Pitfalls of perception

Anthony Wheeler's article "Do My Eyes Deceive Me? Pitfalls of Perception" (SI, Summer 1988) attributes a higher number of dusk UFO sightings to the physiology of our senses, which causes things to be "seen" in dim light. More important causes are probably the greater number of seemingly unusual stimuli and observers at this time of night. He also neglected to mention two physiological phenomena that probably contribute to more UFO sightings than any others: autokinesis and autostasis.

One study (Scientific Study of Unidentified Flying Objects, E. U. Condon et. al., 1968) found that 18 percent of UFO reports were due to artificial satellites. Bright, naked-eye satellites are most easily seen within two hours of sunrise or sunset, when reflected sunlight contrasts most with the darkening sky. The same study found that Venus was an often-reported "astronomical UFO" (fully 28 percent of all UFOs were astronomical objects). At greatest brilliance Venus outshines everything but the sun or moon and is never more than 39 degrees from the sun, often presenting a strange appearance in twilight. Aircraft also seem strange and bright when illuminated by the just-set sun.

Autostasis is caused by eye-muscle movement, which makes a moving object, such as a distant plane or satellite, seem to stop or zig-zag. Similarly, autokinesis causes a distant plane, balloon, or astronomical object to "swing" as if on a parachute. This is the obvious cause of the "falling leaf" effect cited by many UFOlogists as a typical feature of flying-saucer movements.

These effects are often attributed to a lack of nearby references, but I have found them most pronounced when the object is less than 30 degrees high with no close references but with reference objects, such as the horizon, in peripheral view. This enhances the "strangeness" of the object when compared with other things on the field of view.

Another twilight effect is increased atmospheric turbulence, which can cause distant man-made and natural objects, particularly stars, to twinkle in bizarre ways. The first and perhaps the most important cause of more twilight UFO sightings is probably that there are just fewer people watching as the evening progresses.

Robert R. Young
Education Chairman
Astronomical Society of Harrisburg
Harrisburg, Pa.

Anthony Wheeler's article brought to mind my encounter some years ago with an apparent UFO. While looking out the fourth-floor window of a laboratory here in the desert, I observed an approaching Dust Devil, one of those small whirlwinds common in the desert in the summer. As it crossed the parking lot, the dust thinned out but the wind picked up several small pieces of metal foil. The foil rose gradually, darting back and forth in the wind, and looked like foil as long as it was against the desert background. The moment it rose high enough to be visible against the blue-sky background the appearance changed completely. Now, instead of looking like small pieces of foil nearby, it looked like giant silvery ships darting back and forth at high speed and performing impossible maneuvers above the distant mountains. Even
though I knew it was only foil, the illusion was very strong, and a person who had not seen the whole sequence could easily have believed it was a genuine UFO sighting. Undoubtedly many other reports of the strange occurrences would have equally simple explanations if the full story were known.

Jack A. Crawford
Ridgecrest, Calif.

I am skeptical of Anthony Wheeler's claim that "it is not unusual for an amputation patient to persuade an inexperienced nurse that the only way to relieve an itch is for her to retrieve the lost limb so that it can be scratched!" Can he document even one case involving such an "inexperienced" (and incredibly dim-witted) nurse, or is the "nurse" part of the story entirely apocryphal?

Jeffry D. Mueller
Finksburg, Md.

Astrology

The recent flap over the use of astrology in the White House (SI, Fall 1988) has once again brought the popularity of this ancient superstition to wider public attention.

In discussing astrology with students or people with little science background, I find the following analogy can often be helpful. (I offer it to SKEPTICAL INQUIRER readers who may be drawn into discussions of astrology.)

Imagine that someone proposes a system called "jet-ology," which claims that the positions of all the jumbo jets in the world at the moment a baby is born will have a significant effect on the child's personality or future life. For a substantial fee, a "jet-ologer" with a large computer might offer to do an elaborate chart, showing the positions of all the planes at the right time and to interpret the complex pattern of the plane positions to help you understand their influence on your life. No matter how "scientific" or complex the chart of jet positions turned out to be, any reasonably skeptical person would probably ask why the positions of all these planes should have any connection with someone's personality or with the events that shape human lives.

Since today we understand that the planets and other celestial objects are no more magical than jumbo jets, we should not hesitate to ask the same sort of questions of astrologers that we might ask of "jet-ologers."

Andrew Fraknoi
Executive Officer
Astronomical Society of the Pacific
San Francisco, Calif.

I noted your mention in the Summer issue (p. 343) of the Washington Post's resident astrologer. When the story came out recently that Mrs. Reagan, and possibly the president as well, consulted astrologers, I was struck by the remarkable lack of criticism by the news media. While there were stories and jokes, there were no hints that there might be something wrong with astrology itself, and in fact there were a number of articles and news stories taking it seriously. I don't know which appalls me the most—the fact that the president's agenda and decisions might be influenced by astrology or the obvious fact that the American news media don't seem bothered by it.

Robert M. Gross
Charlotte, N.C.

For excerpts of media criticism of astrology, see "Astrology and the Presidency" in our Fall issue.—ED.

Inverted worlds

I was interested to read Martin Gardner's column about Abdelkader's inversion hypothesis (SI, Summer 1988), which holds that the earth is inside-out and the rest of the universe is within. However, I would like to suggest an alternative.
Suppose, not the earth, but the moon were inverted. The earth would orbit inside of the moon, and everything else would be within the earth's orbit. The same mathematics that support Abdelkader's inversion hypothesis would support my lunar inversion hypothesis. In fact, there is no scientific reason to prefer one to the other. Anyone who agrees with Abdelkader's hypothesis must agree that mine is equally plausible.

But—oops!—what about Mars? Could it be inverted? How about the sun? Or Alpha Centauri? Or some planet in a distant galaxy? The same model would support any of them as containing the universe. There is nothing special about the earth; the others are just as likely.

Suppose there are $10^{23}$ eligible bodies in the universe. Then the chance that we happen to be standing on the inside of the particular one that contains the rest is $1/10^{23}$, or pretty close to zero.

Therefore, even if we accept Abdelkader's reasoning and agree that the universe is inverted, it still requires a leap of faith to believe that we are on the perimeter. We would, much more likely, be a tiny speck near the center of a vast and unknown world. A humbling thought!

Forrest Johnson
Goleta, Calif.

Acceptance of paranormal among two special groups

We all know that belief in paranormal theories (astrology, biorhythms, UFOs, etc.) is not restricted to less-educated people, but is spread over all classes in our society. What is the level of acceptance for some of these theories among well-educated and intelligent people? That is what this letter tries to show for two special groups.

The first group is the set of all 281 professors in a small university (L'Université du Québec à Trois-Rivières, Québec, Canada). During the winter of 1986, we contacted all of them and received 206 responses (73%). To take into account the 75 who refused or neglected to answer, we made some sampling corrections, but the results should be considered approximations only.

The second group includes those who attended a meeting of a Mensa club in Québec city, in June 1988. Mensa is a club restricted to people with high IQs. To be admitted to the club, a candidate must succeed in special IQ-oriented tests. At this meeting the Mensa members were with their escorts, so the results are for “Mensa and Escort.” There were a total of 41 persons present.

Each group was invited to fill out a short questionnaire asking for the level of belief and interest in seven subjects: divination, astrological signs, telepathy, psychokinesis, water-diviners, biorhythms, and extraterrestrial visitors. For brevity, I do not give here the detailed questions, but each subject was explained clearly in the text.

Each question on belief had the form: “Do you believe that . . . ?” And there was a choice of five responses: (1) Yes, (2) I think “yes,” but I am not sure, (3) I don’t know, (4) I think “no,” but I am not sure, (5) No. The percentages shown below are for the first two responses: They represent the percentages of people who believe in the subject, with or without restriction.

<table>
<thead>
<tr>
<th>Subject</th>
<th>University Teachers</th>
<th>Mensa and Escort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divination</td>
<td>31</td>
<td>51</td>
</tr>
<tr>
<td>Astrological signs</td>
<td>26</td>
<td>44</td>
</tr>
<tr>
<td>Telepathy</td>
<td>61</td>
<td>73</td>
</tr>
<tr>
<td>Psychokinesis</td>
<td>30</td>
<td>39</td>
</tr>
<tr>
<td>Water-diviners</td>
<td>53</td>
<td>61</td>
</tr>
<tr>
<td>Biorhythms</td>
<td>43</td>
<td>51</td>
</tr>
<tr>
<td>Extraterrestrial visitors</td>
<td>18</td>
<td>56</td>
</tr>
</tbody>
</table>

We see that in the Mensa and Escort group, surely all intelligent persons, the level of acceptance is very high. For my university colleagues, the level is happily lower, but still very disappointing. Almost 1 in 3 believe (possibly with reservations) in divination, and 1 in 4 in astrological
signs.

Women were significantly more disposed than men to believe in telepathy, divination, and biorhythms.

The sub-questions on interest revealed a very low interest in all these subjects.

We skeptics have definitely a big job to do to furnish factual information and spread the skeptical point of view to even well-educated and intelligent people.

Guy Châtillon
Trois-Rivières
Québec, Canada

Guy Châtillon is professor of statistics at L’Université du Québec à Trois-Rivières, Canada.

Herman J. van Norden, M.D.
Vancouver, B.C., Canada

**Religion and superstition**

Barry Beyerstein’s article “Neuropathology and the Legacy of Spiritual Possession” (Spring 1988) mentions several times the relation between neuropsychology and certain religious beliefs and experiences. He thereby brings up a subject that, it seems to me, you have been trying to avoid: the relation between established religion and superstition. I can well imagine that you don’t like to pick a fight with any church (or mosque, synagogue, temple, pagoda, etc.); as the French say: “Qui mange de Pape y meurt.” Nevertheless, and considering Beyerstein’s bold gambit, there must be a few avenues that can be explored further.

For instance, you complain about the failure of students to distinguish between science and pseudoscience. Has anyone investigated whether religious teaching is to blame? After all, most children are taught in Sunday school to believe on faith, and this is presented as a virtue. But once you teach children that some uncritical, irrational beliefs are acceptable, there is no limit to what they will accept on faith.

Let me add one more example to the many you publish: Some years ago I saw on television a group of people coming back from the Philippines, where they had undergone “knifeless surgery.” One of them was interviewed, and he showed a blood-soaked surgical towel that had been used for his “operation.” The journalist reminded him that somebody else had had a similar rag analyzed and had been told that it was chicken blood. The poor fellow’s answer: “If my faith is so weak that I have the blood analyzed, then I deserve chicken blood.” In such an answer the influence of religious teaching is clearly audible. Did anybody study this tendency of religious teaching to lead to superstitious beliefs and to counteract rational teaching?

**Challenge to relativism**

I’ve read items in previous issues of *SI* dealing with creationists and fundamentalists and was pleased to see them debunked. However, skepticism in modern society faces a more serious challenge from the opposite end of the philosophical spectrum: relativism.

Brown University is hardly a microcosm of society in general, but it still worries me that I meet so many hardcore relativists here as a freshman. While I met only one student who might object to the teaching of evolution, I met many who see science as a “Western” way of viewing the world, no more valid than any other system of belief. A case in point is a student I talked to who defended the pseudoscientific practices of African witch-doctors on the basis of the liberal attitude that what is false for European/American civilization need not be so for other cultures.

Such attitudes leave Brown students subject (not only to the obligatory rhetoric of the political Left but) to visits from mystics like “Swami Beyondananda,” an astrologer named Carol who performed an astrological diagnosis of the state of the union, and agents of the notorious Maharishi Yogi. The Yogi’s PR team offered (to those who would pay $145 to learn Transcendental Meditation) powers of levitation and “increased...
Brainwave Coherence.” A poster behind the Yogi’s agents in the lecture room they borrowed on campus depicted the “derivation” of Transcendental Meditation from unified-field physics. The poster also defined immortality as “the trans-time invariance of the Lagrangian density.” Now that’s pseudoscience.

The SKEPTICAL INQUIRER frequently notes the wish-fulfillment appeal of pseudoscience. However, the fact is that most people who hold a mild belief in the supernatural do so not out of wishful thinking or dogmatism but out of the view (espoused by the Left and by New Agers in different contexts) that, because nobody seems to have all the answers, there are no absolute truths: not religion, not pseudoscience, and not science. At least the fundamentalists take up firm, contestable positions. Relativism can be fought only through philosophy, which is something writers for the SKEPTICAL INQUIRER should think about.

Todd Seavey
Norwich, Conn.

J. W. Grove’s article “The Intellectual Revolt Against Science,” published in our Fall issue after this letter was received, discusses some of these issues and concerns.—ED.

Bar-code-digit devils

With regard to “The Bar-Code Beast” (SI, Summer 1988), at least two things are wrong. First, the sequence of seven bits (0s and 1s or spaces and bars) following the 101 at the beginning is not an “introducer” code but the code for the digit zero. It designates a class of merchandise, and in fact the zero is usually printed front and center of the bars. I have no idea how the digit is chosen; my experience is that the vast majority of items begin with zero, but if you wander into the “drug” section of the supermarket, some products have a 3 at the beginning; also, coupons (the kind that clutter up your Sunday newspaper) that have the full 10 + 2 digit code begin with 5.

Second, the checksum at the end is obviously not 7—either by looking at the figure or by arithmetic. The digit is 2 in the right-hand complement code (that is, 1101100). It is calculated in the following way: Multiply alternate digits (starting with that first zero) by 3; add them to the remaining digits. The checksum is then appended to add to zero mod 10. Thus:

\[ 3(0 + 1 + 3 + 5 + 6 + 8) + 0 + 2 + 4 + 6 + 7 = 88 \text{ plus } 2 = 0 \text{ mod } 10. \]

As a final comment, consider the 6-digit codes on some physically smaller products. (Check your next candy bar.) The code starts with 101, as does the 10 + 2 digit code, but ends with 010101; and since all individual digit codes in the 6-digit version end with 1, the final group is always 1010101. A veritable nest of devils!

Arthur Tiedemann
Madison, Wis.

Michael Keith responds:

Arthur Tiedemann found two errors in my article. The text describing Figure 1 does not match the figure; the checksum is obviously not 7 but 2 (1101100). Also, the formula for the checksum in the UPC is not, as stated in the article, \( a + b + c + d + e + f + g + h + i + j \mod 10 \) where \( a-j \) are the 10 digits of the code. The correct formula is \( 3(1 + b + d + f + g + j) - (a + c + e + g + i) \mod 10 \), where \( I \) is the “introducer” digit (the digit preceding the 10-digit code—usually 0, but not always).

True-false troubles

I have long been skeptical of the type of opinion survey reported in your Summer 1988 News and Comment section. It seems to me that greater care needs to be taken with the wording of questions. While reading the column, I imagined myself to be a hard-nosed, sardonic,
overworked editor, like Walter Burns or Lou Grant. Across my busy desk comes Michael Zimmerman's list of questions. Since I am an A-type person, I chomp on my cigar and quickly check off the answers. (My thoughts while doing so are in parentheses.)

"The Earth is approximately 6,000 to 20,000 years old." True. (At least 6,000—maybe a lot more.)

"The Earth is approximately 4 billion to 5 billion years old." False. (It's about 15 billion—"Earth" sometimes is used to mean "universe").

"Dinosaurs and humans lived contemporaneously." True. (Both lived contemporaneously with insects.)

"Adam and Eve were actual people." True. (Adam Smith and Eve Arden.)

"Every word in the Bible is true." True. (The words are true. It's the sentences that are false.)

As a high school teacher for more than 30 years, I've constructed many tests and quizzes of the true-false type and realize how difficult it sometimes is to make up a concise statement involving a complicated idea and state it in entirely unequivocal terms. Believe me, if an alternate meaning can be found, some reader will be sure to find it.

Notwithstanding, I cannot praise your journal too highly. I try never to miss an issue.

Dave Summers
Holly, Mich.

Pauling's pronouncements

"The Appeal of the Occult," by Phillips Stevens, Jr. (Summer 1988), is excellent. He explains well many aspects of the sad, unscientific attitude of the general population today.

It is surprising, therefore, that he cites Linus Pauling's advocacy of vitamin C as an example of a scientist "making pronouncements beyond one's area of expertise." Pauling is noted for his work in organic chemistry, especially relating to life processes. This includes organic molecular structure, protein molecular bonding, immunity, antigens, etc. He and his research group have made scientific statistical studies of the efficacy of vitamin C, which are reported in books he has written on the subject.

I believe we all should consider Pauling well qualified to expound on the value of vitamin C.

Douglas P. Tracy
Toledo, Ohio

Phillips Stevens, Jr., lumps Pauling together with creation scientists. Is an anthropologist, to use Stevens's argumentation, more qualified to make pronouncements beyond his area of expertise than other scientists? I think Pauling is due an apology.

Heinz Schulze
Austin, Texas

Curriculum materials

A Ph.D. researcher in science education would be grateful to SI readers for help in locating sources for, or actual materials of, polls and/or curriculum materials relating to the presentation of the paranormal and scientific inquiry in elementary and secondary schools. Reference to college courses would also be helpful. Thanks to some who have already helped: Science Center, Needham, Mass.; and Biology Department, University of New Haven, Conn. Please correspond with:

Robert M. Craig, Chair
Indianas Skeptics
5401 Hedgerow Drive
Indianapolis, IN 46226
(317) 546-6149

Noisy negativists?

As the nuclear physicist who more than a decade ago began the investigation of the 1947 recovery of a flying saucer complete with alien bodies outside Roswell, New Mexico, in July 1947, and who has
devoted considerable effort to professional and objective evaluation of the "Top Secret Eyes Only" Operation Majestic-12 documents for more than three years, I am appalled but not at all surprised at the massive misrepresentation of the facts about MJ-12 in two recent articles and a recent letter in SKEPTICAL INQUIRER.

For those readers who are interested in facts instead of fiction, research instead of propaganda, detailed investigation instead of armchair theorizing, I am pleased to offer a detailed package of solid information demolishing the arguments made by noisy negativists, and at a special price to boot. Specifically I have available an 18-page single-spaced paper, "Debunking the Debunker," an 8-page printed article, "MJ-12: The Evidence So Far," and a clean copy of the Nov. 18, 1952, TSEO Briefing for President-Elect Eisenhower, the attached TSEO Truman-Forrestal Memorandum of September 24, 1947, and the supporting TS Cutler-Twining memo of July 14, 1954. The cost is only $4.00 to cover copying and mailing charges. Send check or money order (first-class postage to Canada is 30 cents) to Stanton Friedman, 79 Pembrok Crescent, Fredericton, New Brunswick, Canada E3B 2V1.

Anybody who thinks "Eyes Only" is not a legitimate marking for U.S. documents simply hasn't spent time at the various archives. There are loads of such markings.

Stanton T. Friedman
Fredericton, New Brunswick
Canada

Philip J. Klass, author of the two SI articles to which Friedman refers, comments:

Friedman's claim that he "has devoted considerable effort to professional and objective evaluation of the ... Majestic-12 documents for more than three years" is puzzling, because he has publicly ad-

mitted, as reported in SI, that he did not see a copy of the documents until late May 1987—barely one year before he wrote the letter published above.

While Friedman was employed for 14 years as a nuclear physicist, for the past 17 years he has earned all or most of his income as a lecturer, promoting public belief in UFOs.

According to Ding

Halfway through the article on the Gang of Six's investigations in China (SI, Summer 1988) I became convinced that this was another of James Randi's hoaxes. Surely no self-respecting parapsychologist—Chinese or otherwise—could be so dumb!

As the father of six (children that is, not parapsychologists!), the innate cunning and hoodwinking schemes of youngsters has long ceased to faze me; how Ding Wei Xin could dignify his protegés' games by calling them "psychic demonstrations" is beyond my comprehension.

Perhaps this gentleman's incredible naiveté could be universally honored in the manner it deserves, by referring to all future ill-conceived tests of psychic ability as "having been conducted according to Ding"!

Harry Edwards
Associate Editor
The Skeptic
Manly, Australia

The letters column is a forum for views on matters raised in previous issues. Please try to keep letters to 300 words or less. They should be typed, preferably double-spaced. Due to the volume of letters, not all can be published. We reserve the right to edit for space and clarity. Address them to Letters to the Editor, SKEPTICAL INQUIRER, 3025 Palo Alto Dr. NE, Albuquerque, NM 87111.