, at dawn, showing brightness and color changes. Illustration adapted from Anonymous (1982e).

are cited, only vertical oscillations. Random dispersion of different light wavelengths can also occur, explaining the diverse colors observed. In Figure 5, we reproduce Britto's drawings as published in the Brazilian press. They are fully compatible with an image of Venus distorted by an atmospheric mirage.

A critical point here is that usually a Fata Morgana mirage produces images situated just above the horizon. However, in the Novaya Zemlya effect, real objects are effectively several degrees below the horizon. Even so, the mirage may be seen several degrees above the horizon line. It is important to mention that the Novaya Zemlya effect may occur in any place, not only in Polar Regions, if temperature variations are great enough to produce a high refraction. According to Heidorn (1999), in the case of Novaya Zemlya mirages, apparent elevations (that is, displacements) of 5 degrees or more are possible. Light rays must travel within an inversion layer

for hundreds of kilometers. The layer must have just the right temperature gradient so that the light continuously bends with the curvature of the Earth over that long distance (400 km for a 5-degree rise in elevation.)

Technically, when an image appears much higher in the sky than the actual object's position, the condition is termed *looming*. Indeed, the most common form of superior mirage is looming. Most looming mirages occur over large bodies of water that are much colder than the air above. The greater and deeper the inversion, the higher the object appears in the sky. In extreme cases involving strong looming, the image may appear relatively high in the sky, although still near the horizon line.

It seems logical to say that Commander Britto started to see the UAP light when this become visible close to the astronomical horizon line. He reported that the light was visible approximately in the center of his left side window, showing occasional vertical oscillations with a 15-cm amplitude (as measured on the glass surface). This could be translated to about a 10- to 15-degree oscillation in the sky plane (assuming the pilot's distance to the window was 0.5 m.)

These possible mirage effects would most likely not have prevailed along the entire flight trajectory. It is more reasonable to assume that they occurred during a limited time interval, attracting the crew's attention, more specifically, between the cities of Bom Jesus da Lapa (the start of the observations) and, perhaps, around Belo Horizonte (when the radar blip was detected). Also, if one must choose between a Fata Morgana and a Novaya Zemlya effect, the latter seems more adequate to explain the starting of UAP flight VASP-169 observations.

It is worth briefly mentioning that in addition to Venus, there were other possible explanations for the VASP-169 episode. An interesting possibility was an atmospheric optics phenomenon involving the full moon and icy crystals in cirrus clouds. According to this hypothesis, the UAP could presumably be a "lunar anthelion," that is, a lunar reflection on the same almucantar as that of the Moon, diametrically opposed to it in azimuth. This reflection would be situated around astronomical azimuth 123°. The 9 h UAP reported position would correspond to a 103° astronomical azimuth. The azimuthal discrepancy would then be 20° (see Figure 6). However, there are problems with this interpretation. Normally a lunar anthelion would be rare, faint, and colorless. It is theoretically possible that a very bright lunar anthelion could produce one or two symmetrically placed moon dogs. The expected azimuths for these would then be 101° and 145°, assuming the most common 22° separation from the central lunar anthelion. Moon dogs may be colored. But moon dogs are also very faint, so they, too, are an unlikely alternative explanation to the VASP-169 flight UAP.

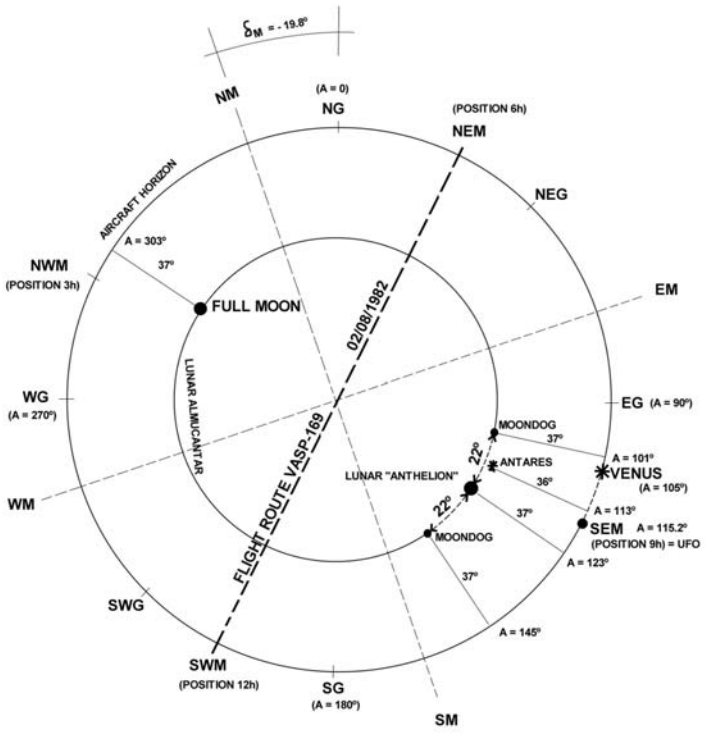

Fig. 6. Zenithal flat projection of the sky at the position of VASP-169 flight at 03 h, 12 min (GMT-3h) on Feb. 8, 1982, near Bom Jesus da Lapa city, taking into account a 3° horizon depression and a magnetic declination of –19.8°. A highly improbable lunar "anthelion" and two 22° moon dogs are plotted, along with Venus rising point and the reported UAP position (9 h). The coincidence between Venus's position and the UAP position is excellent.

The Radar Contact

The alleged radar detection is one of the most controversial questions involving the UFO flight VASP-169 case. In fact, at 4 h, 18 min (GMT-3 h), CINDACTA communicated to the pilot that they had a blip at position 9 h about 8 miles from the plane. In general, ufologists consider this strong evidence of the presence of a real UFO flying near the airplane.

However, some days later, an official bulletin stated that the signal "was not meaningful, having appeared also near other airplanes that night." Furthermore, the list of evidence supporting the Venus hypothesis is long and reasonably well-justified, so it is believed that the mentioned radar detection could simply be a radar dot angel, that is, a spurious echo, which sometimes originates from thermal inversions (Corliss 1984). According

Figure 7. The Torres ring-like mesospheric cloud seen two days before the flight VASP-169 case in southern Brazil. Photo © Mr. Guaracy Andrade, reproduced with permission.

to Glover et al. (1966), radar dot angels may be ascribed to insects, birds, or atmospheric refractivity perturbations. See also Goodman (1954), Rumi (1957), and Atlas (1965). These false targets can persist for as long as 35 minutes, and they frequently have a significant velocity relative to the mean wind velocity. Experiments suggest there is in fact a type of radar dot angel caused by atmospheric perturbations in the refractive index (associated with temperature inversions) in atmospheric layers no more than a few meters thick, in which turbulent eddies the size of a few centimeters occur. Therefore, the flight VASP-169 radar blip may in fact point to an atmospheric mirage effect. The alternative possibility of a radar ghost (radar echoes of distant targets that appear close) seems less attractive in this case.

The Torres Ring-Shaped Cloud

As mentioned earlier, a lesser-known relationship between the flight VASP-169 UAP and an uncommon cloud photographed in southern Brazil two days before was published in the Brazilian press. But now it seems evident that such a relationship cannot be sustained. Most likely, the Torres cloud (see Figure 7) was a rare type of nacreous or even noctilucent cloud, illuminated by the first solar rays in the upper atmosphere (Sampaio 1982b). The photographer estimated the angular elevation of the cloud in relation to the horizon line to be about 30° to 45° (Andrade 2013).

Nacreous clouds or, more generically Polar Stratospheric Clouds (PSCs), can be observed during the civil twilight period (Sun center between −1° and −6° below the horizon), at altitudes of 15,000–25,000 m. If the Torres cloud was in the stratosphere, its distance from the observer would be about 20–50 km.

On February 6, 1982, at the position of Torres city, the Sun rose at 05 h, 54 min (local time). Civil twilight began at 05 h, 27 min, nautical twilight at 04 h, 57 min, and astronomical twilight at 04 h, 26 min. At 04 h, 30 min, when the cloud was photographed, solar depression was at –17.7°.

This seems to indicate that our cloud was probably a noctilucent cloud (NLC) or Polar Mesospheric Cloud (PMC). These clouds are visible in a deep twilight condition and composed of tiny crystals of water ice up to 100 nm in diameter. Their heights vary from 76 to 85 km. From a sample of PMCs observed between 1981 and 1985, Thomas and Olivero (1986) found

an average value of 85.0 ± 1.5 km for northern PMCs. Southern PMCs have slightly shorter average heights of about 83.0 km. Such clouds form under very restrictive conditions and are visible only when illuminated by sunlight from below the horizon. If the Torres cloud was in the mesosphere, its distance from the observer would be about 117 km to 166 km (assuming a height of 83 km.) As mentioned earlier, because the Sun was still very depressed, a mesospheric cloud seems more plausible than a stratospheric cloud. This would have been a typical type IV PMC (whirls cloud), which, on rare occasions, shows a complete ring structure with a dark center (subtype IVc), according to Gadsden and Parviainen (1995).

Sporadically, mesospheric and nacreous clouds may be seen from latitudes far from either pole. A similar observation was made from the nearby city of Porto Alegre, also in southern Brazil, on the summer night of December 19, 1971, approximately 21 h local time (Sampaio 1982b). This cloud was very similar in form to that of the cloud seen in 1982. Solar depression was also at about −17°, the cloud was about 0.5 degree in diameter, and described a circular ring with a dark transparent center (subtype IVc), surrounded by a more diffuse nebulosity. In the southern hemisphere, such clouds may be observed between November and February (Gadsden and Parviainen 1995).

Therefore, we can conclude that there was no relation between the Torres UAP and the VASP-169 UAP.

Conclusion

In this paper, it has been clearly shown that the UAP positions reported by Commander Britto at his first and last observations coincide notably well with planet Venus's positions. Therefore, the evidence supporting the Venus hypothesis is strong.

The flight VASP-169 episode serves as an excellent example to illustrate what usually happens in UAP sightings. Even well-trained persons like air pilots can commit mistakes, and the popular "Venus explanation" is not always invalid. The incident also shows that one episode may generate a cascade of secondary cases and easily lead to false correlations between those cases. There is, additionally, what we define as "the media lens effect," which introduces significant distortions that strongly influence public opinion. A typical example is the Brazilian network TV Globo airing a simulation of the flight VASP-169 incident that shows a gigantic luminous ellipse, like some kind of "mother ship," approaching the aircraft and almost filling the windows of the pilot's cockpit, something which never occurred (see, e.g., Figure 5.)

Surprisingly, the Brazilian magazine *UFO* (Gevaerd 2007) has recently

revisited the flight VASP-169 incident, classifying it as "one of the most important cases in the Brazilian UFO casuistic." The Venus hypothesis was ridiculed, and it was added that Commander Britto asserted, many years later, that he did succeed in his telepathic contact with the supposed UFO's crew. Based on our detailed study, such assertions cannot be supported and reveal a completely unscientific approach to that occurrence.

To someone rigorously using the scientific method, the flight VASP-169 episode cannot be attributed to anything other than a Venus observation affected by a possible atmospheric mirage effect, misinterpreted by an air pilot with an obvious tendency to believe in alien origins for unexplained occurrences.

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HISTORICAL PERSPECTIVE

Nineteenth Century Psychical Research in Mainstream Journals: *The Revue Philosophique de la France et de l'Étranger*

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Abstract—While there were several psychical research journals operating during the nineteenth century, many interesting discussions about psychic phenomena also took place in a variety of intellectual reviews and scholarly and scientific journals of various disciplines. One such example was the French journal *Revue Philosophique de la France et de l'Étranger*, founded in 1876 by Théodule Ribot. Reflecting the various interests of psychologists during the nineteenth century, many topics were discussed in the *Revue*, among them hypnotic phenomena as well as mental suggestion and mediumship. The journal provided an important forum for French discussions in psychology and in the social sciences in general that helped the development of those disciplines. The same may be said about psychic phenomena, which were discussed in the pages of the *Revue* by authors such as Émile Boirac, Victor Egger, Théodore Flournoy, Jules Héricourt, Pierre Janet, Léon Marillier, Julian Ochorowicz, Charles Richet, and Albert Ruault. We present summaries of some of these writings which we hope will bring some of this material to the attention of non-French readers.

Keywords: Revue Philosophique de la France et de l'Étranger—French psychical research—mental suggestion—telepathy—mediumship—Théodule Ribot—Charles Richet—Pierre Janet

Much of the spread of psychical research and the dissemination of its results during the nineteenth century was due to such specialized journals as the *Annales des Sciences Psychiques*, the *Proceedings of the American Society for Psychical Research,* the *Proceedings of the Society for Psychical Research*, *Psychischen Studien*, and the *Rivista di Studi Psichici* (Alvarado, Biondi, & Kramer 2006, Alvarado & Evrard 2012). In fact—and as has been

the case in other disciplines (Cantor & Shuttleworth 2004)—such spread during the nineteenth century was assisted by the proliferation of numerous magazines, intellectual reviews, and scholarly and scientific journals which carried articles, book reviews, and news about the investigation of psychic phenomena.[1]

In this paper we present an overview of discussions of this topic in the well-known French journal *Revue Philosophique de la France et de l'Étranger*. Our purpose is to bring to the attention of English-language readers important bibliographical material relevant to the history of psychical research that is frequently neglected, most likely because of the language barrier.[2] It is our hope that this brief overview, which covers the nineteenth century period when the journal was most influential and contained many papers related to psychic phenomena, will help improve the situation. In addition, the paper is an outline of past developments in psychical research, mainly in France. We emphasize this journal not only because the material published in its pages about psychic phenomena is important and widely cited, but because the *Revue* was a significant influence on France's development in psychology and the social sciences in general.

The Conceptual Background

Magazines, Journals, and Psychic Phenomena

Psychical research received much publicity during the nineteenth century through articles in magazines and reviews. Some of these consisted of positive accounts, among them an influential group of articles authored by French astronomer and psychical researcher Camille Flammarion (1842–1925) in the *Annales Politiques et Littéraires*, discussing apparitions, telepathy, and mediumship (Flammarion 1899). Such papers remind us that there were positive articles in intellectual reviews written by psychical researchers themselves. Some of the best-known in English were those written by prominent members of the Society for Psychical Research (SPR) in publications such as *Nineteenth Century* (Gurney & Myers 1884), *Forum* (James 1892), and elsewhere (Podmore 1895). But many other papers, such as those appearing in the *Harper's New Monthly Magazine* (Jastrow 1899), the *North American Review* (Minot 1895), and the *Revue des Deux Mondes* (Paulhan 1892) were negative discussions of the topic.

More relevant to the theme of the current paper were publications about psychical research in scholarly and scientific journals, a type of publication that carried many discussions about psychic phenomena, usually negative, during the nineteenth century. This included skeptical comments in journals such as the *Psychological Review* (Alvarado 2009e), as well as *Science*

(Cattell 1898), the *American Journal of Psychology* (Hall 1887), and *Nature* (Wells 1894).

There were always exceptions to these negative views in important academic journals, as seen in William James's (1842–1910) open-minded and positive discussions of psychical research in two of the above-mentioned publications (e.g., James 1896a, 1896b). Other exceptions were the articles of Cesare Lombroso (1835–1909) and others in the *Archivio di Psichiatria, Scienze Penali ed Antropologia Criminale* (Lombroso 1891, 1896), a journal he edited and the pages of which he opened to psychic phenomena.[3] However, overall, most discussions in prominent academic journals tended to be negative. The *Revue* had its share of critical and skeptical material, but also contained many positive discussions and presentations of cases.

Psychic Phenomena in France

By the time the *Revue* was founded in 1876, much work had taken place in France in relation to psychic phenomena. As in other countries, there were many developments connected to movements such as mesmerism and spiritism. This was evident in French works discussing both movements from various perspectives, such as Bersot's *Mesmer et le Magnétisme Animal* (1864), and Blanc's *Le Merveilleux dans le Jansénisme, le Magnétisme, le Méthodisme et le Baptisme Américains, l'Epidémie de Morzine, le Spiritisme* (1865). The developments were narrated by physician, chemist, and popularizer of science Louis Figuier (1819–1894; see photo) in his *Histoire du Merveilleux dans les Temps Modernes* (1860), not to mention in many modern scholarly works.[4] Mesmerism in France, as documented in Dingwall's (1968) detailed discussion, was full of claims of psychic phenomena in mesmerized individuals. As stated by student of mesmerism J. P. F. Deleuze (1753–1835) in his *Histoire Critique du Magnétisme Animal*:

Louis Figuier

> Somnambules are more or less clairvoyant . . . they present various phenomena: but the faculty of seeing with the eyes closed, the intimate rapport with their magnetizer, the development of intellectual faculties, the sight of their interior, the prevision of their coming woes, almost always accompany their condition. Moreover, and this is extremely remarkable, most somnambules see and describe the fluid in the same way. (Deleuze 1813:165–166; this, and other translations, are ours)

This fluid, conceptualized as animal magnetism, was at the center of the late French mesmeric movement which continued into the twentieth century (e.g., Chazarain & Declé 1886, De Rochas 1887; see also Alvarado 2009b). There were also other phenomena, such as the claims of cures and of vision at a distance, making the mesmeric literature a veritable catalog of unexplained phenomena.

Many figures of later hypnosis literature were also interested in psychic phenomena (e.g., Carroy 1991, Gauld 1992). One example was physician Ambroise Auguste Liébeault (1823–1904), who influenced the Nancy school of hypnosis (Liébeault 1889:part 2, Chapters 2–6, note C; see also Alvarado 2009a). Another important figure, who we will discuss in more detail below, was physiologist Charles Richet (1850–1935), who conducted work in areas such as mental suggestion and clairvoyance (e.g., Richet 1884, 1888b, 1889).

A similar catalog of unexplained phenomena, including a variety of physical manifestations and claims of communication with the dead, were part of spiritism, as seen in works such as Allan Kardec's (1860, 1863) famous books of spirits and of mediums.[5] In the latter work, Kardec considered many phenomena related to mediums, or individuals believed to be capable of being in contact with the deceased. This included verbal, visionary, and written mediumistic communications, but also the movement of objects, raps, apports, materializations, and direct writing. Spiritism became a popular topic of discussion during the nineteenth century (e.g., Bonnamy 1868, Delanne 1897). Probably the most popular manifestation associated with spiritism in France was the phenomenon of table turning, described by Figuier in the *Dictionnaire Universel des Connaissances Humaines* as: "Strange phenomena that occupy much of the public, as well as the savants" (Figuier 1859:289).[6]

A topic that attracted the attention of many was mental suggestion, which was discussed by Polish psychologist and philosopher Julian Ochorowicz (1850–1917) in his widely cited book *De la Suggestion Mentale* (1887). According to one author, mental suggestion was "the transmission of thought or sensations of an individual to another without perceptible exterior signs to our senses" (De Rochas 1887:372). The concept included the effects of drugs and medicine at a distance, a topic popularized by Bourru and Burot in their book *La Suggestion Mentale et l'Action à Distance des Substances Toxiques et Médicamenteuses* (1887b). Furthermore, mental suggestion was believed to involve the transmission of ideas, images, and thoughts, and the induction of trance and behaviors at a distance. Much work along similar lines was conducted outside France, by, among others, members of the SPR, who used the terms thought-transference and telepathy.[7]

Mental suggestion, like other psychic phenomena, was controversial. As stated by one commentator:

> Unfortunately, these facts are not conclusive. The vast majority of them leave room for multiple interpretations. Can they, however, all be explained by random or strange coincidences? The dominant view of contemporary psychologists and physiologists is certainly contrary to the existence of mental suggestion. (Yung 1890, p. 94)

Both mesmerism and animal magnetism, not to mention occultism in general, were the subjects of many magazines and journals. Three of them published in France were the *Journal du Magnétisme* (started in 1845), the *Revue Spirite* (started in 1858), and *L'Initiation* (started in 1888). The *Revue Spirite*, edited in its beginnings by Kardec, presented much information in its pages about psychic phenomena, particularly summaries of cases discussed in the press and opinions about phenomena and other topics authored by supposed discarnate spirits communicating through mediums.

In 1874 the *Revue de Psychologie Expérimentale* began publication. The journal covered such varied topics as spiritualism, somnambulism, and hypnosis. It was edited by physician and botanist Timothée Puel (1812–1890), a pioneer of hypnotism who had published work on catalepsy (Puel 1856). The journal was short-lived, stopping publication in 1876 (Lachapelle 2011:29–30).

In later years the *Annales des Sciences Psychiques* (which started in 1891) became the main publication of French psychical researchers (Alvarado & Evrard 2012). Because psychic phenomena were considered controversial (e.g., Richet 1892a), there were few mainstream journals that opened their pages to the topic in a positive way.[8]

The Revue Philosophique de la France et de l'Étranger


REVUE
PHILOSOPHIQUE
DE LA FRANCE ET DE L'ÉTRANGER
TH. RIBOT
PREMIÈRE ANNÉE
PARIS

The *Revue*[9] was such a publication (see photo). It was founded in 1876 by philosopher and psychologist Théodule Ribot (1839–1916), an important figure in late nineteenth century French psychology who insisted the field should be empirical, based on systematic observation and connected to physiological concepts (Ribot 1879).[10] It is not well-known that Ribot also had a life-long scientific interest in psychic phenomena (Gumpper 2013). Indeed, he was a corresponding member of the Society for Psychical Research from November 1886 to his death. Ribot was

a close friend of Richet, and stood at his side during some attempts to institutionalize psychical research, and even participated in some in some experiments (Richet 1888b:70). He helped to bring discussion of this research to an academic level in France.[11]

Although the journal had the word *philosophy* in its title, its contents covered many disciplines. Thirard's (1976) analysis of 508 original articles published in the journal for the 1876–1890 period showed discussions of psychology (37%), history of philosophy (26%), philosophy, history of science, and logic (9%), sociology and human sciences (7%), metaphysics (7%), morality and philosophy of education (6%), esthetics (5%), and physiology (3%). While she argued that psychology was the most frequent topic when we consider esthetics, metaphysics, and other aspects of philosophy combined with other topics (morality, philosophy of science), philosophy needs to be considered at least on a par with psychology. Nonetheless, there is no question that psychology was a prominent topic in the journal.

Before the founding of *L'Année Psychologique* in 1894 (Nicolas, Segui, & Ferrand 2000), the *Revue* was probably the main French forum for the publication papers of psychological topics. Other existing journals were either short-lived and of limited circulation (e.g., *Bulletin de la Société de Psychologie Physiologique*) or were too specialized (e.g., *Annales Médico-Psychologiques* and *Revue de l'Hypnotisme Expérimental & Thérapeutique*). In fact, it has been argued that the *Revue* "was the instrument of diffusion of French 'experimental' psychology; therefore it represents the main historiographical source to understand the characteristics of the rising psychological research in that country" (Foschi 2003b:46).

The first volume of the *Revue* included articles by such noted figures as Paul Janet (1823–1899), George H. Lewes (1817–1878), John Stuart Mill (1806–1873), Herbert Spencer (1820–1903), Hippolyte Taine (1828–1893), Eduard Von Hartmann (1842–1906), and Wilhelm Wundt (1832–1920). There were also many reviews of books published in a variety of languages.

French historian of psychology Serge Nicolas has argued that while the new generation of French psychologists followed an empirical approach that dominated the *Revue*, the dialogue between scientific and philosophical psychologists was kept open in the journal. Nicolas further argued that the journal was a contributing factor in the development of nineteenth century empirical psychology (Nicolas 2002:118). An important aspect was that the *Revue* was a forum for work on abnormal psychology and hypnotic phenomena that contributed to the development of the concepts of the subconscious mind and of dissociation.[12] While Ribot argued for methodological improvements to deal specifically with mental phenomena,

others conducted the necessary research (for an overview, see Brower 2010: 39–44).


Pierre Janet

An important figure in this task was Pierre Janet (1859–1947) (see photo), who became well-known for his studies of hypnosis and dissociation in general.[13] Three of Janet's papers about phenomena such as automatic writing and state-specific memory in a small number of hypnotized mental patients published in the *Revue* were particularly important and influential (Janet 1886a, 1887, 1888b). In the first work, which dealt with unconscious acts and the doubling of personality during hypnosis, Janet (1886a) wrote about a hysterical woman named Lucie, referred to as "L." in the article. Put into a somnambulistic (hypnotic) state during the middle of a conversation, L. stopped talking, but resumed the conversation when she awakened.

> The same phenomenon has taken place elsewhere in somnambulism. Once she goes back to sleep, L. continues sometimes the act began during the previous somnambulism. We could have as well two conversations very strangely interrupted and resumed, one during the waking states, the other during somnambulisms. (Janet 1886a:579)

Different personalities communicated through L.'s automatic writing, one which adopted the name Adrienne at Janet's suggestion. On other tests Janet found that L. could keep track of numbers in her somnambulistic state. These and other observations led Janet to believe that: "Evidently there exists in the head of L. important psychological operations outside of her normal consciousness" (Janet 1886a:586).


Charles Richet

Also important was the work of Richet (see photo), who explored memory states and personality changes during hypnosis and published his findings and ideas in the *Revue* (Richet 1880, 1883).[14] Richet stated that the hypnotized showed "a dissociation of their psychic elements" in which the "*self* is retained, while amnesia of personality is complete" (Richet 1883:233).

In addition to Janet and Richet, many other writers discussed the phenomena of

hypnosis in the pages of the *Revue* (Beaunis 1885, Bergson 1886, Bernheim 1885, Bourru & Burot 1885, Delboeuf 1886, Sauvaire 1887). Hypnosis was seen by many in France as a tool to explore non-conscious levels of the mind, as well as the mind in general (e.g., Héricourt 1889). As stated in the *Revue*: "Hypnotism constitutes . . . a genuine method of experimental psychology; it will be for the philosopher what vivisection is for the physiologist" (Beaunis 1885:1).

All of this work took place not only with hypnosis, but with the study of other phenomena. Outside the *Revue* there were many French explorations of various hysterical disturbances (Richer 1885) and spontaneous dissociative episodes of different sorts such as the famous case of Félida X. (b. 1843) (Azam 1887), among others (e.g., Bourru & Burot 1888, Dufay 1876, Guinon in collaboration with Bloq, Souques, & Charcot 1893:Chapter 29). As others have noted, phenomena such as amnesia, somnambulism, and double and multiple personality cases, implying the idea of secondary states, were important in shaping parts of French psychology (Carroy & Plas 1993, Foschi 2003a).[15] It was part of a general belief that the pathological and the unusual could illuminate the formation of normal personality (e.g., Ribot 1888).

As argued by Plas (2000), all this interest in non-conscious levels of the mind was not limited to amnesia, natural and induced (hypnotic) somnambulism, and secondary personalities. It also included what some referred to as psychic phenomena or what many in France referred to as the marvelous (e.g., Durand (de Gros) 1894, Figuier 1860). All of this was discussed in the *Revue*.

Commenting about the *Revue*, Wilhelm Wundt stated that topics such as hypnosis, telepathy, and animal magnetism were discussed "not as if they were mere curiosities" (Wundt 1905:43). In fact, and as discussed below, the *Revue* was unusually open to the topic, which may have reflected Ribot's interests in unusual phenomena. He went on record at the Fourth International Congress of Psychology that "supernormal" phenomena were the "advanced, adventurous parts of experimental psychology, but not the less attractive" (Ribot 1901:46).

Psychic Phenomena in the *Revue*

Mental Suggestion

The most frequently discussed phenomenon in the *Revue* was mental suggestion. Richet (1884) authored an influential paper on this topic in the *Revue* in which he introduced statistical evaluation to the subject. His studies included guessing tasks of cards, photographs of statues, objects, and scenes,

and tests in which motor responses were elicited using the dowsing rod and table turning. Richet concluded:

> The method that I have adopted is that of probabilities; it poses the problem thus: *Given an arbitrary designation whose probability is known; does the probability of this designation change by the fact of mental suggestion?* To this question our experiments allow us to reply affirmatively: For playing cards, the answer by chance should be 458, and it was 510 with suggestion on 1833 tests. For photographs and pictures, the probable number was 42, and the acquired number was 67 on 218 tests. For experiments with the dowsing rod, the probable number was 18, and the real number was 44 on 98 tests. For experiments called spiritistic, the probable number was 3, but the real number was 17 on 124 tests. The results acquired by the calculation of serial probability are more conclusive still. (Richet 1884:668–669)

Regarding the latter, Richet stated: "It is completely implausible that chance, on about 300 experiments, can give me so many times these remarkable series" (Richet 1884:669). Overall, he concluded that his results were not explained by chance. Paraphrasing Pascal, Richet wrote:

> *If it was necessary to opt for the reality or not reality of mental suggestion, I would let luck decide; but I would give two chances to the hypothesis that suggestion exists, and one chance only to the opposite hypothesis.* (Richet 1884:670, Richet's italics).

Assuming the reality of mental suggestion, Richet queried, would this mean that the phenomena would bring a "new era" to science? Not in his opinion. He believed the phenomenon "changes nothing in our actual knowledge about living or inert matter" (Richet 1884:671).

As discussed elsewhere (Alvarado 2008), the article included other interesting topics such as the reanalysis of previously published telepathy studies and the relationship of mental suggestion to the unconscious mind. According to Richet, mental suggestion acted on the "unconscious faculties of intelligence" (Richet 1884:639). There was no awareness that a message had been received, but the information could find expression through means such as unconscious movements associated with dowsing and table tilting. But the tests and statistical analyses of mental suggestions were the aspects most widely cited in this paper, and the reason why this article is still remembered and cited today.[16]

But what may have been more influential to open parts of the academic French scene to mental suggestion were the famous attempts to induce trance and behavioral effects at a distance reported by Pierre Janet (1886b, 1886c), a phenomenon one author referred to as telepathic hypnotism

Léonie Leboulanger

(Myers 1886d) and what the French called sleep or somnambulism induced at a distance. In two papers Janet reported tests conducted with Le Havre physician Joseph Gibert (1829–1899) in which he attempted to induce trance at a distance on Mme B., an alias for the famous subject/patient Léonie Leboulanger (b. 1837, see photo).[17]

This work was presented in meetings held at the Société de Psychologie Physiologique, which was founded in 1885, an event mentioned in the *Revue* (Société de Psychologie Physiologique de Paris 1885). The Société, which was presided over by neurologist Jean-Martin Charcot (1825–1893), and had the above-mentioned Ribot and philosopher Paul Janet as Vice-President and Richet as General Secretary, was devoted to various problems of psychology, among them those of psychical research (see Plas 2000:54–55).

Janet's first paper had a simple title merely referring to "some phenomena of somnambulism," while the second one referred to sleep induced at a distance and mental suggestion. We will use the published English translation of the two papers (Janet 1886/1968a, 1886/1968b) and present several quotes from them.

In the first paper Janet (1886/1968a) reported observations made in 1885. He started by admitting that the phenomena were unusual and "far from being admitted [to] by all those who concern themselves with these questions" (1886/1968a:124). Then he proceeded to describe his subject, Mme. B. (Léonie Leboulanger), whom he characterized as essentially a healthy countrywoman during her usual state, but who presented moments of somnambulism starting in childhood during which "she was able to speak of and describe the unique hallucinations that she experienced" (1886/1968a:124). Janet described one of the tests conducted as follows:

> Without warning Mrs. B. of his intention, Dr. Gibert went into an adjoining room and placed himself six or seven meters from his subject. From this other room, he tried mentally to give her the order to sleep. I remained with the subject and noticed that after a few minutes her eyes closed and sleep began. But what seemed particularly strange to me was that in her lethargy she was not at all under my influence. I could not provoke in her either contracture or attraction, although I was in her presence when she went to sleep. On the other hand, she completely obeyed Dr. Gibert who was not present, and finally it was Dr. Gibert who had to awaken her. This proved that it was he who had to put her to sleep. (Janet 1886/1968a:127)

In another test Janet stated that he had visited Gibert in his office and asked him to suggest sleep to B., who was in another house 500 meters away. B. had never been affected in this way at this time of the day, something Janet mentioned to show he was aware of the influence of expectation. Janet went to see B. and said there had been no apparent effect. But he wrote that she said:

> I know that Dr. Gibert wanted to put me to sleep . . . but when I felt it coming I found some cold water and put my hands in it . . . I did not want him to put me to sleep this way . . . I could have been talking to someone and that would disturb me and make me appear stupid. . . . (Janet 1886/1968a:127)

On another occasion Janet repeated the same test, going to Gibert's place once again, and this time B. was asleep. "The sleep was not a natural one because she was completely insensible, and one could not awaken her" (Janet 1886/1968a:128).

Gibert also suggested some complicated acts to be performed:

> These acts were evidently too complicated to be executed, but at the exact moment when Dr. Gibert ordered her to do them from Graville, I saw with my own eyes the effect that these commands produced at a distance of 2 kms and a real beginning of their execution. It really seemed that Mrs. B. could somehow sense these orders, that she had resisted them, and that she was only able to disobey when Dr. Gibert was in some way distracted. (Janet 1886/1968a:129)

In another test, silent suggestions were given from close by. Gibert mentally suggested to B. by bringing his forehead close to B.'s. He silently willed her to lock the doors of the house at 12 o'clock the next day. According to Janet:

> The next day, when I arrived at a quarter to twelve, I found the house gates closed and the door locked. I found out that it was Mrs. B. who had closed them. When I asked her why she had done this strange thing, she answered in the following way: "I felt very tired and I didn't want you to enter the house, and put me to sleep." (Janet 1886/1968a:130)

Janet seemed to be open-minded about the phenomena he observed. But he stated he had no explanations for his results.

The report of the tests continued in the second paper (Janet, 1886/1968b). Once again, Janet attempted a distant test from his office separated from B. by four or five hundred meters. Janet was dubious of the result of the test. He wrote:

> To my great astonishment, the people in the house warned me that Mrs. B. had been extremely indisposed for about an hour. She had been overtaken by fatigue and forced to interrupt her housework. In order to pull herself together, she had had to drink a glass of water and wash her hands and face. Mrs. B. herself told me of her indisposition, which she was unable to explain. (Janet 1886/1968a:259)

In another distant test when Janet went to B.'s place he found her "stretched out on a sofa in a very deep sleep" (Janet 1886/1968a:260). Several tests seem to have been failures and some partial successes. Janet further wrote:

> On the 14th of April I put her to sleep without touching her, but at the time I was in the same room with her. On the 18th, which was a Sunday, I was alone and . . . I tried to put her to sleep from my place. I was completely successful. She was asleep 10 minutes after I began to think of putting her to sleep. On Monday, the 19th, my uncle, Dr. Paul Janet,[18] had just arrived at Le Havre. I wanted first of all to show him the somnambule before trying any experiments. He preferred, with no one being warned, to ask Dr. Gibert to immediately put her to sleep from his place. Caught unaware, Dr. Gibert tried to do this at 4 o'clock. We found Mrs. B. completely asleep at 4:15. On the 20th, a Tuesday, Dr. Gibert put her to sleep from a distance, this time at 8 o'clock in the evening in front of Dr. Paul Janet and made her come to his place using mental suggestion. (Janet 1886/1968a:262)

Another test took place involving Janet's brother, Dr. Jules Janet (1861–1945).[19] This time Gibert willed B. to sleep and to come to his place.

> A few minutes after nine, Mrs. B. abruptly left her house. She was not wearing any hat, and her walk was rather precipitated. I went up to her and saw that her eyes were completely closed and that she showed all the signs which I knew to be typical of her somnambulistic state. She avoided all obstacles with a dexterity that reassured me but it took her quite a long time to recognize me. At the beginning she avoided me and stated that she did not want to be accompanied. After about 200 meters, she knew who I was, and seemed pleased with my presence. However, several times, I was rather frightened by the hesitation of her walk. She would stop and balance back and forth as if she was going to fall. I was afraid she might quickly enter into a period of lethargy or catalepsy which would have made the trip very difficult. This did not occur. She pulled herself together and arrived without any further difficulty. She had barely arrived when she fell into an armchair in a very profound state of lethargy. This lethargy was only interrupted for a moment by a period of somnambulism in which she murmured: "I came . . . I saw Dr. Janet . . . I thought it would be better if I didn't take the rue d'Etretat, there were too many people . . . (She had taken another street on her own volition.) A man threw himself in front of me. . . He said that I was blind,

> how stupid of him . . . ," and she remained asleep for a long time. Later she again fell into a somnambulistic state and said that she had felt a great deal of fatigue and hesitation during the trip. She believed that this was due to the fact that Dr. Gibert had not thought continually enough of making her come. She had fallen asleep, as I was told afterwards, several minutes before 9 o'clock, that is to say the hour Dr. Gibert had thought of, but she began her walk only *5* or *6* minutes later. (Janet 1886/1968a:265–266)

Several tests took place in the presence of other observers, such as physician Arthur T. Myers (1851–1894), classical scholar and psychical researcher Frederic W. H. Myers (1843–1901), student of religion Léon Marillier (1862–1901), and the above-mentioned Julian Ochorowicz. These have been described elsewhere in more detail (Myers 1886d, Ochorowicz 1887:121ff).

Summarizing his work with Gibert, Janet stated that out of 22 experiments, 16 were successful and six were failures. In the second paper, as in the first, Janet did not offer any theoretical explanations for the reported effects. He merely finished the article by saying: "One must continue to gather facts which are more precise and more numerous on this delicate subject which is as interesting to psychology as it is to physiology" (Janet 1886/1968a:267).[20]

Janet's papers were very influential in late nineteenth century psychical research, cited by many inside and outside of France (e.g., Gurney, Myers, & Podmore 1886 Vol. 2:679–682, Ochorowicz 1887:118, Paulhan 1892:71–72, Senillosa 1891:256–260). This work, particularly that reported in the first paper, opened the door to the publication of similar cases in the *Revue* by other authors, accounts that were also presented in the meetings of the Société de Psychologie Physiologique. Both Richet and physician Jules Héricourt (1850–1938) reported on old observations they made in the 1870s (Héricourt 1886, Richet 1886a). Richet (1886a) commented: "If, therefore, the phenomenon exists—and I think it is difficult to deny it absolutely—it is extremely rare, and occurs only in special circumstances which so far elude scientific determination" (p. 200).

Héricourt (1886) described his case as consisting of observations of a 24-year-old woman of Spanish origin who was a widow and mother of a five-year-old, of dark complexion, and with no discernible hysterical problem. As he wrote about his attempts to induce trance using mental suggestion, the first test was successful after a period of ten minutes in which he looked at her and held her thumbs.[21] "Subsequently, the same result was obtained, either only by looking at or touching the head or the hand for barely a few seconds, and then finally, by even less. . . ." (Héricourt 1886:201; for more information about this case, see Héricourt 1931).

Others reported various observations as well to the Société (Beaunis 1886, Dufay 1888, Gley 1886, Richet 1888a). However, these reports were not as systematic as those authored by Janet.

Furthermore, many commented about these phenomena. In an essay review about publications on "mental suggestion and mental action at a distance" Marillier concluded:

> Apparent mental suggestion is a dialogue between the subject's unconscious and the unconscious of the experimenter and the greatest service that these new studies can make is to attract the attention of psychologists on a class of phenomena where we can find the solution of a good number of problems which confuse very much the science of the mind. (Marillier 1887:422)

Ochorowicz (1886) listed several variables that needed to be controlled in order to obtain acceptable evidence for mental suggestion. Among them were chance, involuntary verbal and other forms of suggestion, and hyperesthesia of the senses. But he affirmed the existence of the phenomena and listed disease, pain, objective sensations, feelings, ideas, and well as things that could be transmitted from one person to another.

On the skeptical side, physician Albert Ruault (1850–1928) assumed that sensory unconscious communication explained the phenomena (Ruault 1886). He believed that, "In general, the experiences of mental suggestion are much more successful when the hypnotist is in the presence of the subject than when he is away at some distance" (Ruault 1886:396). But he did not satisfactorily address the issue of distance in tests such as those of Janet and Gibert. In his view, "The thought of the hypnotizer doing the mental suggestion is manifested thanks to his interior word [thoughts], which is always accompanied by movements . . ." (p. 687). Given this, Ruault argued, "The movements are perceived unconsciously by the subject, whose sensory hyper acuity is then extreme. . . ." (p. 687). He suggested that this hyperacuity could include the hypnotist's pulse rate, which accelerates when an effort of mental will is done. "Is it not therefore reasonable to assume that vasomotor phenomena, or other of our unknown signs may be unconsciously perceived by the subject, and produce in him these vague sensations which he attributes in effect to a personal influence of the hypnotist?" (p. 693).[22]

Effects of Drugs and Medicines

Another line of research was the work of physicians Henri Bourru (1840–1914) and Prosper Burot (1849–1888), who were well-known for their claim that patients were able to show the effect of medicines and drugs when

they were presented to the patients without mention of their physiological properties (Bourru & Burot 1887a, 1887b). Both these authors and Richet discussed the topic in the *Revue* (Bourru & Burot 1886, Richet 1886b). Bourru and Burot (1886) asked if it was possible to induce "by a simple external application, the physiological action" (p. 313) of drugs and medicine on research subjects.

In one case, a hysterical patient had a piece of opium wrapped in paper put on his head, after which he closed his eyes, relaxed his muscles, and fell asleep. "On repeating the experience by changing the place of application: on the front, the neck, the left or right side of the head, the hand, and [up] to the soles of the feet, the effect is always the same" (Bourru & Burot 1886:313).

It was also observed that when "A vial of atropine is put in contact with the sole of the foot; after three seconds, the subject remains motionless, the eyes open; soon the eyelids will close, the eyes convulse, and after a few moments the pupils dilate. There is photophobia while awake" (Bourru & Burot 1886:314).

In another test they used two packets prepared by a colleague without knowing their content. They wrote: "The first produced sleep, with yawning and nausea while awake: It contained opium. The second produced an intolerable burn: It was a mercury salt. We consider this experience is of very great importance" (Bourru & Burot 1886:315).

The authors were aware of critiques such as that the subjects could perceive smells of the substances or that they could learn from the experimenters what effects to produce, objections they rejected. In a comment following the paper, Richet (1886b) was worried about smells perceived by the subjects and commented on expectation and the possibility of mental suggestion, as opposed to the direct action of drugs (such as the idea of vibrations emanating from the drugs and medicine, favored by Bourru and Burot (1887b:254). He ended by suggesting that future researchers should conduct tests while the experimenter did not know the nature of the substance used and that the results should be evaluated directly from the symptoms presented. In addition, he suggested the use of a limited number of substances, listing four possible candidates. He pointed out that in that case the probability of making an accurate diagnosis was one out of four, so after a few tests it could be evaluated "if one has a better diagnosis than could [be] given by chance" (Richet 1886b:323).

Other Hypnotic Phenomena

In addition to Ruault, others discussed the hyperacuity of the senses in the hypnotized (Bergson 1886, Sauvaire 1887). But one of the most

interesting hypnotic phenomena was that of transfer, which took place mainly within the Salpêtrière school of hypnosis and generated many controversies (Nicolas 2004).[23] As seen in a *Revue* paper by Alfred Binet (1857–1911) and Charles Féré (1852–1907), this consisted of the "transfer" of sensory and motor phenomena (e.g., hallucinations, paralysis) from one side of the body to another through the application of magnets (Binet & Féré 1885). Their subjects were generally hysterical patients who were hypnotized.

Blanche Wittman

The authors presented several examples of this transfer, such as the following with the famous hysteric/hypnosis subject Blanche Wittman (b. 1859, see photo):[24]

> Wit … is in a state of somnambulism, sitting on a chair. We suggested to her to scratch the arm of the chair with the left index [finger]; the magnet was applied at some distance from the right hand, and then we woke the patient. The movement still existed on the left, but if slightly, so that the patient did not see it. At the end of 30 seconds, the two indexes were beginning to fiddle slightly; the movement was growing to the right, while it decreased to the left. The transfer was complete at the end of a minute. (Binet & Féré 1885:8)

In another test, the same patient was hypnotized and was suggested to write numbers with her right hand. "We woke her; a magnet was hidden in the vicinity of her left hand. She wrote up to the number twelve with the right hand, and then she hesitated, changed the hand with the pen, and began to write with the left hand" (p. 10). The numbers were correctly written in reverse from left to right and the left hand made similar movements to those of the right hand. This was considered to be evidence that the magnet induced a transfer. "It should be pointed out that while she writes with her left hand, it is impossible to write with the right hand, she became left-handed with her right hand" (p. 10).

Binet and Féré believed that the magnet produced the transfer, being "the great modifier of the nervous system" (p. 16). In their view, they had accounted for suggestion and expectations in different ways.

In later work reported in the *Revue,* physician J. J. F. F. Babinski (1857–1932) extended transfer phenomena beyond the patient's body

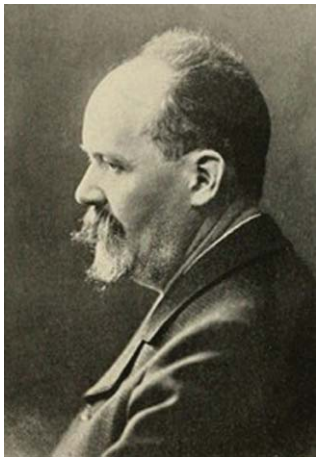
(Babinski 1886). Instead of transfers from one side of the body to another, the phenomena was reported to take place from one person to another. This work was continued by others in work published elsewhere (Luys & Encausse 1890).

Of course, transfer demonstrations brought criticism from those such as Hippolyte Bernheim (1840–1919), who believed that suggestion, rather than the physical action of the magnet, explained the experiments of Binet and Féré (Bernheim 1885). "Among no hypnotized . . . have I seen any transfer produced *by the single application of the magnet, before the idea of the phenomenon had entered their brain*" (p. 312).[25]

As was to be expected, members of the Salpêtrière School did not pay much attention to these objections. An example was physician Paul Richer's (1849–1933) review of a book by Binet and Féré (1887) published in the *Revue* (Richer 1887).

Mediumship

Swiss psychologist Théodore Flournoy (1854–1920, see photo) authored an important paper on mediumship in which he presented two cases of mediumistic communications that were interpreted to be the "product of the subconscious imagination of the medium, working with recollections and latent worries" (Flournoy 1899:144). This was the beginning of Flournoy's (1900b, 1911) well-known psychological analyses of mental mediumship.[26]



Théodore Flournoy

Flournoy argued that his cases represented subliminally-produced romances by means of the mediums' memories and of a "curious faculty of dramatization and personification" (p. 157).[27] Furthermore, Flournoy concluded that in some normal persons, the practice of mediumship may disturb their mental balance and "engender an automatic activity [whose] results simulate in the most complete way communications coming from the beyond, although in reality they are but the result of the subliminal workings of ordinary faculties of the subject" (pp. 157–158).[28]

In an early paper Pierre Janet stated: "All suggestions must be accompanied by some degree of unconsciousness or instead . . . by some doubling of consciousness. All the phenomena of spiritism that are frequent are but the development of analogous facts" (Janet 1886a:592). Janet

developed these ideas further in other publications and returned to the topic in a later paper in the *Revue* in which he presented remarks about mediumship and spiritist publications.[29]

In this paper Janet (1892) argued that spiritists had neglected the psychological study of mediums. On the other hand, he credited them for bringing a useful technique to the attention of students of the mind.[30] "We persist in believing," wrote Janet (1892:413), "that spiritists were the first to bring attention to subconscious movements and to the manifestations . . . of mental disaggregation."[31] He had written in the *Revue* years before that automatic writing was a "method of psychological analysis," the means to "penetrate further into the thought of somnambules" (Janet 1887:452).

In his view, both mediums and hysterics displayed a "serious problem in the mental operation of perceptions" indicative of "psychological disaggregation" (Janet 1892:419). Some of them, Janet pointed out, showed lack of sensibility in their right side while doing automatic writing. Nonetheless, Janet did not think that mediums were always hysterics. He observed a case of somnambulism and automatic writing that did not show hysteria, but presented fixed ideas, doubts, and insanity. In such cases he considered "mental disaggregation as a disease larger than hysteria that may manifest through hysterical symptoms but that may also manifest in other forms" (p. 424).

Mediumship was also discussed in a review of a book by Flournoy authored by magnetizer and psychical researcher Colonel Albert de Rochas (1837–1914; De Rochas 1900; see also Flournoy 1900a). There were also reviews of books that featured the mediumship of Eusapia Palladino (1854–1918, Boirac 1897) and Henry Slade (1835–1905, Review of *La Physique Transcendentale* 1880).

Near-Death Experiences and Panoramic Memory

Two papers by French philosopher Victor Egger (1848–1909) on "the self of the dying" focused on panoramic memory[32] (Egger 1896a, 1896b). Egger postulated that being close to death produced in the experiencer a "live self," consisting of "significant and rapid images" (1896a:37). A sudden threat of death, he believed, could trigger "concepts and propositions" (p. 30) related to the person's mortality.

His discussion was followed by other articles and notes in which other cases and theoretical discussions were presented. Two readers of the *Revue* presented further cases of panoramic memory (Keller 1896, Moulin 1896). Other ideas were discussed by French physicians Paul August Sollier (1861–1933) and Charles Féré. Sollier (1896) speculated instead that the panoramic images were caused by an effort to escape death and a loss of

bodily sensibility. Egger (1896b) was critical of Sollier's physiological ideas and argued that the idea of imminent death was actually the "necessary condition for the phenomena" to take place (p. 343). Féré (1898) also argued for a physiological explanation of memories. In his view they were caused by "a momentary hyper-excitability of the nervous elements . . ." (p. 302).

Critical Views

As mentioned before, some papers were critical of the phenomena or attempted to present conventional explanations for them such as sensory cues (Bergson 1886, Ruault 1886) and suggestion (Bernheim 1885).

The reviewer of a book by British physician William B. Carpenter (1813–1885) considered the phenomena of mesmerism and spiritualism to be absurd, and expressed his belief that scientific education would decrease belief in the "marvelous" (Levoix 1877:443). On the other hand, historian of physiological psychology Jules Soury (1842–1915) reviewed Wundt's critical ideas about spiritism and Hermann Ulrici's (1806–1884) views, as well as the latter's reply, publications presenting negative and positive views about spiritualistic phenomena, respectively (Soury 1879).

Frédéric Paulhan (1856–1931), a librarian at Nîmes, did not review serious psychical research work, but was critical of superstitions and the claims of spiritism. In his view, some spiritistic manifestations could be explained by recourse to the "beautiful experiences of M. Pierre Janet [showing] that the doubling of the mind of the medium is the only real cause" (Paulhan 1890:495).

A stronger critic, P. Rosenbach (1892), referred to psychical research as an example of "modern mysticism." In his view, the Society for Psychical Research tried to "demonstrate the possibility of a supernatural and spiritual rapport between men . . ." (p. 156). Such an approach contrasted to what Rosenbach considered to be the far more scientific approach of psychophysics and "scientific experimental psychology." He believed that when psychic phenomena were examined scientifically they lost their mysterious, "mystical" character.

Richet (1892b) replied to Rosenbach, pointing out that he was wrong in thinking that psychical researchers embraced the concept of the supernatural. Furthermore, Richet stated that Rosenbach misrepresented the goal of psychical research and that he had a narrow view of science.

Other Topics

French philosopher Émile Boirac (1851–1917), once chancellor of the Académie de Grenoble and of the Université de Dijon, discussed what

he referred to as "cryptoid" phenomena, or phenomena at the margins of science. In his view, science should be able to find truth and grow conceptually, and eventually "recognize the reality of certain phenomena that it has considered before to be imaginary and chimeric . . ." (Boirac 1899:51).

The above-mentioned English classical scholar and psychical researcher Frederic W. H. Myers authored two notes on veridical hallucinations (Myers 1886a, 1886b), a topic studied by researchers connected to the London-based SPR (Gurney, Myers, & Podmore 1886). The phenomenon was defined as hallucinations that "without having a material reality, correspond nevertheless to real fact, that has determined, by a process as yet unknown, the moment and the nature of such hallucination" (Myers 1886a:214). Myers wrote:

> A large number of observations . . . were collected, in which the hallucination of A coincided exactly with the disease or the death of B. In most cases collected by us:
> 1. There has never been any other hallucination;
> 2. Neither death nor the disease of B were likely;
> 3. The death and disease of B could not be known to A.
> (Myers 1886a:214–215)

Furthermore, aspects of the work of the Society were reviewed in a discussion of Gurney, Myers, and Podmore's *Phantasms of the Living* (1886) (Marillier 1887) and in a note about the Society's further work on hallucinations (Society for Psychical Research 1889). There were also short summaries of the content of the *Proceedings* of the Society (Review of Proceedings 1883, 1884a, 1884b).

A few other topics deserve mention. Among these are a discussion of Marian apparitions reported in Dordogne in 1889 (Marillier 1891) and, following the old French tradition of animal magnetism, ideas of "odic" and "neuric" forces, and what de Rochas called the exteriorization of sensibility and motricity (Boirac 1896, 1897, Janet 1888a, Lechelas 1887, Société de Psychologie Physiologique 1890).[33]

Concluding Remarks

We have summarized the nineteenth century content of the *Revue* relevant to the study of psychic phenomena. While the journal still carried relevant publications in later years (e.g., Boirac 1911, Janet 1923), there were many more discussions of psychic phenomena during the nineteenth century. This is consistent with the view (seen from many studies) that the nineteenth century was a particularly important period for the topic in terms of research

and methodological developments as well as the formation of the first institutions and journals (e.g., Alvarado, Biondi & Kramer 2006, Gauld 1968, Lachapelle 2011).

The *Revue* included much material in support of specific phenomena such as mental suggestion. But like other publications it also had its share of critical outlooks and outright rejection of specific claims and ideas. In this way the *Revue* was not much different from more specialized publications such as the *Proceedings of the Society for Psychical Research*.

The *Revue* was also different from most academic journals—from France or from other countries—in that it regularly opened its pages to psychic phenomena. Perhaps this reflected both the interest of the times in the subconscious mind and unusual mental phenomena in France. This, as argued by others (e.g., Carroy 1991, Plas 2000) included psychic phenomena, but the majority of the efforts focused on dissociation in general, and more specifically on the variety of sensory-motor manifestations of hysteria and hypnosis.[34]

This interest in mental phenomena may explain the lack of papers about physical phenomena in the *Revue*. There were, however, brief mentions of the topic in comments about published works (e.g., Boirac 1897, Janet 1892).

The critical views of Paulhan and Rosenbach may suggest a change in the openness of the *Revue* to psychical research. Whereas since Richet's 1884 article, many issues of the *Revue* contained studies on controversial phenomena of hypnotism and psychical research, in 1890 we find only Paulhan's article about the new mysticism and Binet's review of *L'Automatisme Psychologique* of Janet (Binet 1890), a book without his most "disturbing" experiments in Le Havre, yet positively received by many at the time. In 1892, Janet published his critical article on "contemporary spiritism," showing a skeptical view that was not evident in his previous reports of experimental studies on mental suggestion.

It seems that, with some exceptions, the wave of interest and openness about this topic inside the *Revue* extends primarily from Richet's 1884 article to Marillier's 1889 review of the First International Congress of Physiological Psychology. We have few clues to understand this change, which is exemplified by Janet. It may be speculated that the 1889 Congress marked the beginning of the failure of the integrative and eclectic strategy of the founders of the Société de Psychologie Physiologique. At this event, presided over by Ribot, questions of psychology, hypnotism, and psychical research were intertwined, as they were in the *Revue*. But the discussion of hypnosis and related topics at the 1889 congress received some criticisms, particularly in Germany (Sidgwick 1892:284).[35] Ribot, who derived part of his legitimacy from his promotion of the German positivist model of

psychology (Ribot 1879), may have found himself stuck. The *Revue*, like Janet, seems to have eventually made the choice to side with the psychological orthodoxy.

The Société de Psychologie Physiologique severely declined after the 1889 Congress. Both Wolf (1993) and Plas (2000) indicate that it was Richet's emphasis on the "marvelous" that alienated Charcot and caused his lack of support of this society. Indeed, it was this society which brought initial openness to psychical research in France. Its meetings and *Bulletin* provided a forum for discussions of mental suggestion which were also published in the *Revue* (e.g., Gley 1886, Héricourt 1886). It was not until 1900 that a similar dynamic developed at the Institut Général Psychologique (Brower 2010:Chapter 3). Meanwhile, the *Annales des Sciences Psychiques* was founded in 1891 as a new forum of discussion (Alvarado & Evrard 2012). But while the *Annales* was an important specialized journal representing organized French psychical research, it was not a mainstream resource.

One of the topics that could have been discussed further here is the reception of the work mentioned. While a detailed study of this is beyond the scope of the present paper, it is an important topic that deserves further consideration in order to understand the impact of the material published in the *Revue*. While this paper has not studied this in detail, it is apparent that the importance of the *Revue* gave much visibility to the articles in question. We have already presented references to citations of Janet's (1886b, 1886c) research about the induction of trance at a distance. Similarly, the paper published by Richet (1884) about mental suggestion became a new representative of the scientific interest in psychic phenomena at the time, as seen in studies about developments in France (e.g., Plas 2000). But there were also citations of this work in many other publications beyond the French context (e.g., Gurney 1884).

A case could also be made about the impact and frequent citation of other papers mentioned. This includes articles about hypnotic transfer phenomena (Binet & Féré 1885), mediumistic communications (Flournoy 1899), and spiritism and the psychological study of mediums (Janet 1892).

Depending on the reader's interest, the material reviewed here will serve different purposes. Those interested in the reality of psychic phenomena will use these materials to assess the evidential value of the old work. In contrast, those interested in the historical aspects of psychical research will see these papers and book reviews as examples of important primary sources for the study of nineteenth century psychical research. From either perspective—and perhaps from the perspective of those interested in both views—there is no question that the *Revue* is an important source of information for the study of nineteenth century psychical research, particularly in France.

Notes

[1] There were also many books published during the nineteenth century in which authors presented observations of phenomena as well as theoretical concepts (e.g., Aksakof 1895, Gyel 1899, Gurney, Myers & Podmore 1886, Ochorowicz 1887). Some overviews of psychical research included those by Coste (1895) and Podmore (1897). We will not consider here discussions of psychical research in newspapers (e.g., Alvarado 2007).

[2] A possible example of this is that references to Richet's (1884) important paper about ESP and its statistical evaluation published in the *Revue*, and discussed below, generally rely on secondary English-language sources (e.g., Irwin & Watt 2007:49, Radin 2006:64).

[3] Between 1896 and 1898 this journal had a section entitled "Hypnotic and Mediumistic Research," which was devoted mainly to psychic phenomena. In later years the section was called "Mediumship."

[4] Crabtree (1993) presents an overview of some of these developments. On French work see Brower (2010), Carroy (1991), Dingwall (1967/1968), Edelman (1995), Lachapelle (2011), Méheust (1999a, 1999b), Monroe (2008), Plas (2000), and Sharp (2006). See also various general books about psychic phenomena and spiritism published in France during the late nineteenth century (e.g., Coste 1895, Delanne 1897, Erny 1895, Gibier 1887).

[5] Spirits of the dead were also claimed to be seen in the visions of magnetic somnambules (Alvarado 2009c; for an overview see Crabtree 1993:196–212). Allan Kardec was the pseudonym of educator Hippolyte Léon Dénizard Rivail (1804–1869). For information about him see the detailed study by Wantuil and Thiesen (1984) and the more recent writings of Edelman (1995), Monroe (2008), and Sharp (2006).

[6] Wantuil (n.d.) has presented a detailed study of table turning that is not well-known outside Brazil (see also Figuier 1860:Vol. 4, and Monroe 2008:Chapter 1). Some examples of French writings on the topic by scientists include Arago (1854:456–458), Babinet (1854), and Chevreul (1854). Perhaps the best-known work on table turning is by De Gasparin (1854).

[7] Plas (2000:87–109) presents an overview of French work on mental suggestion (see also Caratelli 1996:Chapter 7). Additional examples of discussions on the topic published in France include Alliot (1886), Féré (1887:Chapter 18), Liébeault (1889:note c), and Paulhan (1892). The nineteenth century work of the SPR on the topic is summarized by Podmore (1894; see also Luckhurst 2002).

[8] For some exceptions, see Bourru and Burot (1887a), Lombroso (1891), and Luys (1886).

[9] Nineteenth century issues of the *Revue* are freely available online in Gallica (http://gallica.bnf.fr/), Google Books (http://books.google.com/), and in the Hathi Trust Digital Library (http://www.hathitrust.org/). On the journal see Meletti Bertolini (1991), Mucchielli (1998), Nicolas (2002: 113–118), and Thirard (1976).

[10] On Ribot see Brooks III (1998:Chapter 2), Guillin (2004), Nicolas (2002:104–118), and Nicolas and Murray (1999).

[11] Ernesto Bozzano (1862–1943) credited Ribot with getting him interested in psychical research, having sent him an issue of the *Annales des Sciences Psychiques* (Bozzano 1924). Historian of Italian psychical research Massimo Biondi believes that Bozzano's memory may be faulty about this (Personal communication to CSA, 2/29/2012). This is consistent with other early problematic autobiographical recollections of Bozzano (Iannuzzo 1983).

[12] On this general interest in France see Alvarado (2010), Carroy (1991), Crabtree (1993), Foschi (2003a 2003b), Gauld (1992), Hacking (1995), and Nicolas (2002).

[13] Janet has been discussed by many authors (e.g., Carroy & Plas 2000, Crabtree 1993:Chapter 15, Ellenberger 1970:Chapter 6, Foschi 2003b). On Janet and psychic phenomena see Kopell (1968) and Le Maléfan (1999:66–84). Carbonel (2008) discusses Janet in the context of the psychical research movement.

[14] Gauld (1992:298–302) has summarized Richet's hypnosis work. Wolf (1993) discusses his life and his scientific and scholarly work. For his psychical research see Alvarado (2008), Brower (2010:Chapter 4), Le Maléfan (1999:85–88, 273–278), and Tabori (1972:98–132).

[15] Many 19th century authors reviewed the topic in publications appearing in France, among them Héricourt (1889), Laurent (1892), and Liégeois (1889:Chapter 9). Probably the best-known French work on secondary states was Janet's widely cited *L'Automatisme Psychologique* (1889).

[16] For discussions of this paper in the *Revue* see Lechelas, Tannery, and Richet (1885). Richet's paper was discussed in many publications appearing in France (e.g., Gilles de la Tourette 1889:166–167, Ochorowicz 1887:65–69), and in other countries (e.g., Franklin 1885, Gurney 1884). Recent citations of the paper include Irwin and Watt (2007:49) and Radin (2006:64).

[17] For earlier examples of this phenomenon in the mesmeric literature, see Burdin and Dubois (1841:415–416) and Esdaile (1852:227). Janet's papers have been translated into English (Janet 1886/1968a, 1886/1968b). Gibert's work as a physician is discussed by Carbonel (2006). On Leboulanger see Richet's studies (1888a, 1888b:32–42, 1889:67–83) and

Gauld's overview (1996). Plas (2000:107–109) has discussed the dual role Leboulanger played in France as a subject of psychological and psychic experimentation.

[18] Paul Janet was a well-known and influential philosopher. He presented Pierre's first mental suggestion paper at the Société de Psychologie Physiologique (Ochorowicz 1887:118).

[19] Pierre's brother was a physician who was also interested in dissociation and hysteria (e.g., Janet 1888). He was a urologist and published works on the subject (e.g., Janet 1890).

[20] Years later, Janet (1930) wrote in his autobiography that the tests had never seemed conclusive to him. He referred to the multiple citations of his work as an "abuse of my former observations" (p. 126). Janet was amazed that these authors did not ask his opinion of the matter.

> I should have answered that already at that time, and even more so now, I doubted the interpretation of the facts and was disposed to criticize them myself, regarding them as a simple departure from more profound studies." (Janet 1930:p. 126).

Janet may have later seen this work as a "simple departure from more profound studies," but if put in the context of the times it may be argued, as Plas (2000) has done, that mental suggestion had clear conceptual connections to the study of the subconscious mind emphasized by Janet in his early work (Janet 1886a, 1887, 1888b, 1889); see also Myers (1886d) and Richet (1884) for connections between mental suggestion and the subconscious. Mental suggestion was a manifestation of the subconscious mind in the eyes of many at the time. Consequently, we should be skeptical of Janet's *later* attempt to play down the conceptual significance of mental suggestion work.

[21] This practice probably comes from the old mesmeric belief in the importance of thumbs in the projection of animal magnetism. Deleuze (1825) wrote: "It is through the end of the fingers, and especially by the thumbs, that the fluid escapes with the most activity" (p. 31).

[22] Referring to Janet and Gibert's tests, Myers (1887) said he found it "hard to believe that a peasant woman is sent to sleep by 'the sound of a going' in the arteries of an elderly physician, at a distance of half a mile" (p. 156). Presumably the reference to an elderly physician applied to Gibert, who was actually in his late 50s.

[23] On transfer phenomena see Gauld (1992:333–334), Harrington (1988), and Nicolas (2004:18–21). See also Myers' (1886c:449) suggestions of things to consider in conducting tests on the subject.

[24] For recent discussions of Wittmann see Alvarado (2009d) and Hustvedt (2011:Chapter 3).

[25] Bernheim's critiques were part of the paradigmatic conflicts between the Nancy and the Salpêtrière schools of hypnosis (Nicolas 2004). These conflicts centered over specific hypnotic phenomena, among them the phases of hypnosis and transfer. More dramatic for the attention they got in the press were the supposed cases of hypnotically induced crimes (Bogousslavsky, Walusinski, & Veyrunes 2009). Referring to transfer, Bernheim (1888:128) accused his opponents of suffering from "experimental illusions."

[26] On Flournoy and mediumship see Shamdasani (1994). The cases presented in the *Revue* paper appear in English elsewhere (Flournoy 1911:72–86).

[27] On such ideas before and after Flournoy see Alvarado (2011a).

[28] For discussions of the issue of pathology and mediumship, also relevant to Janet's ideas presented below, see Alvarado, Machado, Zangari, and Zingrone (2007), Alvarado and Zingrone (2012), Le Maléfan (1999), and Moreira-Almeida, Almeida, and Lotufo Neto (2005).

[29] On Janet and mediumship see Le Maléfan (1999:66–84). Janet discussed the topic in *L'Automatisme Psychologique* (1889:Chapter 3), where he argued that mediumship was similar to hysteria and hypnotic somnambulism in that all of them showed the "disaggregation of personal perception and . . . the formation of several personalities that are both successive and simultaneously developed" (p. 413). He believed that mediums were predisposed to have nervous problems and that their condition depended on a morbid state similar to one shown by those who develop hysteria and insanity. But mediumship was "a symptom and not a cause" (p. 406). Janet (1894:59) further wrote that automatic writing was a procedure that accessed the subconscious mind and that a medium was a person who had lost awareness of his or her internal mental activity (Janet 1898:395).

[30] Janet was influenced here both by Hippolyte Taine (1828–1893) and by Myers (Janet 1886a:587, 588).

[31] Janet frequently credited non-scientific movements with influencing psychology. In his discussion of the use of crystal gazing to access the subconscious he stated his belief that "ancient superstition" may help psychology "today to guide our investigations" (Janet 1898:408). Such a view of the importance of past practices was expressed in his later discussions of hypnosis (Janet 1919).

[32] For a more detailed discussion of the writings of Egger and others see Alvarado (2011b) and Le Maléfan (1995).

[33] On the late nineteenth century neo-mesmeric movement see Alvarado (2009b).

[34] For overviews see Carroy (1991), Foschi (2003a), Hacking (1995), Hustvedt (2011), and Nicolas (2002).

[35] On psychic phenomena in the 1889 congress see Alvarado (2006). The reactions to the first congress were but the beginning stages of rejection of psychic phenomena in the congresses. This continued and reached a critical point in the 1900 congress when many openly questioned the inclusion of spiritism and psychic phenomena (Janet 1901).

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ESSAY REVIEW

Cryptozoology and the Troubles with "Skeptics" and Mainstream Pundits

Abominable Science by Daniel Loxton and Donald R. Prothero. Columbia University Press, 2013. xvi + 411 pp. $29.95 (hardcover). ISBN 978-0231153201.

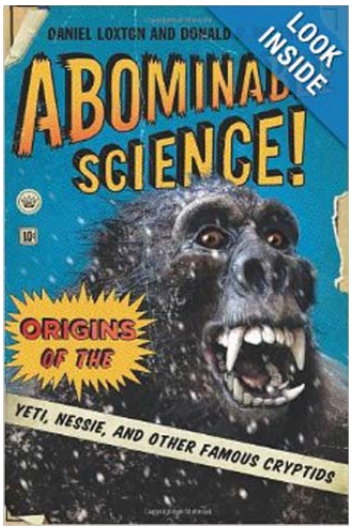
This book is superbly produced by a prominent university press. It is also intellectually shoddy, even dishonest. Science is described in naïve shibboleths that bear no relation to how science is actually done. The chapters about individual cryptids are chock-full of misrepresentation and evasion of the best evidence.

Abominable Science is unsatisfactory in ways that are all too common with self-styled "skeptics":

- They assume authority but reveal ignorance.
- Their underlying agenda is scientism, the belief that whatever contemporary science says is true.
- They claim to speak for "science" but get much wrong about science and its history.
- They debunk instead of being skeptical.
- They do not engage honestly with the strongest evidence.
- They imply guilt by association (all anomalists are "flat-earthers") and thereby lapse into irrelevance and *ad hominem* distortions.

In addition, *Abominable Science* is extraordinarily replete with illogic. Loxton and Prothero purport to examine the cases of 5 cryptids: Bigfoot (Chapter 2), Yeti (Chapter 3), Nessie (Chapter 4), sea serpents (Chapter 5), Mokele Mbembe (Chapter 6). Chapter 1 is about whether cryptozoology is science or pseudo-science, and the concluding Chapter 7 asks why people believe in monsters.

When I expanded the marginal notes I had made in the book while reading it, the result was some 20,000 words, far too much even for an Essay Review. So here I will concentrate on what the book gets wrong in general and say just a little about the distorted discussions of specific cryptids. The only reviews with any significant detail about the chapters on individual cryptids are at Amazon.com, by fans of Bigfoot and of Nessie. Two[1,2] deal with the numerous errors in Chapter 2, taking, respectively, 1,800 and 1,500



words to do so; a third[3] takes more than 3,000 words to list some of the errors in Chapter 4. Loxton has responded to these in his blog.[4,5]

Since this review will not be kind, my biases ought to be made plain. For more than three decades I've worked in science studies (the usual acronym is STS, for Science & Technology Studies), with particular focus on controversies over scientific unorthodoxies, and my books in that genre (Bauer 1984, 1986, 1992, 2001a, 2001b, 2007, 2012a) have enjoyed uniformly favorable reviews.[6] I also happen to believe that the evidence for the existence of "sea serpents" is highly plausible and for Nessies almost completely convincing—and I came to have as a good friend Tim Dinsdale, whose unique film of a Nessie features in most controversies about Loch Ness Monsters (Dinsdale 2013). On the other hand, I would be quite surprised if Sasquatch turned out to be real—though I am more prepared for that possibility after reading Bindernagel (2010); and I would be enormously surprised if anything like Mokele Mbembe turned out to be real. I'm agnostic as to Yeti.

Illogic, Non Sequitur, Over-Generalization, and Irrelevance

The whole argument of *Abominable Science* boils down to the erroneous assertion that "highly unlikely" equals impossible: "This [fossil] record is good enough that the absence of evidence *is* evidence of absence" (p. 27).

By contrast, Loxton and Prothero are quite willing to adduce mere speculation as support for their own views, for example, estimates of how many species remain to be discovered (p. 21 ff.): as though the history of discoveries up to now could be extrapolated validly with a possible error of less than ±1 species.

"Most of the caveats and issues that apply to . . . [the creatures discussed in this book] also apply to all cryptids, so discussing them all would be largely redundant" (p. xiv). But Nessie could exist without Bigfoot being real, and vice versa. There is no photographic or sonar evidence for sea serpents, yet there is for Nessies. And so on. There are crucial differences galore between the many alleged cryptids. Each is an individual case, and in each one the devil is in the details.

Loxton writes that cryptozoologists evaluate eyewitness accounts in part according to the observer's experience, presuming that people familiar with seals are more reliable about seals and not-seals than those who have never seen a seal, for example (p. 232). "Not so fast," the reader is warned about this perfectly rational approach: Those who claim to have seen sea serpents, as well as "ESP researchers" [how are they relevant?], are "not randomly selected average observers," they are a tiny proportion of the Earth's population; and (citing Michael Shermer) "The Law of Large Numbers guarantees that one-in-a-million miracles happen 295 times a day in America." How is that supposed to undercut the sensible approach of paying more attention to experienced observers than to naïve ones? By also remembering that "[o]penness to first-person testimony" makes for gullibility (p. 3)? Should that vitiate the use of witnesses in the legal system?

Huge swaths of the book are taken up with suggestions that modern eyewitnesses misinterpret what they see under the influence of folklore, legend, and mythology about imaginary creatures. All that is quite pointless: If remarkable creatures like Yeti exist, they would surely have found their way into folklore and myth; indeed, myths about such creatures might even suggest their possible existence (Bayanov 1982).

Descriptions abound, page after page, of "documented misidentifications" and of all the things that can lead to misidentification (pp. 233–239). Because some reports are mistakes, therefore all reports have been mistakes?

That does seem to be the intended implication: "Imagine that boat wakes fooled only . . . 1 in 100 million. Wakes and waves need convince only a handful of people a year to become a major part of monster lore!" (p. 239; *exclamation mark in original*).

The same level of illogic is present ad nauseam throughout the book. There are innumerable lengthy descriptions of frauds and hoaxes as well as mistakes, as though that could be extrapolated to mean that everything not yet recognized as fraud or hoax must also have been such.

"[T]he existence of most of the cryptids discussed in this book . . . goes against everything we know from biology, geology, and other sciences" (p. 10)—"everything"? "[M]any hunters shoot first and ask questions later" (p. 15)—"many"? Such overgeneralization is accompanied by pervasive and unseemly self-praise, implicit when not explicit: "Skeptics are in the business of soberly considering strange claims" (p. 69). This book hardly exemplifies that assertion.

For these authors, the only unifying principle for identifying pseudoscience is that the subject is anathema to them. As a result, they persistently lump together topics that have no substantive commonality, for instance "considering UFOs, ghosts, Bigfoot, telekinesis, faith healing, and similar

elusive, paranormal phenomena" (p. 231); or "in regard to sea serpents—and, indeed, to paranormal claims in general" (p. 251). What is paranormal about unidentified flying objects or hominid apes or sea serpents? That a reported object may not actually exist doesn't make it paranormal, nor is a claim of its natural existence a paranormal claim. Then again, Loxton and Prothero are puzzled that so many people "believe" in UFOs or give credence to Holocaust deniers (p. 9); what's the connection between those two matters, except that both are anathema to these authors?

"Cryptozoology thrives on the failure to distinguish observations from conclusions" (p. 252) actually well describes the approach taken in this book. The conclusions came first, namely, that all paranormal claims including cryptids are mistaken: "The truth is that sea serpents are shape-shifters. . . . They are . . . creatures of culture, not of nature" (p. 256). The authors pride themselves on being scientific, yet perpetrate such vapid postmodernist emissions as this: "In all environments—in fiction, in the cryptozoological literature, and in the oceans of the mind—sea monsters teem and vary and return to type, as unpredictable, as unique, and yet as familiar as the waves themselves" (p. 256).

Nevertheless, reality and common sense break through in a few places: "It's just barely possible that genuine sightings of new creatures may be among the evidence" (p. 236). So why take up more than 400 pages attempting to deny it?

If one wanted to critique cryptozoology in an intellectually honest and sound manner, one would seek to address what the best evidence appears to be for each cryptid. This book doesn't do that, it does the very opposite, as when it brushes aside (pp. 159, 170–173) the copious sonar data from Loch Ness[7]. Cryptozoologists are concerned not only with such highly improbable cryptids as Mokele Mbembe, they also pursue such not-very-implausible possible "survivors" as the Eastern panther in the USA and the thylacine in Australia. The 13 volumes of the journal *Cryptozoology* include items about the identification *by cryptozoologists* of some cryptids as known species, the *ri* of New Guinea as a dugong and the *onza* of Mexico as a puma. *Abominable Science*, however, chooses to discuss only cryptids representing the very least probable of the seven categories in Greenwell's (1985) classification of cryptozoology.

Ignorance about Science

Abominable Science suffers from many of the common misunderstandings about how science is actually done: that "the scientific method" delivers trustworthy results, that falsifiability is a criterion for being scientific, that science can be believed because it is self-correcting. The first two were

discarded by STS scholars decades ago, while the last is self-trashing: How could one tell whether self-correction has ever attained its final resolution (Bauer 1992)? As David Goodstein (1992) remarked *two decades ago* in a lead book review in *Science*, "I would strongly recommend this book to anyone who hasn't yet heard that the scientific method is a myth. *Apparently there are still lots of those folks around* [even 20 years later!]" (emphasis added).

Those folks evidently include Loxton and Prothero, who make such ignorant statements as:

- The criteria for science are "testability, falsifiability, peer review, and rejection of ideas when they do not pan out" (p. 8).
  — but string theory fails the first two; Mendelian genetics and continental drift are just the best-known instances of things rejected for decades that *did* later pan out; and HIV/AIDS theory has remained hegemonic even though it didn't pan out (Bauer 2007) and still doesn't.[8]
  — As to peer review (Bauer 2013a), the best short comment is from Richard Horton (2003), former editor of *The Lancet*: "Peer review . . . is simply a way to collect opinions from experts in the field. Peer review tells us about the acceptability, not the credibility, of a new finding";
- "the hard-nosed requirements of the scientific community, according to which every statement has to meet the most rigorous standards of scientific scrutiny" (p. xiv).
- "Scientists are open to any and every idea that can be proposed, no matter how crazy it may sound" (p. 5). Readers of the *Journal of Scientific Exploration* are among those who have the plain evidence that disproves this assertion.
- "Scientific hypotheses must always be tentative . . . and they never reach the status of 'final truth'" (p. 8)—Do scientists and people claiming to speak for science never make dogmatic assertions?
- Scientists are "obligated" (p. 6) to accept claims only after "the process of repeated testing and possible falsification" (p. 5);
- "many scientific experiments are run by the double-blind method" (p. 6)
  — not in chemistry or physics, they aren't, maybe sometimes in medicine or psychology.
- "If it doesn't agree with experiment, it's wrong" (p. 6)
  — Nonsense. Please read p. 20 ff. in Bauer (1992): Theoreticians are often skeptical or dismissive of experimental results, and sometimes they turn out to have been rightly skeptical.
- Modifying hypotheses by *ad hoc* adjustments as evidence comes in is "universally regarded as signs of failure" (p. 12).
  — To the contrary: Imre Lakatos (1976) is generally credited with pointing out that this is precisely how scientific theories become better. It's a process of letting the evidence progressively shape beliefs, of theories always being tentative, which elsewhere in *Abominable Science* is said to be a criterion of proper science.

- "Most scientific studies require dozens to hundreds of experiments or cases, and detailed statistical analyses" (p. 13).
- "In the testing of medicines . . . there must be a control group, which receives a placebo." (p. 13)
  — except, of course, in the many situations where it would be unethical to withhold a potential benefit from seriously ill people. Moreover, drug companies usually prefer to compare new drugs with those of competitors, not to mention the various other tricks employed to make bad drugs seem good (Goldacre 2012).

Further examples of ignorance about matters of science abound throughout the book.

The authors are right that cryptozoology is not science, but they are wrong about why this is the case. As I explained three decades ago in a book cited in *Abominable Science* (Bauer 1986), science is accredited, organized, official, disciplined, and bureaucratic, whereas cryptozoology is none of those. Science looks cautiously, respectably, risk-aversely into the known unknown, whereas cryptozoology and anomalistics in general aspire to delve indiscreetly, irreverently, recklessly, even scandalously into the almost-entirely-unknown unknown.[9]

But the whole question of whether cryptozoology is science is a red herring—unless one believes, erroneously, that science is the only path to truth, a belief (scientism) that is characteristic of "skeptics." Consequently, they almost invariably have a bee in their bonnet about religion. A survey (Leiter 2002) revealed that many members of one "Skeptics" group had rebelled against a firm religious upbringing, exemplifying the general rule that when true believers lose their faith, they swing to the other side of the pendulum—they do not become judicious, unbiased, genuinely skeptical of fanatical beliefs, they become fanatical opponents of what they formerly believed. The phenomenon is well-known in politics: The most dedicated anti-Communists were such ex-Communists as Whittaker Chambers and Arthur Koestler. At Loch Ness, the most determined resident debunkers are former Nessie hunters. At any rate, throughout *Abominable Science* creationism is continually dragged in for criticism even though it is no part of cryptozoology.

Ignorance about Cryptozoology

As regards cryptozoology itself, the book's Foreword is ludicrously out of order in calling this volume "the defining work on cryptozoology of our generation" (p. xi). Apart from the book's general faults detailed here, and the many errors about individual cryptids, much more defining of cryptozoology are *Cryptozoology A to Z* (Coleman and Clark 1999), a

2-volume *Guide to Cryptozoology* (Eberhart 2002), and an *Encyclopedia* (Newton 2005) as well as the works of Karl Shuker[10] and Loren Coleman[11] (who also manages the only extant museum of cryptozoology).[12]

"Skepticism"

The most blatant dishonesty of *Abominable Science* is its self-description as a work of scientific skepticism. The classical norms of science (Merton 1942) include "organized skepticism" *directed toward claims made within science*. The self-styled "Skeptics" groups, by contrast, are not at all skeptical about claims made within science; rather, they take for granted what contemporary science has to say, apparently unaware that the history of science is a long story of trials *and errors*, with the mainstream consensus periodically being found wanting and erstwhile anathema becoming mainstream dogma. Thus John Ziman, FRS, physicist turned STS scholar, pointed out that perhaps 90% of published research articles in physics turn out to need modification or even to be quite wrong (Ziman 1978).

The self-styled "Skeptics" organizations do not practice skepticism at all. They are concerned only to debunk what they themselves do not believe. As Marcello Truzzi (1987) pointed out, self-styled "Skeptics" are actually *pseudo*-skeptics (as I try to emphasize by persistently using scare quotes). *Abominable Science* certainly reveals its authors to be dogmatists of a high order; for example, extrasensory perception is said to be "demonstrably false . . . pseudoscientific" (p. 9), with not even a reference cited to that claimed demonstration.

Loxton describes the "tradition that I work in: . . . scientific skepticism, or the critical examination of popular beliefs, especially of paranormal claims" (p. 204). His footnote to that statement lets the cat out of the bag: "centuries of earlier thinkers tried their hand at similar *debunking* projects" (p. 370, note 70; emphasis added).

If *Abominable Science* were a skeptical work, it would merely point out that the evidence for the existence of these cryptids is short of proof, and even Nessie fans like myself would not disagree. The evidence is sufficient *for me*, in part because I knew Dinsdale and a number of eyewitnesses, but I understand that this does not constitute objective, "scientific" proof. So this book could be very short indeed. Instead, here are more than 400 pages sneering at insufficient evidence and pretending that this constitutes "scientific" disproof. Since that case cannot be made honestly, the book is saturated with the logical non sequitur, irrelevancies, and overgeneralizations sampled in the earlier section of this essay.

Guilt by Association and Personal Attacks

Physics does not claim that string theory is true, though many physicists do. Chemistry does not claim that man-made substances destroy the Earth's ozone layer, though many chemists do. Similarly, one ought to distinguish claims in cryptozoology from claims made by individual cryptozoologists; but Loxton and Prothero pretend that the whole field can be discredited with stories of frauds, hoaxes, incompetence, and mistakes made by individuals.

Even more unwarranted is the persistent denigration of competent people who believe other than Loxton and Prothero. They are dismissed because there are so few of them, and they haven't been "trained at major institutions" (p. 10). But among those who have taken Nessie seriously, even participating in searches at Loch Ness, are Harold Edgerton, inventor of strobe photography, awarded a Medal of Freedom; leading sonar (Martin Klein) and photographic (Charles Wyckoff) experts; Robert Rines, patent attorney with a degree in physics and some relevant patents in his own right; zoologist Denys Tucker of the British Museum of Natural History; biologist Roy Mackal; prominent naturalists Sir Peter Scott and Richard Fitter; Tim Dinsdale, aeronautical engineer. It is far from obvious that the qualifications cited for Prothero (a paleontologist) and Loxton (editor of *Junior Skeptic*, writer for *Skeptic*, with a long-standing "personal love of monster mysteries") make them more qualified to discuss cryptids, let alone the nature of science.

Not Engaging Honestly with the Evidence

Throughout *Abominable Science*, evidence for the reality of specific cryptids is misrepresented. In lieu of engaging the strongest claims, the book resorts to the usual panoply of rhetorical devices, for instance *argumentum ad adjectivum* (a-a-a) (described in Bauer 2013b): when a source favors the views of Loxton and Prothero, it is "respected," "authoritative," "celebrated," etc. (e.g., p. 13). Cryptozoologists and their sources, on the other hand, are "doubtful," "discredited," and the like. The illogic and overgeneralization in this book and its ignorance about science should suffice as a warning not to take seriously anything in the chapters on individual cryptids. Here are just a few points to underscore this general conclusion.

Chapter 2, Bigfoot

"Every animal that lives in these forests [Pacific Northwest] leaves plenty of hard evidence of their existence" (p. 22), therefore Bigfoot doesn't exist.

In support is the fact that John Bindernagel, who happens to believe that Bigfoot *does* exist, twice found skulls of bears during his decades of work as a field biologist. More logically than Loxton, one would say that since Bindernagel only twice found remains of such a common creature as the bear, there is no reason to imagine that he would also have found physical remains of much rarer creatures whose behavior is not understood.

Chapter 3, Yeti

This chapter has some peculiar remarks: That Yeti is "often mis-named the Abominable Snowman" (p. 74)—why is that a misnomer rather than just a colloquial name?

Is it accurate that "*most* pop-culture depictions" show white fur (p. 75, emphasis added)?

It's asserted that the many names for such creatures show the "legend" to be an amalgam of many different cultural traditions (pp. 75–76): No, it just shows that each language has its own name for these creatures.

This chapter has much interesting historical material, about mountaineering as well as Yeti-seeking, but its >40 pages are almost entirely irrelevant to the question of whether Yetis are real creatures. Seven pages on Gigantopithecus include the improper inference that the fossil record for 300,000 years is so good that it excludes the possible survival of Gigantopithecus descendants.

Chapter 4, Nessie

The chapter on Nessie is disgracefully misleading about the evidence, and a fully detailed and documented critique is on my website[7]. The discussion of sonar evidence is plainly contrary to the facts, and there is gross misrepresentation of the most famous photograph, the Dinsdale film, and the flipper photos, as well as about the size of Loch Ness and how "well-populated" (p. 21) Scotland is.

Loxton even manages to argue against his own case: "it is hard to see why a plesiosaur would be more disruptive [of evolutionary theory] than the continuing existence of crocodiles or sharks, which first appeared about 220 million and 400 million years ago, respectively" (p. 217).

Chapter 5, Sea Serpents

The title of Chapter 5, "The evolution of the sea serpent: From Hippocampus to Cadborosaurus," describes it well: It is 80 pages of dogmatic just-so story,[13] with speculation passing for analysis and evidence. At the same time sea serpents are traced back to imagined creatures in antiquity, it is

said that "most cryptids are brand-spanking new" (p. 178). Of course they are: Cryptozoology could not exist until official Science existed, because before that—as Constance Whyte (1957) discussed so cogently for the case of Nessies—humans didn't make invidious distinctions between authorized and non-authorized creatures.

Plain wrong is the assertion that the "30-foot Cadborosaurus" seen by Loxton's own parents was "a minnow by sea serpent standards" (p. 180). Heuvelmans's (1958/1965/1968) treatise is as close to canonical as cryptozoological literature gets, and he suggests 60 feet as the typical upper range, with some types as long as the 100-foot-plus blue whales; and in several places he ascribes greater lengths reported by eyewitnesses to "false extrapolations" (1968:563) or "waves . . . in its wake" (1968:547). So a 30-footer might be a medium-sized adult or an adolescent, but hardly a minnow. This illustrates the perniciously tendentious rhetoric that pervades this book, attempting to make points by choice of adjectives and innuendo in lieu of hard evidence.

Bizarrely wrong is the assertion that "[t]o qualify as sea serpents, creatures must (minimally) . . . look like serpents" (p. 184)—even as in other places Loxton criticizes cryptozoology for their claimed similarity to plesiosaurs. It has long been accepted within cryptozoology that the common name "sea serpent" applies merely to large unidentified creatures reported from the oceans, and which are most definitely *not* serpent-like because they are never reported to move by horizontal undulation.

Non sequitur abounds here too, for instance that because Aristotle in the 4th century BCE could accurately describe whales breathing air, and "[n]o comparable understanding emerged for any sort of sea serpent. . . . [it] suggests that there were no genuine sea serpents for classical informants to observe" (p. 187). With critics who argue in this fashion, cryptozoology hardly needs any supporters; one is reminded of the bon mot that the best argument for the truth of Christianity is the vehement illogic of those who try to debunk it.

The fact that reports of sea serpents became much more frequent after about 1800 is supposed to make this a "pop-culture phenomenon" (p. 212). How about the tremendous increase in traffic on the oceans as empires expanded and increasing numbers of Europeans emigrated to Australia and the Americas?

More non sequitur follows: The fact that "Barclay's *Halsydrus pontoppidani*"—the name suggested for a carcass found on the isle of Stronsa/Stronsay—turned out to be a rotting basking shark makes it "alongside *Nessiteras rhombopteryx* (proposed for the Loch Ness Monster), *Hydrarchos sillimani* (an alleged fossil sea serpent), and *Cadborosaurus*

willsi as a premature taxonomic misstep" (p. 213). But who has shown that for the last three? After all, *Nessiteras rhombopteryx* was christened in the pages of *Nature*, which together with *Science* represents the ultimate in status and prestige among scientific journals.

Any claim for objectivity in this work is undercut as the book knowingly, willfully, and deliberately[14] fails to discuss two of the very strongest cases. One of them, the Gloucester sightings by innumerable witnesses (O'Neill 2003), is by far the best-documented evidence that sea-serpents exist.

Chapter 6, Mokele Mbembe

Since the evidence for this creature is minimal, Prothero's demonstration of that is largely accurate; but the chapter reveals the bee in the bonnet about creationism and the faulty basis for alleging that cryptozoology has anything to do with it: "Most of the active explorers seeking Mokele Mbembe have a nonscientific agenda: Young Earth creationism" (p. 292). They believe that if there exist living dinosaurs, somehow that supports their case that the Earth is only some 6,000 to 10,000 years old. "Thus the quest . . . is not just an idle search for a cryptid, but part of the effort . . . to overthrow the theory of evolution and undermine the teaching of science by any means possible. As such, it cannot be dismissed or treated lightly" (p. 295).

I think what this shows is the lack of sense of proportion characteristic of "skeptics": Any questioning of anything in contemporary mainstream science is taken as a death threat to science and to civilization as we know it.

The Publisher and the Pundits

The book warrants criticism on technical grounds as well as on its substance. It was cobbled together from material previously published in *Skeptic* and on *Skepticblog.org* and in *Scientific American* (the Foreword), but this is revealed (or hidden?) only in the fine print on the copyright page. That the chapters were written by the authors individually and not jointly is not obvious either, mentioned in the Preface but not in the Table of Contents, so an unwary reader may be taken aback at the frequent first-person singular use in a book by two authors.

It is dismaying that a university press published this book, and that it has already been noted favorably in *Nature* (Cressey 2013), *Discover* (Neckar 2013), *Los Angeles Magazine* (Mansky 2013), *Publishers' Weekly*,[15] *Inside Higher Ed* (McLemee 2013), *National Geographic* (Shea 2013; Switek 2013), *Huffington Post* (Hill 2013), and *The Wall Street Journal* (Wertheim 2013). At Amazon.com, the reviews average out at 4/5, with 20 5-star and 5 1-star ratings. The errors about individual cryptids would not be obvious

to anyone but a cryptozoologist. The ignorance about science affects society generally, not only the personnel at Columbia University Press, their consultants, and those who write book reviews for mainstream media. But the innumerable logical faux pas and the unsupportable generalizations ought to be evident to any careful reader, as should the sheer irrelevance of much of the material—for instance, that creationism is so often dragged in (e.g., pp. 7–8, 10–12, 216, and 224).

Apparently the reviewers accepted as factual all the assertions made in the book; thus Sharon Hill (2013) at the *Huffington Post* was impressed that the book is "chock-full of fine scholarship with references to original sources." Evidently, she didn't check the sources to discover that the book misrepresents a large proportion of them.

Brian Switek (2013) on the *National Geographic* blog paraphrases the book without doubting its validity: "The cryptozoologists never asked the question, 'Well, how did the monster get in the lake if the lake was completely under ice, the lakes are all landlocked, and there's no way for a marine creature to get there at all?'" That question was answered at length half a century ago: As the ice melted, Loch Ness became part of the oceans. Then, as geologists know, the land rose because it was now free of the heavy weight of ice, and gradually the lake was cut off permanently from the North Sea. Nessies would have become slowly acclimatized to fresh water, as other marine creatures have done in various parts of the world (Whyte 1957).

Margaret Wertheim (2013) in *The Wall Street Journal* manages at least to note the absurdity of the book's claim that cryptozoology is a threat to mainstream science, pronouncing the evidence for that "weak." It bears pointing out that this is a driving motive for many self-styled skeptics: They regard any questioning of contemporary science as a threat to it. Far from being a threat, cryptozoology can actually stimulate interest in science and can have beneficial side-effects as well (Bauer 2002). Perfectly respectable work has been carried out under the rubric of cryptozoology (Naish 2012).

Summing Up the Book

Abominable Science is superbly presented in expensive, heavyweight glossy paper with much color illustration, but it is appallingly ignorant about the matters it chooses to discuss. I hope it is only coincidental that it was also Columbia University Press that published Nicoli Nattrass's (2012) misguided (Bauer 2012b) book about AIDS.

"It is common for skeptics to have to state the obvious: The world is not obligated to accept anyone's personal claims or speculations" (p. 256). *Abominable Science* enshrines the authors' personal claims and speculations

and gives short shrift to cryptozoology and the evidence for the particular cryptids mentioned in the book. No reader should feel obligated to accept anything said in the book; rather they should be warned against doing so.

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Notes

[1] Daniel Perez, September 1, 2013; http://is.gd/7SqTDt
[2] Bill Munns, Hypocracy, August 8, 2013; http://is.gd/7SqTDt
[3] R. Watson, Not all it appears to be, September 10, 2013; http://is.gd/7SqTDt
[4] http://www.skepticblog.org/2013/09/12/breaking-down-a-criticism-of-abominable-science
[5] http://www.skepticblog.org/2013/09/05/bigfoot-times-denounces-abominable-science
[6] Citations to all reviews of my books are in my CV at: http://henryhbauer.homestead.com/VITA.pdf
[7] The book's errors in this and about Loch Ness generally are detailed in "'Skeptical' misinformation about Nessie: A critique of *Nessie, The Loch Ness Monster* by Daniel Loxton, Chapter 4 in *Abominable Science* (Columbia University Press, 2013)"; http://henryhbauer.homestead.com/_NessieChapter.pdf
[8] See, for example, hivskeptic.wordpress.com and links listed there.
[9] The known unknown comprises the already recognized gaps in current knowledge; the unknown unknown contains entirely unsuspected matters that periodically come to light and stimulate scientific revolutions.
[10] http://en.wikipedia.org/wiki/Karl_Shuker
[11] http://en.wikipedia.org/wiki/Loren_Coleman
[12] http://cryptozoologymuseum.com
[13] The Wikipedia description is correct: "a just-so story, also called an *ad hoc* fallacy, is an unverifiable and unfalsifiable narrative explanation." The phrase *just-so story* is taken from Kipling (1902).
[14] http://mattbille.blogspot.ca/2013/08/book-review-abominable-science.html
[15] http://www.publishersweekly.com/978-0-231-15320-1

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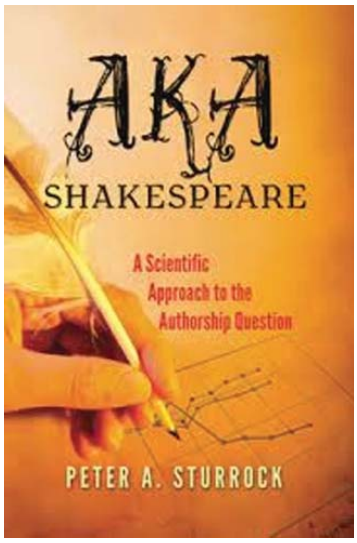
BOOK REVIEW

AKA Shakespeare: A Scientific Approach to the Authorship Question by Peter A. Sturrock. Palo Alto, CA: Exoscience, 2013. 320 pp. $29.95. ISBN 978-0984261451. Color Kindle/Mobi edition US$9.99.

Peter Sturrock's innovative book provides not only an original statistical approach to the Shakespeare authorship question but also an opportunity, by use of an associated website, for the reader to calculate for himself or herself the probability of who the most likely author was.

Peter Sturrock, founder of the Society for Scientific Exploration, President of the Society from 1981 to 2001, and Editor-in-Chief of this Journal in 2008, has had a distinguished career in astrophysics and is Emeritus Professor of Applied Physics and Emeritus Director of the Center for Space Science and Astrophysics at Stanford University. His interest in the authorship question arose a few years ago when he recalled that in his youth he wrote a poem beginning, "Shall I compare thee to a winter's night?" which parodied the sonnet starting with "Shall I compare thee to a summer's day?" He then reread the famous sonnet, the adjacent ones, and then the entire sequence. This led him to wonder who wrote them, to whom they were addressed, and what they were all about. When he assumed the author was William Shakspere of Stratford-upon-Avon, he could find no sensible answers to the other two questions, despite reading books by Shakespeare scholars. He found that many arguments were presented by both the Shakspere-Is-Shakespeare advocates and the Shakspere-Is-Not-Shakespeare dissenters but that no one argument, either way, was conclusive. Eventually he realized that the question could best be resolved by weighing and combining many different pieces of evidence using a process he had thought about for some years and had developed into a method for studying pulsars.

Sturrock discusses how in astrophysics a sharp distinction is required between observation and theory. The task of an observer is to reduce his observations into a summary and the task of a theorist is to compare the summary or "interface" with one or more theories. Using a similar approach for the authorship question, an observer or analyst analyzes the evidence and divides his information into several "items" for which there is a complete list of statements of which only one is correct. For example, the author of the canon of literature was either lame at some time in his life



or he was never lame at any time in his life. The task of the analyst is to assign probabilities to each of the statements on the basis of the data that he has examined. A "theorist" is also introduced for the authorship question who must first decide upon a complete set of hypotheses and then assign probabilities for each of the statements.

The analysis of probability used is a "Bayesian" approach based on an analysis by the Reverend Thomas Bayes (1702–1761), a Presbyterian minister of Tunbridge Wells in Kent, UK, or a theorem by French scientist Pierre-Simon, Marquis de Laplace (1749–1827). With this method the probability we assign to the result of a choice or an event depends on the information we have. We start with a prior probability—our estimate that a certain hypothesis is true prior to obtaining some new information—and after getting the new information, we change to the post probability—our estimate of the probability that the hypothesis is true after obtaining the new information. How much the estimate of probability changes depends on how surprising the new information is. If the new information is not at all surprising, because it is more or less compatible with the hypothesis, it will lead to only a slight change in our opinion of the hypothesis. However, if the new information is surprising, not something we expected on the basis of the hypothesis, then the post probability will be much bigger than the prior probability. Bayes' Theorem has been summarized as "New information increases the probability of a hypothesis in the same proportion as the hypothesis makes the information more likely." A quote from Laplace expresses a similar view: "Probability theory is nothing but common sense reduced to calculation."

A procedure called BASIN, developed first in 1973 for application to astrophysical problems and based on the Theorem, has been used to analyze the hypotheses. An "Interface" is defined between the hypotheses and the data and Bayes Theorem is applied to each side of the interface, allowing the probabilities to be calculated. Degrees of belief (db) are the units used to express confidence in a hypothesis and a chart is given for the corresponding odds, e.g., 10 db is equivalent to a probability of 0.9 and odds of 10, or 10 to 1, that a hypothesis is true; –10 db is equivalent to a probability of 0.1

and odds of 0.1, or 1 in 10, that a hypothesis is true. Similarly, 20 db, 30 db, etc., are equivalent to odds of 100 to 1, 1,000 to 1, etc., supporting the hypothesis, and –20 db, –30 db, etc., are equivalent to odds of 1 in 100, 1 in 1,000, etc., disfavoring the hypothesis. The calculations are performed for the reader by "Prospero" at the website www.aka-shakespeare.com with the password given in the book.

At present more than 60 persons have been suggested as the author of the plays and poems attributed to Shakespeare. Sturrock identifies William Shakspere, a gentleman from Stratford-upon-Avon in Warwickshire, born 1564, and Edward de Vere, the 17th Earl of Oxford, as the main contenders. For clear identification in one word, he calls them "Stratford" and "Oxford," respectively.

David Roper notes that the status of William Shakspere as a gentleman, with the motto "non sans droict" (not without right) in his coat of arms, was most likely bought, and the Garter-King-at-Arms in 1596 and 1599 who approved the grant, Sir William Dethick, was called to account for granting coats to persons without right to the distinction, with the case of John Shakspere expressly charged against him (Roper 2011).

Edward de Vere was born in 1550 in Hedingham Castle, Essex, and grew up there until the age of 12 when his father died. He then became a royal ward of Queen Elizabeth and was placed in the London household of Sir William Cecil, her Secretary of State and chief advisor.

For the initial statistical analysis, Sturrock groups all other candidates together under the name of "Ignotus," about whom nothing is known. If it turned out that the facts ruled out both Stratford and Oxford but not Ignotus (somebody else), another set of options would need to be examined such as "Countess X" and "Sir Francis Y," etc., while still keeping Ignotus as a third candidate.

Noting that the name "Shakespeare" cannot be used for both the author and the gentleman from Stratford-upon-Avon, Sturrock uses a new name for the author, unique in Shakespeare literature, of "Shake*Speare." He observes that although some scholars suggest that a number of the Shakespearian plays had co-authors, no one has suggested that the sonnets had a co-poet. The sonnets were published with the hyphenated name "SHAKE-SPEARE" and Sturrock suggests following this example but using an asterisk rather than a hyphen: "Shake*Speare," as a reminder that the identity of the person is still to be decided.

The three hypotheses examined are:

1. That the author of the plays and poems, "Shake*Speare," was "Stratford," a gentleman from Stratford-upon-Avon in Warwickshire, William Shakspere, who did not try to hide his identity as an author,

and that there was no compact or agreement with others to hide the fact that he was an author;

2. That the author of the plays and poems, Shake*Speare, was "Oxford," Edward de Vere, the 17th Earl of Oxford, and that there was a compact or agreement with others to hide his identity. This hypothesis includes the possibility that Oxford may have been helped by assistants or apprentices;

3. That the author of the plays and poems, Shake*Speare, was "Ignotus," an unknown person, who may have been helped by others, and that there was a compact or agreement with others to hide his identity as an author.

The 25 items related to Shake*Speare that are considered are:

1. Shake*Speare being lame at some time in his life;
2. The occurrence of a compact which resulted in the name of the author being hidden;
3. The existence of records of Stratford's education;
4. The existence of records of Stratford's correspondence;
5. The existence of evidence that Stratford was paid to write;
6. The existence of evidence that Stratford had a patron;
7. The existence of original manuscripts by Stratford;
8. The existence of handwritten inscriptions related to Stratford;
9. The existence of commendatory verses related to Stratford;
10. The existence of records concerning Stratford as a writer;
11. The existence of evidence that Stratford possessed any books;
12. The existence of notices of Stratford's death;
13. The level of education received by Shake*Speare;
14. The extent of travel in Italy by Shake*Speare;
15. The social status of Shake*Speare based on the plays;
16. The quality of Stratford's handwriting;
17. Whether *The Tempest* was based upon an event in Bermuda in 1604;
18. Whether the monument inscription in the Holy Trinity Church at Stratford-upon-Avon identifies Stratford as Shake*Speare;
19. Whether EVERE was secreted in the monument inscription as an encrypted message;
20. Whether the contributors to the First Folio of 1623 believed that Stratford was Shake*Speare;
21. The source of the previously unpublished texts that appeared in the First Folio with the editorial dedication by John Heminge and Henry Condell;
22. Whether Ben Jonson objected, in his dedicatory poem in the First

Folio, to Stratford being buried in Westminster Abbey;
23. The social status of Shake*Speare based on the sonnets;
24. Based on the sonnets, that the poet is named "Will" or uses the name "Will;"
25. That the dedication to the sonnets contains one or more hidden messages.

The material is presented within a series of dialogues between four participants: James, Martin, Beatrice, and Claudia, who meet at a vineyard in the Carmel Valley, California, and other locations. They each have different roles, respectively, of presenting the factual material, helping with the mathematical analysis, and advocating for Stratford or Oxford. Although within the confines of the book one of the advocates necessarily gets the better of each argument, the reader is urged to ignore this and to make up his or her own mind concerning each issue. By entering their own assessments for each of the 25 questions on the website, the weighted rankings of the three candidates will be given. I found the website easy to use and the rankings I received, without mentioning which name, were –287 db (odds disfavoring the hypothesis of 5 10^{28} to 1), 59 db (odds favoring the hypothesis of 7.9 105 to 1), and –59 db (odds disfavoring the hypothesis of 7.9 105 to 1).

The reader does not have to be an expert in any field to follow the debate and weigh the evidence presented to the four characters in the book. Students from any field may find the book a helpful introduction to both the authorship question and to scientific thinking. Devotees of Shakespeare will find it of interest to look at the relevant evidence from a different perspective, and scientists may be intrigued by the application of Bayesian thinking to literature. Although some might feel that the dialogue format adds to the book's length and provides irrelevant information, I found that it introduced a human dimension and made it relatively easy to follow the arguments.

The place of cryptology in answering the authorship question is marked by a great diversity of opinions. Some feel strongly that it has no role, and the very highly respected cryptographers William F. and Elizebeth S. Friedman noted, "We suggest that those who wish to dispute the authorship of the Shakespeare plays should not in future resort to cryptographic evidence, unless they show themselves in some way competent to do so." However, in the book the character Martin notes that according to David Kahn, a distinguished cryptographer, the Friedmans agreed to "accept as valid any cipher that fulfills two conditions: that its plaintext makes sense, and that this plaintext be unique and unambiguous—that, in other words, it not be one of several possible results" (Kahn 1967). In their book, *The Shakespearian Ciphers Examined*, they wrote,

> We shall only ask whether the solutions are valid: that is to say, whether the plain texts make sense, and the cryptosystem and the specific keys can be, or have been, applied without ambiguity. Provided that independent investigation shows an answer to be unique, and to have been reached by valid means, we shall accept it, however much we shock the learned world by doing so. (Friedman & Friedman 1957)

William and Elizebeth Friedman never published work on the monument inscription in the Holy Trinity Church or the dedication to the sonnets. They did not have the opportunity to examine David Roper's seminal 2008 publication *Proving Shakespeare: the Looming Identity Crisis* in which he used Equidistant Letter Sequencing analysis, analogous to the Cardano grille described by the Italian doctor and mathematician Girolamo Cardano in 1550, but it is likely that they would have approved of his method.

By including cryptologic analysis alongside the other strands of evidence in addition to the web analysis (Prospero), Peter Sturrock has provided a comprehensive introduction to the enigma of the great poet and playwright's identity and a scientific method for the reader to calculate for himself or herself the odds for each of three contenders.

I recommend this pioneering book to, among others, those who share with Peter Sturrock a love of poetry and a fondness for attempting to solve problems—be they in mathematics, physics, electrical engineering, astrophysics, or anomalous phenomena—coupled with a conviction that scientific thinking need not be restricted to scientific problems.

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BOOK REVIEW

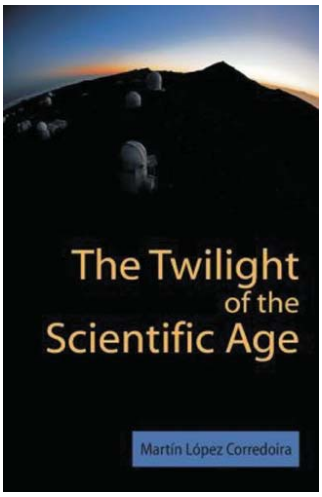
The Twilight of the Scientific Age by Martín López Corredoira. Boca Raton, Florida: Brown Walker Press, 2013. 208 pp. $25.95. ISBN 978-1612336343.

The question "Was man made for science or science made for man?" constitutes one of the central themes in this book.

Corredoira's answer is that science may once have benefitted humanity but no longer does. Too many outside vested interests, too much "scientific" activity coopted and driven by interests other than truth-seeking, such as commercial and official powers, and the larger context of an overall intellectual mediocrity of contemporary society which includes all too many scientists have brought us to this situation.

Many pundits would readily agree with these points. Unfortunately, the book does little to add supporting value to its assertions. It is an expanded version of an essay of the same title (Corredoira 2013) that doesn't work so well in book form. Perhaps the essay works better than the book because essays are inherently subjective pieces whereas books (other than autobiographies or memoirs, of course) are expected to deal more objectively with their topics. The book is full of forcefully expressed but unsupported opinions, including rants against capitalism, the power of money, and the ugliness that comes with "progress." For instance, Corredoira regrets the homogenization of national cultures because "The character of people is not the same everywhere" (p. 167), which is doubtfully relevant to the question of whether the scientific age is in its twilight. Corredoira approves the view that it would be a pity for "India, for instance" to produce "western-style science"—but Sir C. V. Rahman, Jayant Narlikar, and other eminent Indian scientists would disagree, and that "it is as shocking that some countries try to produce science as it would be to see a Japanese man playing flamenco music" (p. 169)—yet Japanese and Indians among other Asians have excelled at Western music. As for science's twilight,

> Since the goal of science as an institution is mostly socioeconomic—keeping a structure which creates employment for myriad members of the guild, and allowing some people to acquire some power—the evolution of scientific knowledge will not directly affect its existence. The problem for scientific institutions will come when its influence over society is reduced and when the resources that science consumes begin to diminish. (p. 143)



In some part, the book's troubles rest with poor editing. Despite a stated acknowledgment to a professional English language editor, there is noticeable faulty syntax and idiom, much repetition, and many typos. The book doesn't focus on its stated theme, and there is too much generalization without specifics or examples. It is also unfortunate that toward the beginning, in section 1.1, "Who has written this book and in which circumstances?," the author hypes his own credentials in both philosophy and science. Aside from the lack of false modesty, in general one should let a text speak for itself and persuade through data and argument, not just because the author is an expert.

I would also quarrel with a few of the book's opinions. For one, I don't agree that the philosophical reflections of active scientists are the best guide to science or nature (p. 149). I think scholars of science and technology studies (STS) are the best guides: As war is too important to be left to the generals, so science policy is too important to be left to scientists. The denigration of engineering as the development of instruments (p. 145) ignores the fact that major advances in pure science have depended on and followed the invention of instruments and the subsequent gathering of novel data—consider the field of radio astronomy, for example. I'm not sure that the modern philosophers favored by Corredoira are the ones most worth attending to: Nietzsche, Spengler, and Unamuno. Seeking to generalize from the case of Perelman (p. 140 ff.), a mathematical genius who refused to accept major prizes, is akin to basing generalizations on the idiosyncratic behavior of chess genius Bobby Fischer. The suggestions for improving science seem impractical, to say the least: holding evaluators accountable for decisions that later turn out to be flawed and thereupon punishing them by dismissal or through fines (even posthumously charging estates or heirs). The idea that older scientists should retire in favor of younger ones is too sweeping a solution. And Wikipedia should not be relied on as an authoritative source even for relatively uncontroversial matters of history; for that matter, much of the historical material doesn't seem relevant to the main theme of the book.

Corredoira connects the twilight of science with the state of contemporary affairs overall:

> People forget that a scientist is or should be an intellectual, not merely a technician, and our society is moving quickly towards a devaluation of the intellectual and 'culture for the sake of culture,' which are being replaced by utilitarianism, light culture for the masses, and culture as business or a fun fair for tourists. Hence, people will see the career of the scientist as a big effort for small rewards, and they will prefer other options. These problems are similar to those of the Catholic Church, suffering from a lack of vocation in Europe. Possibly, like the church, science can recruit people from developing countries, but the success of this recruitment will depend on how much money science is able to offer as salary, because the major goal of most highly educated individuals from poor countries is to move themselves and their families out poverty. Of course, there will be a few young people everywhere with the true vocation of scientists, who will only want to do research in science, but the amount of manpower necessary to keep the present-day machinery of science going will be significantly reduced and the structures will be very much affected. (p. 146)

Science will go the way of philosophy: "frustrated isolation" irrelevant to the workings of society. Despite all these caveats, I do recommend emphatically that everyone read Corredoira's 2013 essay. The main points raised in both essay and book are sound, important, and worth pondering:

— the crisis in science because of the end of growth (predicted by one of the founders of STS, Derek Price [1986])
— the lack of separation between pure and applied science, and the resulting change in the ethos of science (discussed comprehensively by Ziman [1994])
— the general "twilight" of Western culture (treated magisterially by Barzun [2000] in his last book *From Dawn to Decadence*

I also recommend Barzun's earlier discussion of the significance of science for humankind, *Science: The Glorious Entertainment* (1964).

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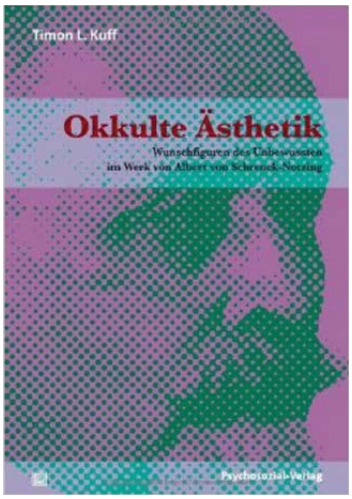
BOOK REVIEW

Occult Aesthetics: Wish-figures of the Unconscious in the Work of Albert von Schrenck-Notzing by Timon L. Kuff. Gießen, Germany: Psychosozial-Verlag, 2011. 545 pp. £39.40. ISBN 978-3837921366.

Thomas Mann's Ghost Baron: Life and Work of Baron Albert Von Schrenck-Notzing by Manfred Dierks. Gießen, Germany: Psychosozial-Verlag, 2012. 366 pp. £23.60. ISBN 978-3898068116.

The physician, sexologist, and psychical researcher Albert von Schrenck-Notzing (1862–1929) was one of the most unusual and controversial figures in the history of late-nineteenth and early twentieth-century German medicine and science. As a young student, he sought—together with his one-time mentor Carl du Prel, the philosopher–psychologist Max Dessoir, and others—to expand the methodological and epistemological scope of fledgling German professionalized psychology by serving as an important conduit for strands of psychological experimentation from France and England as alternatives to the physiologically grounded experimental psychology of Wilhelm Wundt and its offshoots (Kurzweg 1976, Sommer 2013). An early leading proponent of sexology and medical hypnotism, his work was well-received inside and outside Germany by authors such as Richard von Krafft-Ebing, Albert Moll, Sigmund Freud (with whom he had studied hypnotism under Bernheim in the 1880s), Auguste Forel, Morton Prince, and Havelock Ellis (e.g., Gauld 1992, Sommer 2012a, Sulloway 1992). After obtaining economic independence by marrying into one of the richest families in Germany, he abandoned his promising medical career and began to focus his energies on the study of the most controversial and disputed area of psychical research: physical mediumship. Thanks to his immense wealth and former academic credentials, shortly after World War I Schrenck-Notzing began to dominate German psychical research and became its doyen and sponsor.

Schrenck's unorthodox investigations brought upon him the wrath of his previous comrade in arms in medical hypnotism and sexology, Albert Moll, as well as a network of other self-appointed guardians of "science" and "reason" who publicly castigated Schrenck for what they viewed as his attempts to contaminate German science with dangerous "superstitions" (on these controversies, see Sommer 2012a, Wolffram 2006). Instrumental



in these campaigns was the utilization of popular traditional Enlightenment sentiments, which labelled the believer in phenomena traditionally considered "occult" or "supernatural" inherently irrational, epistemically vulgar, and downright psychopathological. Irrespective of interpretations of reported occult phenomena as natural rather than supernatural by most investigating them and testifying to their reality, Moll and other militant opponents of psychical research, such as the lawyer Albert Hellwig and the psychiatrist Mathilde von Kemnitz (who later became known as the Nazi occultist Mathilde von Ludendorff), considered the very belief in their empirical possibility to be a dangerous mental pathogen. Like a parasitic evil spirit, belief in the reality of occult phenomena supposedly took hold of and controlled the victim, transforming rational beings into dangerous carriers of contagious pathological folly and error which, Moll and colleagues feared, threatened to overthrow the very foundations of modern culture and civilization. Thus, Moll's public war against his former colleague culminated in a posthumous "diagnosis" just weeks after Schrenck's death, describing the freshly deceased as the prototype of one suffering from an "occult complex" resulting from the dangerous will to believe in an occult occurrence (Moll 1929).

The pathologization of those holding "dangerous beliefs" was of course not invented by Moll. When Immanuel Kant, for example, diagnosed Emanuel Swedenborg and other "enthusiasts" and "mystics" as lunatics (Kant [1766] 1925, [1790] 1873), he was looking back on an already long tradition of declaring epistemic and religious deviance ("enthusiasm") a disease. When psychologists in America and elsewhere repudiated psychical research contra William James as the "father" of the new profession (who advocated unrestrictedly empirical studies of telepathy, mediumship, and other debated phenomena as legitimate fields of scientific psychology), they were likewise generous with attributions of interest in the "occult" as inherently pathological.[1] Hence, in response to a review by his psychological colleague James McKeen Cattell of a study of the mediumship of Leonora Piper, James, having identified serious misrepresentations of the reviewed report by Cattell, complained, "In our dealings with the insane the usual moral rules don't apply. Mediums are scientific outlaws, and their defendants

are quasi-insane. Any stick is good enough to beat dogs of that stripe with" (James 1898:641).

Both works under review, issued by a young publishing house specializing in psychological and psychoanalytical literature, continue to promulgate the image of Schrenck as constructed by Moll and other militant opponents of unrestrictedly empirical approaches to reported psychic phenomena. Kuff's study, which was his doctoral thesis in *Bildwissenschaft* (visual culture studies), is the heftier tome, although it focuses on Schrenck's experiments with Eva C. (Marthe Béraud; first published in 1914 as *Materialisationsphaenomene*) and his famous photographs of "ectoplasm" (Schrenck used the term "teleplasm"), almost completely neglecting subsequent works by Schrenck. According to the blurb on the back cover,

> Kuff reveals the complicated semantic status of the image in its double function as a scientific document and map [*Abbild*] of a performative expression theatre. Thus, the biological, philosophical, and aesthetical references which Schrenck meant to establish are rendered visible. In the conjunction of intellectual biography and historical discourse analysis the aesthetic delimination of images are being traced and an exemplary analysis of that occult aesthetics is executed.

I suppose the advertisement alone will hardly entice *JSE* readers to brush up on their German and read the book. Of greater interest, however, may be the author's promise to have obtained "a new perspective on the interaction between medium and experimenter" (p. 15) and "a cautious interpretation of the motives which drove those involved to conduct these experiments" (p. 19). Unfortunately, the "new perspective" is about as novel as that adopted in the *Malleus Maleficarum*, and the interpretation of motives of psychical researchers as "cautious" and sensitive as the methods applied by the proverbial Spanish Inquisition (no reference to Pythonesque re-enactments involving comfy chairs intended). Relying on the most simplistic and popularist science myths imaginable, like the journalist Ruth Brandon (1983, whom Kuff cites frequently) before him, the author skews his portrayal of Schrenck by adopting an axiom according to which the medium is a fraud and the psychical researcher a fool, slogging the objects of his study to fit his own unreflected presuppositions. For according to Kuff, Schrenck's work was sheer "madness" (p. 499) and an "anti-modern soul-hunt [*Seelenfängerei*]," which is why it was "not a tragic misjudgement but a necessary corollary" that it was never accepted by science (p. 501).

The guiding idea of the study is, after all, an absolutely uncritical acceptance of notions related to that dangerous "will to believe" in the

miraculous that supposedly instantly cripples any critical faculties in its victims. Praising Albert Moll as "one of the first to clearly recognize that it was superfluous to ponder the fraudulent character of the phenomena unless the inner motivation of those involved was clearly fathomed" (p. 352), Kuff credits the leading populariser of the "new psychology" in America, Joseph Jastrow, with the actual discovery of the occult complex, obviously believing the use of the term by professional psychologists and physicians denoted a discrete, evidence-based clinical entity rather than a rhetorical device to keep the occult out of professionalized psychology and medical hypnotism. Kuff reveals that he simply snapped up the term without studying the historical context of its emergence when making the absurd claim that Jastrow (whom Kuff falsely refers to as a representative of psychoanalysis, p. 382) arrived at the idea "following William James's psychology of religion and Freudian psychoanalysis" (p. 360). As evidence, Kuff quotes an equally embarrassing claim by one of Schrenck's opponents, Carl von Klinckowstroem, who pronounced that the "will to believe (according to William James) is the characteristic of primitive thinking" (quoted on p. 360), when in reality James's "will to believe" encapsulated his passionate defence of the individual's *right* to believe in transcendental realities even in the absence of conclusive evidence as long as such belief served a constructive function (James 1897, 1911). Moreover, rather than adopting contemporary standard anthropological explanations of belief in the supernatural as an atavistic survival from a primitive stage of human development, James explicitly rejected such views (e.g., James 1902: Chapter 10).

Rather than assessing functions of pathological belief claims in the context of the professionalization of psychology (Jastrow) and the medicalization of hypnotism (Moll), Kuff in all seriousness employs them to not only perform a retroactive "diagnosis" of Schrenck-Notzing, but also as a framework for his theoretical analysis of Schrenck's famous photographs. In overblown and pop-psychoanalytical prose, Kuff emulates Moll by condemning Schrenck and psychical researchers at large for "portraying their badly camouflaged wishful fantasies [*Wunschvorstellungen*] as objective or matter-of-fact motivations, thus inevitably being not only spectators but, in their self-styled roles as investigators, becoming co-actors of the medium" (p. 281), and he asserts the tired stereotype that it was the crafty mediums who subtly manipulated the hopelessly naïve experimenters, leaving them in the mere illusion of being in charge of the experimental procedures (e.g., pp. 308–311). When contradicting his previous statements by mentioning examples of extraordinarily strict control which Schrenck sometimes pushed at the cost of Eva's well-being and dignity, Kuff simply

takes this as clear-cut proof that Schrenck gratified a sadistic fetishism by disciplining his medium like a circus animal (e.g., pp. 354–356). For the upshot of Kuff's analytical efforts is that the

> disciplining [*Dressur*] of Eva C. over years could encash for Schrenck that which life in the middle-class straightjacket denied to him: Delimination fantasies could be acted out and fixated medially. Through sophisticated technical–optical apparatuses it was possible to photographically capture the wild, convulsive modes of expression displayed by the medium during the 'mediumistic labour-pains'. To exert control: This became the actual fetish for Schrenck, which was and is explainable not only—all too one-dimensionally and rationally—through demands of 'control for fraud'. Those manifest limits did not exist, for the fantasies remained all too obviously literally limitless in the realm of non-explicable physical mediumship, which also explains the aesthetic value (or lack thereof) of the pictures produced in this sequence of operations. (p. 367)

For the author, therefore, to a significant degree "the history [or story: *Geschichte*] of the *Phenomena of Materialisation* is also that of Schrenck-Notzing's compulsion neurosis," and Schrenck's experiments with Eva C. a "compositum mixtum of a psychopathological Punch and Judy show [*Kasperletheater*] for adults and camouflaged sexual passion" (p. 487).

A further example of Kuff's willingness to buy into the populist propaganda of Schrenck's antagonists is the (supposedly damning) claim that Schrenck was a spiritist. While in an entry on Schrenck in a recent biographical dictionary of sexology it was simply declared that "his spiritistic studies satisfied the need for metaphysical solace" (Kuff 2009:642), he now acknowledges that Schrenck adopted an explicitly non- and at times anti-spiritistic approach to mediumship, but maintains (again without qualification) that this was but a rhetorical strategy to camouflage his supposedly perverse activities as "science." Again uncritically parroting Moll (whose equally vitriolic attacks on Freud Kuff is strangely oblivious to), he maintains that the proof for Schrenck's secret spiritism lay in the fact that his experiments preserved the outward setting and milieu of the séance room (e.g., pp. 158, 169), dismissing Schrenck's studies as "a scientifically masked, technically booted-up [*technisch hochgefahrener*], and quite materialistic spiritism" (p. 498). This, Kuff explains, was the reason Schrenck's *Phenomena of Materialisation* "was never accepted as an experimental–psychological or psychoanalytical reference work [*Grundlagenwerk*]" (pp. 178–179), curiously contrasting it with Théodore Flournoy's famous study of the (mental) mediumship of the Genovese medium Catherine Elise Müller ("Hélène Smith"), which Kuff anachronistically refers to as "psychoanalytical–linguistic" (p. 184). What

Kuff neglects to mention, however, is that Flournoy (who surely would have taken issue with a characterization of his work as "psychoanalytical") also studied his automatist in her natural environment; that he candidly reported instances of apparently supernormal cognition which could easily be interpreted in favour of the "spirit hypothesis;" that Flournoy (a correspondent and occasional co-investigator with Schrenck in the study of physical mediumship) was convinced of the reality of physical phenomena, and, moreover, that he protested vehemently against certain methods and sweeping claims routinely used by polemical antagonists of psychical research (Flournoy [1899] 1994:Chapter 10).

Chapter 6 bears the subtitle "The phenomena of materialisation in historical context," but neither there nor anywhere else in the book do we find the slightest attempt to actually contextualise Schrenck's work or understand it through an analysis of the extensive medical and scientific networks he was a member of before and after abandoning his medical career. Instead, the author extends his tiring finger-wagging exercise to include Schrenck's early work in sexology, for Kuff singles out Schrenck (rather than Krafft-Ebing, Moll, or Forel) for his anachronistic accusations of late-nineteenth century sexologists operating according to paradigms and practices of their time rather than ours (e.g., p. 61), i.e. the pathologization (rather than, as previously, criminalization) of homosexuality and other sexual "deviations."

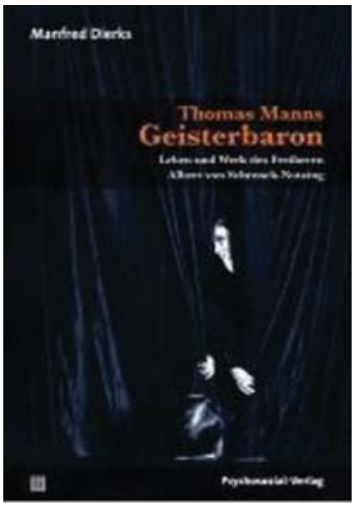
Less explicitly accusatory than Kuff, *Thomas Mann's Ghost Baron* by Manfred Dierks (a Mann scholar and professor for modern German literary studies) still equally testifies to the lasting impact of imperial and interwar German anti-occultism campaigns as launched by Moll and other self-appointed Great Inquisitors of popular science. Lacking an introduction or preface, the reader is left confused regarding the objectives and genre of the curious literary exercise, which reads like a historical novel at times (Dierks constructs dialogues in direct speech and has his protagonists shrug, nod, rave, and grin) and a playful comment on imperial and interwar German culture at others. In contrast to Kuff, Dierks conducted extensive archival research, unearthing interesting details, particularly concerning Schrenck's youth in Oldenburg, his later involvement in his father-in-law's business affairs, conflicts with other psychical researchers dissatisfied with his monopolizing the field in Germany, and his reception by key figures in Munich high society. Unfortunately, however, inconsistent referencing often makes it impossible to assess whether claims and interpretations are based on historical evidence or on the author's imagination. To give a comparatively unimportant example, Dierks maintains that Max Dessoir was Schrenck's best man at his wedding (pp. 124, 154, 303) but fails to

back up this unlikely assertion—according to Dessoir's memoirs (Dessoir 1947:130), he attended Schrenck's wedding, but considering the somewhat troubled history of the men it is almost inconceivable that he was his best man. Problems increase when the narrative fundamentally questions Schrenck's integrity and sanity as it does in almost every chapter through dramatized reconstructions of scenes and dialogues, one-sidedly relying on accusations and innuendo by his manifold antagonists.

With his expertise on Thomas Mann (who wrote a famous essay on his experiences with Schrenck's medium Willy Schneider (Mann 1924)) as a starting point, Dierks looks at parts of Schrenck's career as a sexologist, exploring, for instance, whether Mann might have consulted Schrenck to hypnotically "correct" his homosexuality (pp. 173–176). Mentioning Schrenck's links to Eugen Bleuler and Carl G. Jung (pp. 342–344), Dierks misses an opportunity to explore these networks further. Instead, through his unquestioning reliance on an outdated popular understanding of the history of science in the simplistic terms of a heroic march from error to knowledge, and a resulting unhelpful dichotomy of orthodox (i.e., professionalized) science versus unorthodox "pseudoscience," his perspective is laden with a pre-interpretation of Schrenck and some of his collaborators as self-deluded scientific outsiders and quasi-pathological saboteurs of scientific progress regularly engaging in acts of intellectual dishonesty and rhetorical self-immunization (pp. 183–184, 237–238), and, like Kuff, he seems to accept as gospel almost any accusation ever leveled against Schrenck by Moll and other antagonists.

For instance, like Kuff (Chapter 4) the author condemns Schrenck for supposedly continuing certain traditions of Romantic medicine with its strong links to animal magnetism and various forms of vitalism, which Dierks seems to consider as inherently irrational and positively refuted on empirical grounds. Here he strictly adheres to conservative popular historiographies of Romantic science and medicine as manufactured particularly by mid- to late-nineteenth century pioneers of professionalized physiology with heavy metaphysical axes to grind, such as Hermann Helmholtz, Emil du Bois-Reymond, and Carl Vogt. Unaware of advances in the history of science scholarship addressing pertinent developments in scientific culture from the Enlightenment onwards, Dierks grounds, and thus fundamentally limits, his perspective in simplistic terms of progressiveness ("When medicine pushed itself away from its Romantic foundations and began to view itself as exact natural science, it saw itself obliged to follow the epistemological principles of the Enlightenment," (pp. 74)).[2] Dierks reveals his grasp of Romantic primary sources by claiming, for instance, that among early-nineteenth century philosophers it was only Schopenhauer who accepted the reality of animal magnetism (p. 25), whereas it was—along with its "mystical"

components, i.e. alleged clairvoyance and thought transference—embraced and studied not only by Fichte, Schelling, and Hegel, but also by eminent Romantic natural philosophers such as the inventor of a prototype of the modern battery, Johann Wilhelm Ritter, and the discoverer of electromagnetism, Hans Christian Ørsted.



Oblivious, like Kuff, to the continuity of "occult" interests in members of the German intellectual elite (such as the founder of psychophysics, Gustav Theodor Fechner), which has been thoroughly obscured by "enlightened" conservative histories of science, Dierks dips into the history of modern psychology. Mentioning Schrenck's network of important pre-Freudian theorists of the unconscious such as Pierre Janet, Carl du Prel, and Frederic Myers (the latter of whom he oddly refers to as a "harsh opponent of spiritism," (p. 91), his reliance on conservative historiographies of modern psychology and its relationship to psychical research, however, appears to have prevented him from consulting studies demonstrating strong links particularly between pre-Freudian psychologists of the unconscious and psychical research (e.g., Brower 2010, Crabtree 1993, Ellenberger 1970, Gauld 1992, Kelly et al. 2007, Plas 2000, Shamdasani 1993, 2003, Sommer 2011).

Moreover, Dierks retroactively (de-)constructs Schrenck's entire career by bluntly projecting the most unflattering and hostile characterizations by interwar antagonists on his early days. Hence, according to Dierks's depiction, Schrenck's supposed scientific downfall was predetermined by a narcissistic megalomania, flamboyant hedonism, sleazy prurience, and cowardice. Schrenck's motivations to promote medical hypnotism as a student, for instance, are reduced to a narcissistic impulse and lust for manipulation ("As a hypnotist, he savours that which this role gains him: the power over others, the pride of the own strong will" (p. 119; see also pp. 29, 30)).

The portrayal of psychical researchers as renitent, obnoxious enemies of reason is duly extended to Schrenck's closest collaborators. Charles Richet, for example, is likened to a "mulish little boy, who will not accept a rebuke and who is deeply convinced of his own truth" (p. 236), and a discussion of Richet's human shortcomings (such as his disturbing racism, e.g., pp. 224,

238–40) also appears calculated to discourage a sympathetic stance toward the later Nobel Prize laureate's unorthodox scientific activities. Gustave Geley (who receives a good bashing from Kuff as well) is referred to as a former assistant of Charcot, who, however, "had strayed into spiritism, but who knew how to obscure his superstition" (p. 297). Schrenck's links to the biologist and philosopher Hans Driesch are sweepingly explained by Schrenck's accepting Driesch's neo-vitalism to promote his "unscientific" experiments and Driesch's vouching for Schrenck to bolster his "reactionary" theories of morphology (pp. 286–290). Another collaborator of Schrenck's who was highly regarded in his time, the Tübingen philosopher Traugott Konstantin Oesterreich, receives more respectful treatment (pp. 290–294)—perhaps because Oesterreich was rarely the subject of aggressive attacks in newspapers and popular magazines, and because he was even more oppressed by the Nazis than Driesch.

In this regard, Dierks provides interesting insights into the future career of Mathilde von Kemnitz as the Nazi occultist Mathilde von Ludendorff (pp. 245, 316–319), but again forfeits an opportunity to explore some of the manifold and often mutually antagonistic quarters and networks in imperial and interwar German culture which were so passionately hostile to psychical research and instrumental in fundamentally biasing its public image and academic reception in the press. Moreover, Dierks neglects to take a closer look at some of the arguments and concerns of another of Schrenck's most scientifically eminent supporters, Eugen Bleuler, who forcefully defended Schrenck from what he viewed as unfair and shallow knee-jerk polemics camouflaged as scientific criticisms (Bleuler 1926, 1930, 1933). Similarly, Dierks could have tested popular standard interpretations of psychical researchers as intrinsically motivated by irrational and regressive impulses by studying in some detail Schrenck's correspondence and collaboration with other individuals who could hardly be thus characterized—at least in the simplistic standards of popular science adhered to so strictly by both Kuff and Dierks. For example, during his archival research in the Schrenck papers at the IGPP Freiburg, Dierks must have seen the correspondence with Hans Hahn, a member of the Vienna Circle of logical positivism, who investigated (with Schrenck and colleagues in Austria) poltergeist phenomena and even served as vice-president of the Austrian Society for Psychical Research.[3]

What both Kuff's and Dierks's approaches most fundamentally lack in historical–methodological terms is at least rudimentary sympathy and respect for their unorthodox protagonists, and, most of all, symmetry, perspective, and context. This is not to claim that Schrenck was free from blemishes and errors. To reduce any historical actor to their supposed and real human faults and

scientific mistakes without even attempting to provide a fair balance, however, is a method that may considered as befitting politicians, but not scholars.

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Notes

[1] On the desperate need for early professional American psychologists to demarcate the "new psychology" from psychical research, see, e.g., Coon (1992) and Sommer (2012b).

[2] For important revisions of traditional views of Romanticism as inherently irrational or even "anti-scientific," see, e.g., Cunningham & Jardine (1990) and Beiser (2003). Nuanced reconsiderations of the traditional view of the Enlightenment as the age of tolerance and progress, are, e.g., Porter (1990) and Outram (1995). On the metaphysical backdrop of the emergence of anti-Romantic scientific materialism and reductionism in nineteenth century Germany, see Gregory (1977) and Wittkau-Horgby (1998). The concrete political dimensions of the belief in "miraculous" phenomena in imperial Germany and elsewhere have been studied, by Blackbourn (1993), Porter (1999), and Freytag (2003, 2004).

[3] A more prominent member of the Vienna Circle, Rudolf Carnap, was also interested in parapsychological phenomena—apparently much to the dismay of Otto Neurath and Ludwig Wittgenstein (Neurath & Cohen 1973:43). I'm grateful to Gerd Hövelmann for referring me to Carnap's first-hand statement regarding this matter (Carnap [1963] 1993:42).

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BOOK REVIEW

Communication with The Spirit World of God: Its Laws and Purpose, Extraordinary Experiences of a Catholic Priest by Johannes Greber. Teaneck, NJ: Johannes Greber Memorial Foundation, 1979, sixth edition. 432 pp. $19.95 (hardcover). ISBN 978-1877626029.

Author Johannes Greber (1874–1944) was a Catholic priest in rural Germany when, in 1923, he began sitting with several trance mediums, through whom he received profound messages about God, Creation, Christ, and the laws governing spirit communication. The revelations recorded by Greber were so much in conflict with what he had come to believe that he left the priesthood several years later and moved to the United States, eventually settling in Teaneck, New Jersey, where he began a church focused on spiritual healing. This book was first published in German and English in 1932. A later book, *The New Testament*, was initially published in 1937.

The reader looking for evidential mediumship will find little, if anything, in this book to satisfy him or her. If any deceased relatives or friends communicated with Greber or those in attendance with him, he does not mention it, although he alludes to such communication and mentions hearing from many spirits, both advanced and low-level ones. No names are given for the spirits and indications are, though not completely clear, that the messages set forth in the book came from what other sources identified as "group souls"—a number of enlightened souls speaking as one. Greber refers to them as "messengers."

Clearly, Greber's objective was to offer enlightenment, not evidence. For Greber, the evidence that the communication was from the spirit world came from his conclusion that the knowledge and wisdom communicated through the young trance mediums far exceeded their maturity, education, and experience. In this sense, Greber's research was much like that of Alan Kardec, the pioneering French psychical researcher, who recorded volumes of "truths" communicated by purportedly advanced spirits. Today, it might be called "channeled" information. As an example, one of the early messages recorded by Greber reads:

> Your scientists include among mediums those individuals who have the gift of clairvoyance and clairaudience. This is not correct. It is true that clairvoyants, clairaudients, and clairsentients have mediumistic powers, but they

> are not true mediums. With them it is their own spirit which is active, which sees and hears, whereas in mediums properly so-called it is a strange spirit which acts while the medium's spirit is temporarily dispossessed. The gifts of clairvoyance and clairaudience do indeed enable the spirit of a man to see and hear the spirits about him, but a clairvoyant is not an instrument of these spirits and should therefore not be classed as a medium. The spirit of a person endowed with clairvoyance, clairaudience, and with supernatural powers of feeling, smelling, and tasting, owes these faculties exclusively to the fact that it can detach itself from the body of [to] a greater or less degree . . . (p. 116)

Except for the first chapter, in which Greber explains his introduction to mediumship, a later chapter in which he discusses other mediums of that era, and some prefatory and concluding remarks in other chapters, nearly everything in the book, probably more than 90 percent of it, is in quotes, as told to Greber by the "advanced" spirits. Although Greber mentions taking shorthand notes at his first sitting, he does not explain if this is how all the communication was recorded or if messages were copied down verbatim. The discerning reader will have many questions left unanswered by Greber. At the same time, the reader will wonder if it is even remotely possible that some young boys could have dictated such weighty messages as part of a fraudulent scheme, or if Greber himself had the knowledge and motivation to attribute his own radical and unorthodox ideas to advanced spirits. Greber seems to have become a Bible scholar during the last two decades of his life, but one is left to conclude that this scholarship was the result of what the spirits communicated to him and his desire to correct the distortions in the Bible.

As Greber explains in the first chapter of this book, he was, in addition to being a parish priest, in charge of a charitable association in a nearby city. During the summer of 1923, a man approached him in the office of the charitable association and told him about attending a meeting in which a young boy, an apprentice in some private enterprise, would "fall over forward as though dead" and then be jolted back into an upright position, seemingly by an invisible force, after which, with his eyes closed, he would "impart wonderful tidings" to those present. After he regained full consciousness, he claimed to have no recollection of what he had said. The boy was described as being from an unpretentious family and of limited education (p. 18).

Admitting that he knew nothing about "spiritism," and after some hesitation, Greber agreed to attend a meeting with the man so that he could observe the young boy. Before the meeting began, Greber talked with the boy and satisfied himself that he was an average youth of his age, although

his age is not stated. The meeting began with a prayer. "Scarcely was the prayer ended when the boy fell over forward with a slump and an exhalation of breath so sudden that I was startled," Greber wrote. "Had he not been supported by the arm of the chair in which he was seated, he would have dropped to the floor. After a few seconds he was pushed upright by an invisible hand and remained sitting with his eyes closed" (p. 18).

After stating "Gruess Gott" ("God's greetings"), the boy turned to Greber and asked him why he had come. In addressing Greber, the boy used the familiar form "du" (thou), which shocked Greber as he felt certain that the boy he had earlier talked with would never have taken such a liberty. Upon recovering from the shock, Greber explained that he had come in search of the truth.

After a few more questions about Greber's beliefs, the boy, or the spirit speaking through him, then began to admonish Greber:

> If you had the complete and unamended text of Christ's doctrines, many a load imposed by man in the name of religion and Christianity would be taken from your shoulders. Many a precept which you are expected to believe, even though it seems out of all reason, would be discarded because it would be recognized as being wrong, and you as God's children could again breathe freely. As it is, millions of people feel that much of what is being taught today as a part of Christian faith cannot be true. From force of habit, they may conform outwardly but there is no true inner conviction. (p. 19)

When someone else in attendance asked who it was who had distorted God's Holy Writ, the response was that the name was of no importance and that it was enough for him to know that it had happened. The message continued:

> Even the last letter of the Apostle Paul addressed to all Christian communities has been destroyed. In it he had carefully explained those passages in his earlier writings that had given rise to misunderstanding. But his explanations were not in accord with many erroneous doctrines that had subsequently crept into the Christian faith. (p. 19)

The "communicating spirit" pointed out that when the Bible says "God spoke," it was not God but his spirit messengers. It was further explained that passages in the Old Testament saying that the "dead know nothing" and that we should not speak with the "dead," were mistranslations, as the prohibition was against speaking with the "spiritually dead," referring to inferior or low-level spirits.

Greber was informed that he would encounter mediums in his parish who would further enlighten him. Not long thereafter, he was making a sick call

to a member of his parish when one of her sons fell into a trance and began writing some profound messages. Another son began turning his head from side to side against his will. As it turned out, one son was an automatic writing medium and the other son a trance-speaking medium. Greber was bewildered. "The fact that spirits could use human beings in full possession of their faculties as instruments, and especially that they could cause them to speak and write, was quite outside of my previous experiences," Greber wrote. "Above all, I was completely at a loss to understand what was taking place" (p. 34).

As Greber further sat with the two boys and received messages, he became convinced that they were advanced spirits, not devious spirits or wolves in sheep's clothing. He eventually took "leave" from the Church, which he apparently parted ways with completely upon moving to the United States.

Scientists interested in physical mediumship and open to celestial explanations for terrestrial happenings will likely find the lengthy discussion of od, or odic force, most interesting. It was the German chemist Carl von Reichenbach (1788–1869) who gave the name od or odic force to what later came to be called psychic force, teleplasm, and ectoplasm by researchers. It was explained to Greber that the physical body is nothing but od condensed into substance, and that such is also the case with animals, plants, and minerals. The growth of those bodies and their taking material shape, Greber was told, are subject to the laws of odic condensation. The communication continued:

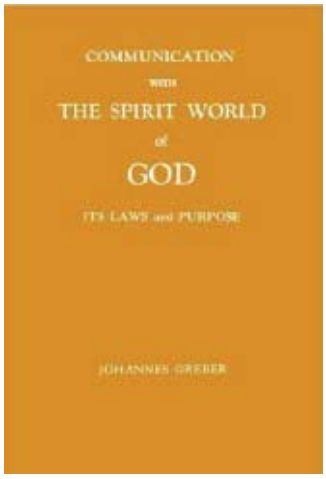
> The od representing the vital force of the body always remains associated with the od of the spirit and hence with the spirit itself. It is the motive power for the body at the disposal of the spirit, just as your terrestrial motive powers are at the engineer's command. If then the supply of motive power for the body is diminished below the point required to maintain life in the body, the spirit departs from the same and corporeal death ensues, just as the engineer abandons his engine when he cannot keep it running for lack of power.
>
> At the death of terrestrial bodies, the odic force remains vested in the spirit, for those bodies possess no independent odic force of their own; it is only the spirits which have taken possession of the bodies which have that power. (p. 77)

Greber was further informed that od flows through all parts of terrestrial bodies and radiates beyond them to a certain distance. It has been called the *odic body*, *astral body*, *fluid body*, and *spiritual body*. This radiation has been referred to as the aura and can be seen, Greber was informed, by so-called clairvoyants endowed with the gift of seeing spirits. The explanation continued:

> . . . every created thing leaves behind it an odic trace of its existence uniting the day of its coming into being with the last day of its life. Such a band is formed by the od of every creature on its way through life. It is by a trail like this that migratory birds return to their old haunts and that the swallow comes back to the same eaves under which it built last year's nest. The odic sensitiveness of these creatures is extremely delicate, but is active only so long as they are in good health, for because of the weakening of their odic powers, sick animals lose the odic sensitiveness necessary to enable them to follow their own or another creature's trail. (p. 84)

The process of materialization and dematerialization was also explained to Greber. It was likened to converting matter into steam with the aid of high temperatures. With the aid of hot power currents, spirits can convert matter into an od-like etherealized form, which can penetrate all substances without meeting resistance and can be transported to any place to be condensed into matter. In effect, the condensation of od into matter is called materialization and the dissolution of matter is referred to as dematerialization. The messenger said that it is childish and a sign of man's profound ignorance of such matters to ridicule the fact that many spiritistic phenomena can be produced successfully only in the dark.

It was further explained that there are many degrees of odic condensation or materialization, from that visible only to a clairvoyant to the complete materialization of spirits. It all depends on the amount of od available to the spirit world. A complete materialization requires so much od than no one



medium is capable of supplying it, and the spirits must draw od from others in the room. This is why partial materializations, such as a hand only, are more common.

The spirit is the source of life but the shaping and the scope of our lives are determined by the odic force associated with the spirit, referred to as "vital force," the messenger continued to explain. This force manifests itself by vibrations of the od. Every manifestation of the intellectual life, every thought, and all volition are expressed in corresponding odic vibrations, set in motion by the spirit, as the bearer of the od.

Harmony in odic vibrations stands for beauty, health, happiness, peace, and good fortune, Greber was told, while discord in vibrations is the cause of ugliness, sickness, suffering, and unhappiness. Moreover, Greber was informed that the odic vibrations of an individual are influenced by the thoughts and moods of others. The lecture continued:

> Od is among the most wonderful things in God's Creation. The odic band not alone [only] connects you with everything with which you come into contact in life, but it also reflects your entire existence—every act, every utterance, every thought of yours is reproduced by it as in a film. It is a "Book of Life," into which everything is entered. It is a phonographic record which retains and reproduces everything. It is a film which does not lie, and whose revelations cannot be denied. And it is the evidence by which in the end you will be judged by your Creator. (p. 87)

The messenger explained that everything is not predestined. Only the general past is predestined. Most everything results from the acts of our own free will. What we do while traveling the path, how we act at those turning points, is for us to decide. Life has one purpose, the messenger went on, to raise the spirit to a higher level on the road that has been mapped for us and to bring us nearer to God. The path through life is one of tests, the nature and length of which are fixed in advance, but it is at the crossroads that the individual exercises his or her free will and plots his/her own destiny. Those who fail the tests must take them over again.

The messenger went on to explain that Christ's resurrection was in a form fashioned of materialized od, and that it was in a similar form that he stood before his disciples. The cloud described by the disciples was not an

ordinary cloud, as many religious fundamentalists have interpreted it, but a "cloud of od."

Many other manifestations in the Bible are explained by od, including the story of Abraham (Genesis 15:17), the burning bush witnessed by Moses (Exodus 3:2), and when Moses entered the tent and a column of cloud came down (Numbers 11:25).

> You have lost the art of reading the Scriptures with a view of understanding them. Your eye glances over their contents as it would over those of any worldly book. That which you read, you judge in a purely human light. Your world-inclined minds fail to discern therein the mighty doings of God. Thus, they are likewise incapable of grasping the insignificance of what is laid before you concerning the physical conformation of the tabernacle and the offerings descried in the Old Testament. (pp. 103–104)

In another chapter, Greber sets forth the teachings he received relative to the development of mediums. The primary objective, he was informed, was to train the medium to release as much od as possible by mental concentration. A second objective is the adaptation of the medium's od to that of the spirit which works through him. A superior spirit must purify and refine all mediumistic od, while the inferior spirit does not find this necessary, since its own od is impure and easily accommodates itself to the unpurified od of the medium. A third objective is to facilitate the liberation of the medium's spirit from his physical body. It was mentioned that while the medium's spirit is free from his physical body it maintains connection by means of a band or cord of od. If the cord is severed, death takes place.

> With a deep-trance medium the entire od, except an odic cord, is separated from the spirit, which is thereby set free, being enabled to leave the body and to travel for great distances from it, thanks to the high elasticity of the cord. When the medium's spirit has left his body, its place is taken by a strange spirit, which proceeds to deliver its message. With a clairvoyant this is not possible, for in his case no strange spirit can enter seeing that his own is still united with the whole physical od of his body and that in consequence no space is left available for occupation by a strange spirit.
>
> In the case of the clairvoyant, therefore, we have a close union which is maintained between his own spirit and the od of his body, and in that of a deep-trance medium an almost complete liberation of the spirit from the physical od. With the clairvoyant, it is his own spirit which tries to see and hear, with the deep-trance medium the medium's spirit surrenders its place to another spirit. . . . There are, however, clairvoyants who are also trance mediums, be it of the part-trance or deep-trance type. (pp. 124–125)

The need for harmony in the group and other conditions necessary for

good phenomena are discussed. Because the odic radiation of individuals differs, it is often necessary to rearrange the sitting in order to achieve a certain equilibrium among the group. The singing and playing of beautiful music often establishes a harmony and solemnity and turns the thoughts of the sitters to higher things, while acting as a safeguard against the influence of evil spirits. Fear, fright, distrust, doubt, and mental tension all act to defeat the production of od and resulting spiritual phenomena. As Greber interpreted it, this explains why skeptical researchers often get limited or no results, i.e. the atmosphere is one of distrust rather than of trust and acceptance.

Partial trance or semi-trance often results in problems and misunderstanding, the communication went on. This is because the medium's spirit has not been completely liberated as the controlling spirit communicates. Thus, the medium hears or sees the words spoken or written by the controlling spirit and may come to believe that the words or ideas communicated are his own.

> He thus incurs the danger of misunderstanding the entire proceeding and of regarding the manifestations as so much self-deception. It may easily happen, also, that the medium's own spirit breaks into the communication being delivered by the strange spirit, a proceeding which naturally awakens doubt among the others present. (p. 131)

There is much more explained about the workings of mediumship than I, the reviewer, have ever seen explained elsewhere, not even in scores of books *in toto*. So many things that have confused observers and researchers begin to make sense after reading the first three parts of this four-part book, even if they are not subject to scientific verification. It is beyond belief to me that some peasant boys could have produced such messages, and while one cannot totally discount the possibility that Greber is presenting his own ideas under the guise of spirit, such an explanation seems much less likely, at least to me, than the explanation given by Greber, who comes across as a sincere and honest reporter of his experiences.

Part Four is titled "Messages from the Good Spirit-World Concerning the Great Problems of Religion." The messenger told Greber that he was unable to explain the nature of God to him as it would be like trying to explain the calculations of a planet's orbit to a four-year-old child. Evolution is explained as consciousness attaching itself to higher and higher forms of life rather than an ape growing into a man. The revolt in God's spirit kingdom, as symbolized in the Bible, is explained. As for God's plan of salvation, Greber was informed that the first step toward salvation was the creation of spheres of progress. The material world was created in order to

lead everything back to God. Reincarnation is stated as a fact. Christ, though not God, *per se*, was said to be the highest Spirit which the omnipotent God could create. The virgin birth is discussed, the explanation not quite fitting either of the alternatives considered today. There is so much more to ponder on, wonder over, and awe at.

Many of the critics of mediumship have scoffed at the trivial information coming through mediums, and yet when profound and enlightening communication comes through, as with Judge Edmonds, Kardec, Stainton Moses, Greber, and others, it is called non-evidential and thereby ignored. This seems to have been the case with Greber's book, which is little-known today, even among those who believe in the reality of mediumship. One must wonder if the spirit messengers have gone away in frustration.

A biography of Johannes Greber and links to his book can be found at http://www.communicationwithgod.info/page1

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BOOK REVIEW

Zones of Strangeness: An Examination of Paranormal and UFO Hot Spots by Peter A. McCue. Bloomington, IN: AuthorHouse, 2012. 549 pp. $29.70 (paperback). ISBN 978-1456778422.

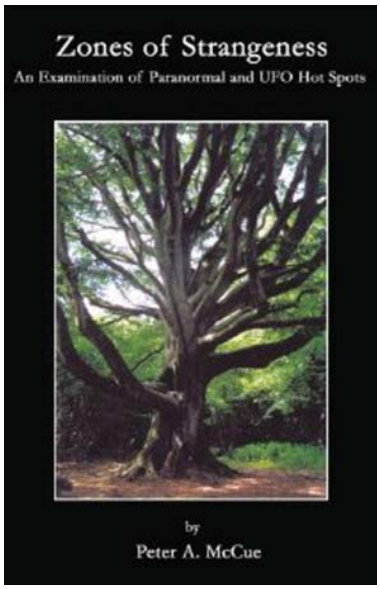
If I may be permitted an autobiographical note, let me to begin by remarking that I read my first UFO book (Edward Ruppelt's *Report on Unidentified Flying Objects*) in 1957. Charles Fort soon followed, and uncountable books ensued, culminating in the full-scale immersion from which my multivolume *UFO Encyclopedia* (1990–1998) eventually emerged.

The more one reads works of mainstream scholarship, the more one is struck by the unprofessional quality of so much writing on anomalies. There are, of course, honorable and happy exceptions, if not nearly so many as there ought to be. Many authors don't seem to know how to develop a logical argument with compelling evidence to match (see, for example, my review in *JSE* 26(3):707–714.) Many book authors give the impression that they have never read a single book of actual history or science. Not a few give every evidence of unfamiliarity with basic English usage, grammar, and punctuation. In the company of such work as this, an intellectually sophisticated consumer is likely to feel more like an anthropologist than a reader.

Over the past month, as it happens, I have read (for review) two anomalies books by well-educated, well-informed writers who, while the content of their thinking and reporting was sound enough, sorely needed competent copyeditors to save them from their worst selves. The second of these is *Zones of Strangeness* by Peter A. McCue, a Scottish psychologist, who is is educated, intelligent, and perceptive. He is also a screamer.

In *Zones*, the exclamation points, to quote an old-time blues lyric, fall like the dark-night showers of rain, or—to switch metaphors—spew like the products of a random exclamation-point generator.[1] When one removes end notes, bibliography, and index, one is left with 490 pages of text. Barely one is deprived of an exclamation point, and many boast multiple ones, at times in succeeding sentences.

In any prose in any context, one rarely has reason to use an exclamation point except in dialogue: ("'Look!' he shouted"), and if you don't believe me, count the exclamation points in *The New York Times* or *The New Yorker*. Their relentless abuse in *Zones* reduces the book's readability and credibility.



If any book does not need exclamation points, it's a book on anomalies, where a calm, persuasive, reasoned authorial voice is needed as it relates alleged occurrences and phenomena that many readers will judge hard to believe. If anything, understatement and rhetorical sobriety are crucial to communication with understandably skeptical but potentially receptive readers. In the popular stereotype, anomalists already have the reputation of being akin to street-corner shouters. Alas, by its feckless punctuation alone, *Zones* needlessly provides ammunition to those who would have outsiders believe anomalists do not merit the consideration of serious persons.

With an improved prose style (or, anyway, an attentive copyeditor) *Zones* would be a decent book which one might even venture to share with a friend who has expressed a degree of curiosity about anomalous reports. McCue's reading in the UFO/anomalies/parapsychological literature is wide and close. He has read a mass of literature, though inevitably one wishes he were familiar with some key items (Kagan and Summers's (1984) *Mute Evidence*, for one example, and Swords' (1989) seminal essay on the extraterrestrial hypothesis for another). Still, one can only stand in awe of one who possesses the stamina to cull such an overwhelming amount of printed and Internet content, to supplement it in a number of cases with personal inquiries, and to try to make sense of it all.

McCue focuses mostly on UFOs and Fortean reports—the bulk of them from the United Kingdom—of recent decades. Some early chapters take a passing look at poltergeists and apparitions. He readily acknowledges his conviction that such things are a real part of human experience and likely beyond current knowledge. I agree, and I also concur that, because we know as little as we do, speculation about ultimate causes must be cautiously advanced even as it serves as at least a tentative way of framing what we may be confronting. I was pleased in particular by McCue's notion that many extraordinary phenomena may exist only for the duration of a sighting (p. 484). That's why years ago I coined the expression "experience anomalies" to differentiate them from event anomalies. Most high-strangeness encounters leave traces only in memory and testimony, which

may be their true home. That doesn't make them any less mysterious.

I learned a good deal from *Zones* about reports I hadn't read before (or, in some cases, forgotten), and *Zones* will serve as a single-volume repository with measured and reasoned commentary. Still, veteran readers—who surely comprise most or all perusing this review—may buckle before the onslaught of outlandish and often thinly documented stories. To his credit, McCue is merciless on the imperfect reporting by other writers, whose accounts on too-frequent occasions contradict each other and leave crucial questions hanging. Not for the first time, one is forced to reflect on the limitations of anomalies research. With the virtual absence of trained scientists and other professionals, the work is largely in the hands of amateurs. Some, bless them, are sensitive and conscientious, but others aren't, and so anomalies literature becomes treacherous territory into which to tread.

McCue is trained and professional. Unfortunately, he needs to improve his communication skills, also an essential part of the anomalist's job description. Even so, *Zones of Strangeness* ends up yet another squandered opportunity to present anomalies-related questions to a larger, smarter audience.

Note

[1] To anticipate the inevitable: Exclamation marks in other than quoted material, including the title of a book, can be found under my byline. In each case, I was not responsible, and the marks were inserted editorially without my consent.

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BOOK REVIEW

Men and Women of Parapsychology, Personal Reflections, Esprit Volume 2 edited by Rosemarie Pilkington. San Antonio and New York: Anomalist Books, 2013. 422 pp. + vi, $18.95 (paperback). ISBN 978-1938398018.

In recent years a number of books have been published that offer short autobiographical essays of academics, focusing on their research and how their life history affected their scholarly development. These could be labeled as "intellectual journey narratives." Some volumes focus on philosophers and their religious faith or lack thereof (e.g., Clark 1997, Antony 2007). Psychology has its own version of the intellectual journey narrative in T. S. Krawiec's (1972, 1974, 1978) multivolume set of autobiographical essays by contemporary psychologists.

In 1987, Rosemarie Pilkington edited her first volume of essays entitled *Men and Women of Parapsychology, Personal Reflections*. It contains autobiographical essays by Jule Eisenbud, Montague Ullman, Jan Ehrenwald, Eileen Coly, Joseph H. Rush, Gertrude R. Schmeidler, Emilio Servadio, Renée Haynes, Hans Bender, Karlis Osis, George Zorab, and Bernard Grad. The second (2013) volume contains autobiographical essays by Mary Rose Barrington, Eberhard Bauer, William Braud (now deceased), Stephen Braude, Richard S. Broughton, Larry Dossey, Sally Rhine Feather, Erlendur Haraldsson, Arthur Hastings, Stanley Krippner, Lawrence LeShan, Roger Nelson, John Palmer, Guy Lyon Playfair, William G. Roll (now deceased), Serena Roney-Dougal, Stephan A. Schwartz, Rex G. Stanford, Russell Targ, Charles T. Tart, and Walter von Lucadou. Between the two volumes almost every significant contemporary parapsychologist is represented, excepting the late John Beloff and the late Ian Stevenson.

This splendid volume is valuable for both its insights into the personality and lives of the parapsychologists as well as their intellectual development and current views in the field. Mary Rose Barrington's opening essay reveals a remarkable sense of humor. While visiting a church as a small child, she was surprised to hear that at least one ghost was "holy." Barrington dressed up in a sheet, said, "I am the holy ghost," and as she puts it, she "pounc[ed] on my nanny with decidedly unholy glee" (p. 9).

Unlike laboratory-oriented parapsychologists, her focus is on testimonial evidence of psi. She defends such testimonial evidence, especially regarding

D. D. Home's demonstrations of macro-PK. She has a fascinating account of what she calls "jottles," in which objects seem to disappear from places and reappear somewhere else. She believes that at times such "jottles" are evidence of the fluidity of reality rather than a person's forgetfulness.

The other chapters maintain the high quality exhibited in the first. I learned a great deal from Eberhard Bauer's chapter, which focused mainly on the history of the Institute for Border Areas of Psychology and Mental Hygiene (IGPP) in Freiburg, Germany. The amount of work the Institute does is impressive; it focuses more than other programs on counseling for those who have anomalous experiences, and it contains the largest library of parapsychological works in continental Europe. For those unaware of the extensive work at IGPP in parapsychology, this chapter is invaluable.

The late William Braud's transformation from logical positivist to transpersonal psychologist is a fascinating story. Like Barrington and Stephen Braude, he does not disparage spontaneous reports of psi. He suggests that experimental work in parapsychology should have a psychological element that offers the possibility of significant research findings in mainstream psychology.

Stephen Braude's journey is a continuing exploration of the basis for an experience he had in graduate school while playing "table up" (table-tipping). When the table rose on its own, Braude committed to discovering the reason for what happened. After a career as a "mainstream" philosopher he published several books on parapsychology, ranging across the entire spectrum of psi phenomena—telepathy and clairvoyance, psychokinesis, and survival of death. During this time he moved away from his earlier philosophical materialism. Like Mary Rose Barrington, he believes that the best way to study psi is in natural settings rather than in the artificial setup of an experimental laboratory. He claims that parapsychologists who ignore testimonial evidence of psi are "generally clueless about what the evidence [is]" (p. 93). This is, in my judgment, correct, especially given the evidence for macro-PK in Home and Palladino.

Richard Broughton's approach to parapsychology is as a science, and his focus has been on placing the brain and psi into an evolutionary context. To some extent I am sympathetic, and a recent book by James C. Carpenter (2012) proposes a detailed version of a theory of psi in that tradition. If psi ability is part of human experience, as the evidence strongly suggests, then it most likely is a function that animals, including humans, gained in the context of evolution.

Larry Dossey's essay makes an interesting point about the current trend pushing "evidence-based medicine." He argues that intuitions and hunches also are important in medical practice. Such intuitions may arise from the

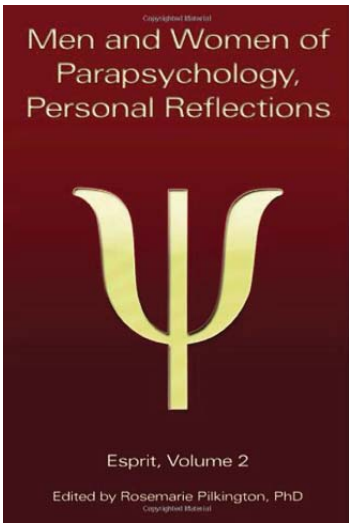
same nonlocal awareness that is the source of psi. He admits that nonlocal awareness at the macro-level may not be connected with the evidence of nonlocal action in quantum mechanics, but that such awareness may be analogous to how nonlocal connectedness works at the quantum level.

Sally Rhine Feather, the daughter of J. B. and Louisa Rhine, has continued her mother's work in collecting accounts of spontaneous psi experiences. She also details her work in maintaining the Rhine Research Center through times so difficult that the Center's survival was in question. She has been the main force in the Center's resurgence as an important center of parapsychological research. She also tells a fascinating story of one child's one-time exceptional success in guessing Zener cards.

I was particularly interested in Erlendur Haraldsson, whose work with Karlis Osis (1977) on deathbed visions was the first book I read by professional parapsychologists. His account is one of a full life, including tours in the Middle East and Asia in the early 1960s that included a stay with Iraqi Kurds. His surveys of the public on after-death experiences has offered a worthy addition to the literature on survival that updates Edmund Gurney's classic *Phantasms of the Living*. His work with Ian Stevenson on children claiming past life memories is also an important contribution to the literature on survival of death. Haraldsson's work on Icelandic mediums such as Hafsteinn Björnsson and Indridi Indridason, in my judgment, have significantly strengthened the evidential case for survival of death.

Arthur Hastings has sage advice on how to deal with a skeptic: "Don't clash swords with skeptics (leave their religion alone)" (p. 197). One can make a case for his advice since the energy spent by parapsychologists in arguing with skeptics might be better used in further process-oriented research or, even better, research into spontaneous psi phenomena.

Like many parapsychologists, Stanley Krippner's interest began with an early paranormal experience, in his case at age fourteen. He had a premonition that his Uncle Max had died, and almost immediately afterward his mother received a phone call informing her of his death. It is interesting that it was a philosophy of religion course that introduced him to the thought of J. B. Rhine—all too often today, psi is ignored in philosophy classes, including philosophy of religion classes where psi is relevant to such issues as survival of death. Krippner relates some humorous accounts of poltergeist investigations as well as his investigation of "Lady, the Wonder Horse." Krippner also impressively arranged talks to psychology graduate students by such giants in the field as Gardner Murphy, H. H. Price, and C. D. Broad. In addition to his work at Maimonides Medical Center on dreams, Krippner participated in Timothy Leary's work with psilocybin in 1962. Some of his later work has been in collaboration with Michael Persinger



on telepathic and precognitive dreams and their correlation to certain geomagnetic activity. Krippner opens a window into the history of twentieth and twenty-first century parapsychology.

The chapter on Lawrence LeShan is from a 2011 interview with Dr. Pilkington. Professor LeShan notes "that the term 'impossible' is determined by your concept of reality." (p. 228) LeShan holds that quantum and other theories of psi which are based on physics are not a promising way to understand psi. Instead (and here he reminds me of both Jule Eisenbud and Stephen Braude), he believes that psi is an irreducible process that, like love and compassion, "must be dealt with on their own level" (p. 233).

Roger Nelson worked with Robert Jahn at the Princeton Engineering Anomalies Research lab, but is best known today as the director of the Global Consciousness Project. His chapter is brief, but reveals Nelson to be a scientist who, to use his own words, considers himself to be "100% skeptical and 100% open-minded." His intellectual interests are broad, especially his knowledge of other cultures. I would have preferred a lengthier treatment of his life and career.

I understand John Palmer's complaint about teaching undergraduates who do not care to learn instead of doing what he enjoys the most: research. He had the good fortune early in his career to land a research position with Ian Stevenson at Virginia. He has produced a large body of research over the years and continues to be an active researcher in the field. His experiments supporting the sheep–goat effect have been particularly valuable, and he supports continued research into the experimenter effect in psi. Regarding survival, his agnosticism is tempered by the humorous comment, "However, I would not be surprised if this changes when I am confronted with the prospect of my immediate demise" (p. 256).

Guy Playfair learned about the proper way to investigate spontaneous cases in Brazil, and is best known for his work on the Enfield Poltergeist (Playfair 1980/2011.) His autobiography contains fascinating accounts of the findings in some of his other investigations. His most recent work has been on twin studies and psi.

Sadly, the late William Roll was ill at the time of Dr. Pilkington's interview, so she supplemented the material from the interview with some of

his writings. He details his belief in a "Big Mind," similar to the pantheistic position of some Eastern religions, and which heavily influenced his interpretation of what underlies psi. As a philosopher, I must take issue with his statement that "philosophers have [their] noses pointed at an empty sky" (p. 286.) To be fair, he was focusing on the philosophers present during his time at the University of California at Berkeley. I am sure he was aware of the significant contributions philosophers have made to psychical research and to parapsychology—Henry Sidgwick, William James, C. D. Broad, Henri Bergson, C. E. M. Joad, and recently, Stephen Braude, are cases in point. Of course Roll is known for his work on poltergeists. His account of how his out-of-body experiences influenced his thought is interesting and informative.

Serena Roney-Dougal has an interest in Asian thought, and it is no surprise that, consistent with Asian thought, she considers psi to be a natural process. Her work on the pineal gland and psi is particularly interesting.

Stephan Schwartz's summary of his own research contains some interesting material: that "nonlocal consciousness is not electromagnetic" (p. 315), an account of his work in locating lost archeological sites through psi, his work in remote viewing, and his part in founding The International Society for the Study of Subtle Energies and Energy Medicine. He also documents his journey from agnostic materialism into belief in nonlocal consciousness. His accounts of his own experiences observing psi phenomena as well as of his work in archaeology make his one of the most fascinating chapters in the book.

Rex Stanford's autobiography reveals a childhood interest in science which predated his specific interest in psi. It was in high school that his study of Darwin's theory of evolution started his journey toward developing the theory of psi as "unconscious" and "need serving." This is the influential Psi-Mediated Instrumental Response (PMIR) model of psi, one of the first well-developed theories of psi. Among the courses he mentioned taking at The University of Texas were courses in philosophy of science, which helped him better understand the nature of scientific theories. It is refreshing to have a scientist affirm the usefulness of philosophy courses to his work in science. Later, he gives a brief account of his (and others') break with J. B. Rhine—a sad chapter in the history of parapsychology, but which led to Stanford's fine work at the University of Virginia with Stevenson and Gaither Pratt.

Russell Targ is convinced that psi is real due to his work in remote viewing for the United States government. His stories of the successes of remote viewing make a fascinating read for those interested in parapsychology and should provoke a second look at psi from skeptics.

Charles Tart, one of the best-known contemporary parapsychologists and the developer of transpersonal psychology, is concerned about the tendency of some parapsychologists to downplay the spiritual implications of psi. I agree—while parapsychologists have different worldviews, ranging from materialism to dualism to panpsychism, they should be open to interpretations of psi that are contrary to their worldviews. Walter von Lucadou's inclusion is useful to those who may not be familiar with his work in Germany. When he was a youth in school, one of his teachers, concerned by his dogmatic skepticism about psi, gave him a book by Hans Bender. Hans Bender later taught von Lucadou. Von Lucadou approaches psi primarily from the standpoint of theory. He focuses on "weak quantum theory" in his model of psi as "Pragmatic Information" in which psi is caused by "entanglement correlations" of meaning in a given situation.

Dr. Pilkington's book is highly recommended for academic libraries, for all people involved in parapsychology and psychical research, and for anyone interested in psi phenomena.

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BOOK REVIEW

Things You Can Do When You're Dead: True Accounts of After Death Communication by Tricia J. Robertson. White Crow Press Books, 2013. 164 pp. $16.99. ISBN 978-1908733603.

This book presents an opportunity for those who have not studied the research literature on apparitions, mediumship, life after death, poltergeist activity, paranormal healing, or reincarnation. The reader encounters the richness of case studies with systematic scientific questioning. The author examines how these experiences influence the lives of those who report these phenomena. What follows is a brief summary of a typical case study that Robertson presents:

A shopkeeper saw an apparition on the ceiling of his shop of a man whom he immediately identified as a customer who had died more than six years before. The apparition pointed and told him, "Tell them not to do it, everything will be all right." The following day the widow of the customer who had died visited his shop as usual. When he told her about his experience, the lady's reaction was completely unexpected. She threw her arms around him and thanked him, saying that she had already been given similar advice by someone else. Two weeks later this lady explained that her son had been wrongly accused of a crime, but the evidence was such that, if found guilty, he could have been given a jail sentence in an adult jail. The family had thought of taking him to Southern Ireland to hide, which would mean that he would not appear at court, and therefore he would not be able to return to Scotland. However, the woman took the "advice" from her husband (via the shopkeeper), and when the boy appeared in court the case was dismissed. The shopkeeper never experienced anything like this before or after this event (pp. 11–13). The author then offers her analysis of the case.

The strength of the book is that it is easy to read and clear in the way each case study unfolds. Each chapter offers a picture of the persons involved, their stories, and a complete evaluation of the relationship between the environment and the anomalous events investigated by Robertson. What is more, readers will obtain information about the paranormal investigator's personal thoughts and questions during each case study. It appears that the author seeks to show her readers the field study process. She presents analyses of the different probable explanations until the most likely are found.

The book begins by reminding the reader that anomalous experiences are common and widespread. The author clarifies that although some experiences are explained through normal means, others may involve a phenomena produced by a deceased person. Because of such experiences, Robertson notes, the Society for Psychical Research was founded in 1882 as an organized scientific effort to objectively understand such phenomena. Following the psychical research tradition in Scotland, the author investigates the reported testimonies, while revealing the struggles that occur when dealing with strong beliefs and disbeliefs.

The reader experiences Robertson's compassion for the persons she has interviewed—a marked contrast to mainstream studies where pathological behavior may be assumed. In addition, the author alerts us to the dilemmas associated with the concept of "reasonable doubt" of the evidence used to assess such phenomena. The author debates how to resolve each case depending upon what readers and researchers consider the appropriate weight of proof. Robertson states, "We have to examine every reported account of anomalous phenomena in its own right, judging each and every case on its own merit."

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Further Books of Note

Brilliant Blunders: From Darwin to Einstein—Colossal Mistakes by Great Scientists That Changed Our Understanding of Life and the Universe by Mario Livio. Simon & Schuster, 2013. 341 pp. $26 (hardcover). ISBN 978-1439192368.

This book gives accurate and nicely detailed descriptions of the most significant theories and interpretations advanced by Darwin, Einstein, Hoyle, Kelvin, and Pauling. However, the designation of "blunder," brilliant or not, seems unwarranted. What these tales in fact illustrate is how difficult it is to get things completely right the first time when pushing knowledge beyond what's already known.

Darwin's "blunder" supposedly was that he did not recognize the disconnect between his theory of natural selection and the contemporary ideas about transmission of heredity. So what? He generated a plausible theory, which has stood the test of time remarkably well, on the basis of a wealth of empirical data.

Einstein's mistake was his introduction of the cosmological constant to avoid predicting the impossible expansion of the universe. Livio evidently looked into the common belief that Einstein himself pronounced this to be his greatest blunder and found the story to be apocryphal. But, again, substantively this was no blunder, but rather an attempt to square contemporary observations with theory.

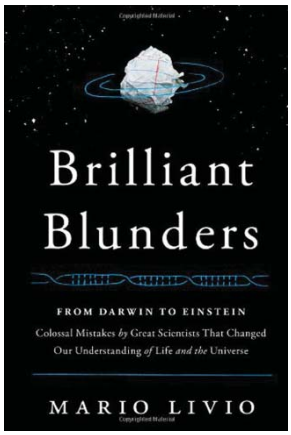
Hoyle's blunder was to stick with steady-state cosmology by contrast to Big-Bang theory, yet eminently qualified astrophysicists continue to find flaws in Big-Bang corollaries and to propose something similar to steady-state theories.

Kelvin's blunder concerned calculations of the age of the Earth, where his estimates fell catastrophically short of the time required by geologists and biologists to explain their evidence. But, once more, Kelvin was only looking for methods based on physics to arrive at an independent estimate, at a time when ideas about formation of the solar system were radically incomplete, and the generation of heat in the Earth from radioactivity had yet to be discovered.

Pauling failed to appreciate the role of hydrogen bonds in the structure of DNA, and he misinterpreted X-ray data to suggest a 3-strand helix rather than a 2-strand one. Again, just an illustration that venturing into the

unknown is likely to bring missteps for even the most accomplished scientist.

I highly recommend the book for its interesting, commendably detailed recounting of the remarkable advances made through the work of these properly honored individuals. However, the notion that they committed blunders, brilliant or not, should be taken merely as a hook on which the author hangs these stories. Perhaps the publishers and their editors conspired to frame the book in this fashion. They are certainly guilty of one definite and incomprehensible annoyance: the lack of captions on the figures.



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Alien Mysteries, Conspiracies, and Cover-Ups by Kevin D. Randle. Detroit: Visible Ink Press, 2013. 340 pp. $19.95. ISBN 978-1578594184.

UFOs and conspiracies go together like movies and popcorn, only repeated in ufology and popular culture alike to the point of dreary banality. Here at last is a new and meaningful twist on this well-worn theme. Kevin Randle, who brings a deep knowledge of UFOs to his prolific writings on the subject, turns his attention to harmful conspiracies grown up within ufology rather than imposed on it from without. He surveys a broad range of hoaxes that have undermined the credibility of UFOs, from complete fabrications like the Dropa disks and the Maury Island incident, to honest mistakes pushed along by uncritical or self-promoting persons, like the 1997 Phoenix Lights. Randle's extensive research into Roswell provides him with excellent credentials to challenge the "alien autopsy" fake, the Aztec crash-site claims, and the MJ-12 documents. He probes many of his cases to a depth that reveals both their factual and forensic shortcomings, so the reader comes away with genuine understanding of why these claims lack credibility.

Superficial readers might dismiss this book as mere debunking, but they are quite wrong. Randle also makes clear that some UFO evidence is

quite strong and government treatment of the subject has been biased and, in many instances, every bit as conspiratorial as ufologists believe. But the real strength and focus of the book is inward. Here a seasoned ufologist warns that the prestige of the field suffers much from self-inflicted wounds, and UFOs stand little chance of attracting the scientific and journalistic attention they deserve while genuine UFOs have to share the stage with so many false, fantastic, and unsupported assertions. Randle has given us a readable and necessary book that everyone interested in the truth about UFOs should take to heart.

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Article of Interest

Insolation-driven 100,000-year glacial cycles and hysteresis of ice-sheet volume by Ayako Abe-Ouchi, Fuyuki Saito, Kenji Kawamura, Maureen E. Raymo, Jun'ichi Okuno, Kunio Takahashi, and Heinz Blatter. *Nature*, *500*, August 8, 2013, pp. 190–193.

One hundred years ago the German meteorologist Alfred Wegener started a scientific revolution that was probably the most important of the 20th century: plate tectonics. In the same year (1912) in Serbia, Milutin Milanković, a civil engineer turned professor of mathematics at the University of Belgrade, published the paper that would forever change the way we look at and attempt to understand climate changes through our understanding of the so-called **Milanković cycles**.

For many years climatologists and geologists could not explain the causes of ice ages on Earth. Various hypotheses were offered, but all failed to explain how ice sheets grew and then melted many times in the geologic past. Milanković's idea was to put the Sun at the center of his theory of ice ages. He proposed three orbital cycles of Earth: **eccentricity** of elliptic orbit (100,000-year cycle), **axial tilt** of rotation axis (**obliquity**) (41,000-year cycle—from 22.1° to 24.5°; presently, the Earth's tilt is 23.5°), and **precession** of equinoxes (23,000-year cycle). Because each cycle works on a different timescale, their combined effects have a variable influence

on the amount of solar energy received by the Earth. In short, Milanković's theory proposes that summer insolation at high northern latitudes (beyond 55°N) drives the glacial–interglacial cycles, and the summer insolation is, in turn, linked to **eccentricity**, **obliquity**, and **precession** cycles.

Along with Wegener's plate tectonics theory, Milanković's theory of ice ages is a monumental contribution to our understanding of how our planet evolved through geologic time. His theory has been confirmed many times. The paper authored by Abe-Ouchi and her collaborators is yet another confirmation of Milanković's theory. While Milanković used only paper and pencil to perform excruciatingly complex computations of spherical geometry, celestial mechanics, and theoretical physics, today's authors use powerful supercomputers and sophisticated software to make Milanković's theory even better.

The main improvement proposed by Abe-Ouchi et al. is that there are two factors that may influence (by way of negative feedbacks) the eccentricity (100,000 year) cycle: the geometry of the North American continent and the long response time of isostatic compensation (i.e. the change in Earth's topographic elevation as a consequence of ice-sheet growth and melting). When ice sheets grow up to 3 km (as during the last glaciation, 20,000 years ago), the land surface subsides about 1 km. Due to subsidence, the top of the ice sheet is lower and starts melting earlier, setting off an interglaciation.

A secondary point made by Abe-Ouchi et al. is that "carbon dioxide is involved, but is not determinative, in the evolution of the 100,000-year glacial cycles." This might be good news for those concerned about anthropogenic CO_2 emissions.

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The 33rd Annual North American SSE Meeting
June 5–7, 2014, San Francisco, CA, USA

Program Chair: Adam M. Curry (adam.curry@psyleron.com).
Local arrangements are being coordinated by Jerry Gin (jerry@ginclan.com).
Conference hotel: Hyatt Regency San Francisco Airport, Burlingame, California, USA, 94010. http://sanfranciscoairport.hyatt.com. Telephone: 1-650-347-1234. SSE hotel rate: $139 per night (single or double) including up to 3 days before and after the meeting. Reservations must be made by May 20 to receive this rate. Reserve rooms at http://resweb.passkey.com/go/SSE2014. You can also make a reservation by phone at 888-431-1442. Be sure to mention you are with the Society of Scientific Exploration to receive the special rate. The cutoff date for special rates is 5/20/2014.

Welcome Reception: Wednesday, June 4, starting at 6 p.m. at the hotel.
Field Trip: Computer History Museum in Mountain View.
Conference Topics: THE MYSTERIOUS UNIVERSE (all talks will be in the Hotel Ballrom)
Theme 1: The Conscious Lab: New Research in Consciousness
Dean Radin, Institute of Noetic Sciences (Invited Speaker) — Mind–Matter Interaction Experiments Involving Light
Theme 2: Future Energy: Horizons of Energy Research
Vittorio Violante, Rome Tor Vergata University—Material Science Challenges to Define the Fleischmann and Pons Effect by Applying the Scientific Method
Theme 3: Earth and Beyond: Evidence of the Mysterious Universe
Gerald H. Pollack, Univ. of Washington (Dinsdale Award Lecture)—The 4th Phase of Water
Gary Nolan, Stanford University (Invited Speaker)—DNA Analysis of the Atacama Humanoid
Evening Panel: A free-wheeling discussion of program topics will be the focus of an evening panel of members and invited speakers.

Workshop: The SSE will be holding its first full-day workshop, on June 8 at the hotel, in which Roger Nelson of the Global Consciousness Project will discuss using randomness to study consciousness.

Students: The Society encourages the attendance of students and young investigators, and the conference is open to the public. There is a special, reduced registration fee for students at this event. Please encourage students from your area to come.

CONTRIBUTED PAPERS

Contributed Papers by Full members on any topic of interest to the Society are welcome. Papers related to the themes of the conference will be grouped with relevant invited talks when possible. A poster session may be provided for selected papers or on request. Titles and abstracts for contributed papers should be sent to the Program Chairman: Adam Curry, E-mail: adam.curry@psyleron.com. Electronic submission is required. The Title should be short and informative. Please include Author name and Affiliation, and contact information. Abstracts should be 300 to 500 words, and should summarize the main points of the paper. Plain text as the body of the e-mail is preferred. If special formatting is required for intelligibility, please submit a Word document. If selected for presentation, please plan on a 15-minute talk with 5 minutes for questions. Submissions by Associate members must be sponsored by Full members. (Full members do not require sponsorship.) The cutoff date for submissions is April 30, 2014. Submissions received subsequent to that date may be considered for presentation subject to the availability of time in the program.

FULL-DAY WORKSHOP

Using Randomness to Study Consciousness REGs and RNGs in Scientific Research Applications, Presented by Dr. Roger Nelson

This is a workshop for people who have been intrigued but perhaps mystified by random number generator technology in consciousness research, or who want to dive in and do their own experiments. RNGs, also known as REGs, evidently can be affected by intention, and they are responsive to deep emotions and group coherence. We will work to reduce the mysteries and produce both scientific and practical clarity. It will be an opportunity to explore your questions in detail.

Dr. Roger Nelson was a member of the PEAR team from 1980 to 2002 when he retired from Princeton University. In 1997 he created the Global Consciousness Project, which he continues to direct. His experience with REG/RNG technology spans laboratory and field research, and his expertise reaches from design and calibration of the instruments to experimental and statistical design to analysis and interpretation of results. He is willing to step into the deep waters of explanatory theory, but with some necessary caveats.

The full day workshop will begin at 9:30 and end around 4:30, with two breaks. Please contact Dominque Surrel for questions about the workshop. Email: lumierebl@aol.com. Additional information on the conference will be announced via email, and provided on the website (www.scientificexploration.org). Registration and fees will be announced shortly, and available on the website.

TRANSPORTATION and HOTEL

Hotel Airport Shuttle: The Hyatt Regency San Francisco Airport complimentary shuttle is available every day, 24 hours a day and runs every 10 to 15 minutes. At San Francisco International Airport (SFO) take your luggage to the Departures Level, center island, and look for the area marked "Hotel Shuttle." The shuttle is a large bus marked "Hyatt Regency ."
Hotel Amenities: The hotel offers a fitness center, pool and business center. Restaurants: Swiftwater Café, Swiftwater Deli, Knuckles Sports Bar, and Cascades Wine Bar. Parking: The SSE has arranged a special rate for overnight self-parking at the Hyatt of $10.00 overnight.
To Downtown San Francisco: BART (Bay Area Rapid Transit): Take the complimentary Hyatt Shuttle Bus to and from SFO Airport International Terminal to connect with BART. Cost from the BART station to downtown San Francisco is approximately $8.10 one-way.
SFO Airporter Shuttle: Service is offered between SFO Int'l Airport and the Embarcadero or Union Square in San Francisco. Take the complimentary hotel Shuttle Bus to and from SFO Airport to connect with the Airporter. Airporter costs $10.00 one-way, $15.00 roundtrip.
To Downtown Burlingame Trolley Service: Daily free trolley service is available from Hyatt Regency San Francisco Airport to downtown Burlingame.

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(Revised February 2013)

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REFEREEING: Manuscripts will be sent to one or more referees at the discretion of the Editor-in-Chief. Reviewers are given the option of providing an anonymous report or a signed report.

In established disciplines, concordance with accepted disciplinary paradigms is the chief guide in evaluating material for scholarly publication. On many of the matters of interest to the Society for Scientific Exploration, however, consensus does not prevail. Therefore the *Journal of Scientific Exploration* necessarily publishes claimed observations and proffered explanations that will seem more speculative or less plausible than those appearing in some mainstream disciplinary journals. Nevertheless, those observations and explanations must conform to rigorous standards of observational techniques and logical argument.

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