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INVITED ESSAY

Using the Study of Anomalies to Enhance Critical Thinking in the Classroom

MICHAEL D. SWORDS

Professor of Natural Sciences, Western Michigan University, Kalamazoo, Michigan 49008

Abstract—An upper-class college seminar-style course for general science credit is described. The primary function of the offering is to elicit higher cognitive thought from the students (analysis, synthesis, evaluation). The student experience from this course indicates not only that they had much to learn as regard to the state of evidence for many of the anomalies (from Psi to UFOs to Cryptozoology to Reincarnation), but that researchers and the "science establishment" are all demonstrating flaws and failures in their approaches to these subjects.

Introduction

The course that serves as the grounding experience (or excuse) for this paper is something that might have been numbered "SSE 101." It is a four-hour science-credit upper-class "seminar," which the students think is a course on "neat, interesting topics," but which the professor knows is really about science, proper attitudes, and higher cognitive thought. GSCI 432, *Science and Parascience* has been taught at Western Michigan University for about 13 years as of Winter 1990, and is probably close to unique in that it gives natural science credit for semester-long research papers on a wide variety of anomalous claims and subjects. (see list of the "commonly chosen" subjects in Figure 1). What is surely *not* unique about it is that it is controversial on the campus. This brings up a pregnant point related to the objectives of this paper: the controversy seems to center around the "problem" that the students are allowed to research these topics in an open-minded way (i.e., to read all sides of the work and come to their own conclusions, rather than being told the "correct answer" in the matters). Had the professor entitled the course prejudicially, for example, "Science and Pseudoscience," objections from colleagues (although equally based on no data) may have been fewer in number. I have bothered to mention this bit of sociology up front, because it is precisely indicative of the problems in this story from the "establishment" side, and it is a problem immediately recognized (and mocked) by the students. The students also immediately recognize the major problems on the "anomalies-research" side, but reserve their mockery only for the dishonest there. In a way their whole academic odyssey becomes a quest first

1. **More than one student per class:** (i.e. very popular)
Poltergeists; Extrasensory perception (sometimes specifically "telepathy", "precognition", "Clairvoyance"); Atlantis Legend; Near-Death Experiences; Dreams and the Paranormal; Demon Possession (rarely are students interested in other types of possession).

2. **Often one student selects:** (popular)
Astrology; Herbal remedies; Reincarnations; out-of-body Experiences; UFOs (often specifically "close encounters" or "abductions"); Pyramids (and rarely "Pyramid Power"); Ancient Astronauts (usually done with reference to specific sites: Egypt, Nazca, Easter Island, etc.); Stonehenge (often expanded to include other British Isles sites); Meditation techniques and Biofeedback; Faith Healing, Bermuda Triangle.

3. **Rarer Choices:**
Psychokinesis (although may be covered by "ESP choice); Acupuncture, Lunar Effects; Bigfoot; Biblical Mystery/History (including Shroud); Loch Ness; Human Aura (often with Kirliam Photos); Hypnosis; Apparitions; Biorhythms.

4. **Almost never:**
Tunguska Event; Velikovsky; Dowsing; Creation Science; PreColumbian Visitations; Extant Dinosaurs; Abominable Snowman; Various folklore and legends (ex. Arthur; Fairies; Odyssey); Firewalks and Spontaneous Human Combustion.

Fig. 1. Topics chosen in course.

for "honesty" (intellectual honesty) on either side, and second for meaningful data.

Science and Parascience

The mechanics of the course are simple; the students enter, receive an introductory presentation on acceptable research topics, and choose one subject to research all semester-long. This choosing is done in a one-on-one half-hour meeting with the professor, wherein each student receives a personalized introduction to their subject (especially regarding critical issues, best literature, and the need to review the views of both arch proponents and arch skeptics). Each student researches what is being claimed in their field, initially without concern for whether any claim is true or not. They each present a short oral and paper on these claims. At that point the "fun and games" largely end.

The students then must choose six significant pieces of literature (usually books but occasionally monographs, pamphlets, or large papers) germane to their topic. They write an annotated bibliography on these sources, which evaluates their scholarship, data-inclusion, and bias. As a supplement to their discussion of these "key resources," they include a statement describing the alternative hypotheses of which they have now become aware for their claims (e.g., everything from hoax and ignorant misidentification to even more anomalous possibilities than they had thought.) The function of this task is both to get them reading seriously and to open their minds to the

concept that there is more than one way to view their subject, and that as long as the data is not clear, there properly always will be.

As the second half of the semester begins, each student makes an oral presentation, a "work in progress" of what they've learned so far. Some students must speak relatively early into their serious work; some are nearing the end of the semester and their tasks. Who goes first and who last is determined autocratically by the professor, and a schedule is given out the second week of the semester. The professor demands a week-early outline of the work-in-progress oral, and works with each student to supply ideas, audiovisual materials, and in-class moral and informational support. The idea of the presentation is to let all the student's colleagues in on the status of that particular field of anomalous claims, and to sharpen everyone's critical abilities in examining the various types of evidence.

At the end of the semester, each student masses together all the garnered evidence, counterarguments, evaluative reasoning of the term into one final "evidence analysis" paper. Papers shorter than 20 pages (not counting titles, charts, Bibliography, etc.) are not even read (as being beneath our dignity as serious students of a fascinating mystery). The students know this from day one, of course, and rarely produce analytical papers, which could even vaguely be termed shallow. The combination of professorial threat and natural spontaneous topic interest often produces some of the finest intellectual outputs it has been my pleasure to witness at this university. This then is a brief general outline of the course flow. What we learn during the flow is sometimes as important to me as to the students. I submit that some of it may even be important to Science in some modest way, and so I offer some specifics in the remainder of this paper.

The Entering Students

The interactive structure of this course allows the teacher, even early in the game, to assess quite a lot about the students' attitudes and mental abilities. Some of this may be, probably should be, of interest to those of us who care about science education, and about the public's views on science and anomalies.

Regarding their attitudes toward science: my students seem to mirror the literature of science education. (Yager, 1982; Tilgner, 1982; Mechling & Oliver, 1983; Yager & Yager, 1985; Schibeci, 1986). They view "science" as difficult, often boring, threatening, elitist, and irritating. "Difficult," I suppose, we all understand at one level at least. But to an experienced science educator this characterization is more than meets the eye. Much of the difficulty expressed by the students involves their second characterization: "baring." American (thinking) educators are aware that we have been producing a generation of memorizers and multiple-choice test passers. This, when translated into a typical science course, creates an onslaught of isolated facts which seem unending. Facts memorized in isolation are, of course, trivia, thereby irrelevant and uninvolving. A large amount of science-education

experience for the student has thereby oscillated between terrorism and boredom. *The* primary motivation for constructing *Science and Parascience* upon the anomalies subject matter and an in-depth interactive style was to defeat these problems and preconceptions. In this it is almost, not quite, uniformly successful.

Although students regard "Science" generally negatively, they do regard many types of phenomena with immediate interest. As Sally Ride said, musing about our difficulties in science education at the 1990 American Association for the Advancement of Science (AAAS) meeting: "Every child loves two things; space and dinosaurs." My science classroom "children" also love space and dinosaurs, and add to them several other science topics: the human brain and its potential, human health and sexuality, all areas of science that interface with social problems, environmental science *and* UFOs, psychic powers, crypto-beasts, poltergeists, meditation, near-death experiences, etc. In fact, when you engage them in the learning and discussion of these topics they tend to forget that they are dealing with the bugaboo, Science, at all—and some even deny that science is involved (e.g., labelling the scientists "doctors" or "astronauts" or "environmentalists~to distinguish something they admire from something they do not).

Something else is going on in their minds which has also been noted in the science education literature for more than a decade. (Basalla, 1976; Garfield, 1978; Sagan, 1978; MacDonald & Bridgstock, 1982; Schibeci, 1986). "There are signs that we are on the brink of a chasm of antiscience." (Goldwasser, 1984) Our culture does not only not like Science, it doesn't like scientists. This is a point of some significance both in the general arena of improving science education and the "production" of trained scientists, *and* in our narrower realm of anomalies research and commentary. We could choose many adjectives to categorize this second area of "public relations" problems. The three mentioned above were: threatening, elitist, and irritating.

We can dispense with "threatening" quickly; it is the equation of science with dangerous technology, and the belief that many scientists have low-moral standards when it comes to working for environmentally degrading industries or inventing weaponry for the military. It is a characterization of some scientists, which is easy for a public, who view much of science as remote, inhuman, and unconnected to personal reality, to make. The old movie-version Frankensteins, working mysteriously toward their personal destruction in basement laboratories, have been modernized into frighteningly real, institutionally supported egotists, who must see their concepts become reality regardless of risks, or into money-taking entrepreneurs who state that the use to which their science is put, and its possible repercussions, is in no way their responsibility. "The scientist (still a white male) is obsessed with the pursuits of knowledge. Amoral rather than immoral, he will stop at nothing to find out what he wants to know. He will not let human sensitivities of sympathies stand in his way." (Garfield, 1978)

We can deal with "elitist" and "irritating" together, as they are directly

related. And it is in connection with this particular "public relations" problem that the experience of the *Science and Parascience* course continually reveals instances and details of our (we scientists') contribution to the bad situation. Many students feel that they cannot relate to scientists. They (the scientists) seem stifling and close-minded; they are anti-imagination and creativity. They act as superiors, and "put you down." In short, in the language of the street, they are "know-it-all jerks."

Where does this opinion come from? My guess, from listening to students and noticing direct behavioral correlation from scientist-labelled spokespersons and writers, is that it arises from authoritarian and derisive commentaries upon two topics: religion and the anomalies.

Lest we scientists feel that we're getting a completely "bad rap" from the public and the media perhaps we should remind ourselves of the characteristics of the real scientist found by Gould (1982): passionate in belief; theoretically and personally biased; dogmatically tenacious in opinion even in the face of contrary evidence; selfish, ambitious, territorial; *saliently illogical in pursuit of a preferred views;* and *an impetuous truth spinner far in advance of information.*

It is with this baggage about Science and scientists that the students enter the *Science and Parascience* course; anxious to learn about some things deeply fascinating to them, yet uneasy that this will be just another smirking "put-down" by some authoritarian jerk. We in science and science education need to be sensitized to how much damage we do by snap-judgement elitist behavior, EVEN IF WE KNOW THE DATA THOROUGHLY, let alone the usual situation, where we don't honestly know the status of subject at all. The public does not often thoroughly understand what scientists are talking about, but they *do* have a commonsense knack of realizing when we're not acting appropriately. **A** small illustrative anecdote: a self-proclaimed scientist-investigator was giving a public lecture, and at the end was asked about a Bigfoot sighting. He immediately began mocking the concept, declaring the whole idea foolish and the product of drunks and liars. The audience, far more astute than he credited them, began asking his opinion on other such topics. More derision and ridicule. Finally a woman stood up and declared simply: "If you keep talking about things like this, you'll never get *anyone* to talk to you." Applause all around. My course must be taught with absolute respect for the feelings of every student entering it, or "no one will talk, or listen, to me." This is a microcosm, perhaps, of science writ large of which we need to be acutely aware.

Course Activities

The early part of the course is less serious than the latter two-thirds, but some significant things happen. In the view of the professor, the most significant insights come almost immediately when the professor sets up an early "rate the reality" session. To begin with, everyone fills out a poll on 30

parascientific statements, rating their feelings of reality in the statements between zero (no chance absolutely) and ten (absolute certainty). (The poll format is attached to the current paper as an appendix should the reader be interested). At the end of the term they do it again and get to see if their opinion has changed (more on this later). The students are typically "romantic" on almost everything. But then we take one topic, which no one has chosen, and the professor begins presenting evidence related to it, in a piecemeal, staged-as-to-concreteness, manner. After each piecemeal packet of evidence, the students are told to break into groups and consider only the evidence just presented; then, make a zero-to-ten rating. The groups publicly announce their ratings to the gasps and groans of their colleagues. And the "highs" and "lows" are asked to defend their numbers. The wildly different thinking-evaluating processes of the class are laid bare. Prejudices hiding beneath the numbers come to light. People begin to see what the issues regarding "acceptable" evidence are.

Other than discovering that their classmates think about things in vastly different ways than they, the students achieve a beginning awareness that very mild forms of evidence, what we call "soft," are inappropriate grounds for rating some anomalous claim very positively OR very negatively. Prejudice cuts both ways, and neither way is the path to understanding (or a good grade). This is properly handled in an intellectually serious, but at the same time, light-hearted manner, and people enjoy themselves. *It* is *important not* to end this session by giving the class some definitive answer to an anomalous situation. The students have begun to be able to view evidence in a reasonably objective manner, having tested their thinking against their peers. In this they do a hearteningly good job. It would be an educational crime to ruin this healthy start by the professor lapsing into an authority figure mode.

After a bit of lighter reading, the students give their introductory (these are the Claims) orals. Most of them are already becoming suspicious that there is a real problem with the literature in their fields, and that not everything that makes print, nor every author with a degree, is to be trusted simple mindedly. As they plow into the more serious ("Key Resources") materials, they are sure of it. The signposts of questionable scholarship (poor or absent referencing, lack of data, lack of agreement with *any* other researcher, obvious bias, sensationalism, etc.) stand out in some "experts" versus others. They try to collect as much evidence of any sort as they can in preparation for the real job of the semester: evidence analysis and alternative hypotheses evaluation.

They find, unfortunately, that much of what passes for evidence in many fields is "believe it or not." It is so because it consists of simple anecdotal tales, or of "investigated" cases with obviously insufficient background research, or of unique unrelatable and unrepeatable events, or of dependence upon a single researcher–writer. They also decry the similarly shallow negativist speculations of some of the debunkers. It does not, it seems, take a genius in the sociology and philosophy of science to recognize the need for a com-

munity of researchers, sometimes working in teams, with standardized protocols and open research and data. As examples of what they (the students) typically *are* impressed with, take:

1. the repeatability of an effect by a variety of researchers in different laboratories (e.g., the random-number-generator "PK" effect) (Jahn, Dunne, & Nelson, 1987);
2. the repeatability of a phenomenon when openly retested by obviously independent researchers (e.g., Michel Gauquelin's Mars Effect) (Truzzi et al., 1982; Kammann, 1982; Gauquelin, 1988, Ertel, 1988);
3. the repeatability of the near-death experience sequence across different cultural populations as indicating that a genuine but still unexplained phenomenon exists (Osis & Haraldsson, 1977; Lindley, Bryan, & Conley, 1981; Zaleski, 1987);
4. that, as continued testing of biorhythms and Sun-sign Astrology consistently shows negative results, there is probably nothing to those claims (Jerome, 1977; Bainbridge, 1978).

As the topics are presented before the class, the students, with some, but remarkably little help from the instructor, begin sifting genuine supported-to-some-degree claimants from the residue of poorly backed or strongly opposed concepts. Bermuda Triangles sink beneath the waves, while biofeedback and acupuncture (for some causes) ride high. Cryptozoology and UFOlogy (despite the professor's interests) struggle to maintain believability, while Parapsychology (of the lab-types) does better. Erich von Daniken and Charles Berlitz become sources of shock and disbelief that writers could get away with such opinions without regard for data, but so do C. E. M. Hansel and Philip Klass. The students have their "crap detectors" fully functional at the latter stages of the semester, and can sniff out both unscientific ends of the spectrum. Occasionally a derisive, mocking individual, such as James Randi, will begin to recreate the "Know-it-all Jerk" antiscience response previously discussed, but it is important that the students read or view all the evidence and claimants to be able to make their analyses. Respectful behavior by the professor, and pointing out that there are a lot of caring, human scientists out there, diffuses the damage done by antiscience individuals ridiculing people and ideas.

Exiting Students

The students leave *Science and Parascience* having (usually) enjoyed the course, but having worked a lot harder than they thought they were going to. Whether their attitudes toward the anomalies change markedly or not, of course only they can say. The "Exit Poll," however, for what it is worth, demonstrates a significant change (see Fig. 2). Almost all ratings fall from

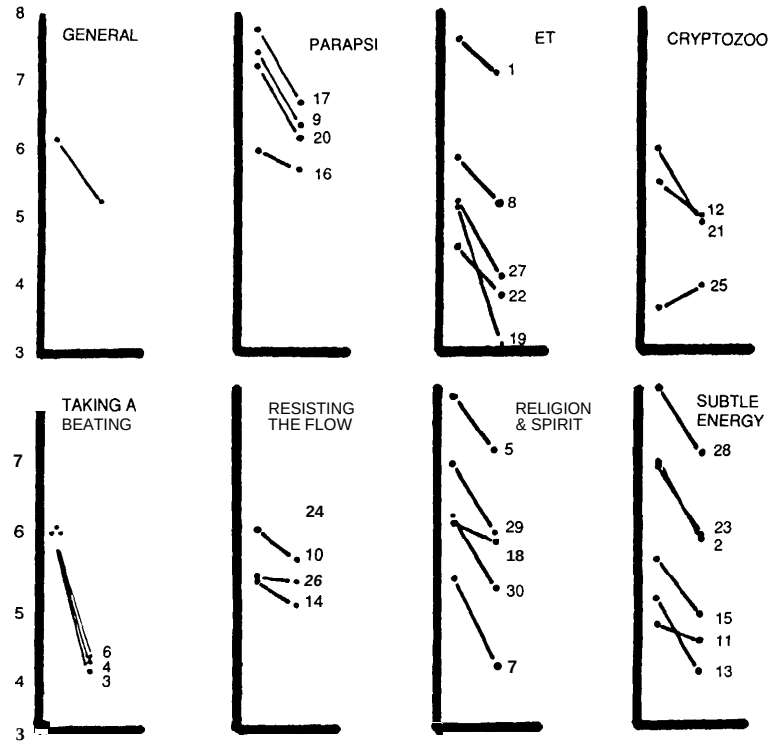

Fig. 2. Poll results in graphical form: numbers relate to questions in poll.

their "romantic" highs to more "thinking-about-it" levels. This is *not* the famous "return to the mean" phenomenon presented to the SSE by Daryl Bem, however (Bem, 1989). It is not because the "drifts" are discriminatory in that they reflect the state of the evidence reported by the students, and they tend to repeat (generally) semester by semester. The Bermuda Triangle and the building of ancient monuments by Ancient Astronauts plunge precipitously, while Dowsing (which almost no student ever picks) gets a neutral vote. Occasionally a student makes an extra-strong case for a phenomenon like Stonehenge: Astro-computer or Telepathy, and the rating will rise. If an extra-sharp psychology student gets deeply into Multiple Personality Disorder then the rating on demon possession may drop to near zero. And so on . . . all of which indicates to my delight that the students do think after all, and that even "romantically enthusiastic" young people can grapple with facts, theories, and biases if properly approached to do so.

Reflections

My students seem to learn many things about Science as well as "Parascience" as they move through this course. They learn of the need to get

beyond the anecdotal story and the individual isolated researcher. But they learn not to off-handedly reject these claimed phenomena either. They learn that anomalies are worth researching (that is, after all, how knowledge advances), and that there exists "something" behind all reported events. They come to me at the end of the course and ask incredulously about some of their topics: why aren't we studying these things properly? And, of course, that is the subject for a paper written by someone else.

The professor also learns many things about Science as well as "Parascience" through this experience. Although Henry Bauer (Bauer, 1987) has warned us against cavalier use of the concepts "Science" and "Scientific," I will violate that wisdom imparted by my good friend, and venture this: let me claim for an idealistic moment that the foundation stone attitude of Science (allegedly)is objectivity, or suspension of judgment when one is not in possession of the relevant information. Other foundation stones (such as testing and repeatability) exist as well, but from the public's viewpoint, as questioners coming to science seeking answers, they would hope for this objectivity to be held sacred. Well, we know that this is a dim hope indeed.

All people act "Unscientifically"(in the definition above), but we ***are*** the scientists to whom they come. We have been "exalted" somewhat grudgingly to this position of "knowers of things" and, if they're fortunate, "tellers of truth." So when people come to us and ask us questions about things which interest them, they're expecting a "scientific" reply. Often they are not getting it, and they know it, and they take the negative baggage with them.

Outside of the "superior derision" problem, there is the simple human aberration of refusing to say we don't know. It may be harder for a "bearded, bespectacled truth-sayer" to admit ignorance and show some humility, but it may be more important that we do so. And it is not only a problem of "winging it" with our authority. Sometimes, on some topics, we actually get red-in-the-face about it. There is something about certain "anomalous" topics that turns many scientists on emotionally, and it may well behoove the scientific community to study where these behaviors are coming from. These inappropriate reactions create a continual collision between scientists and the public which works to all our detriment.

This unexplained form of irrationalism on our parts can have the effect of turning our vocation into one espousing dogma ("I will now tell you what to believe") rather than discovery ("I will help you explore"). At the 1986 AAAS meeting an individual, who I will not name due to the extreme inappropriateness of his presentation (anyone who doubts that this happened may listen to my copy tape of the talk), gave a presentation on the "surprising level" of superstitions which existed in the United States. After a patience-testing laundry list of every old time superstitious action in United States or any other culture, he began a broad-brush derogation of those things he seems not to tolerate (Psi, UFOs, Prayer, etc.). The attitude of the piece was suspicious. At the end he revealed the science educators' greatest nightmare. He proudly announced that he has been teaching a college

course, the primary objective of which is the deprogramming of students about these things he disbelieves! The words "deconversion," "cognitive therapy," and "get people to abandon beliefs" were used.

I'm hoping that much of the audience was as appalled as this listener at this "1984 Thought Police" arrogance, but I am not sure. The serious science education community is moving en masse as far away from this authoritarian methodology as possible. (Martin, 1982; Watson, 1983; Bellamy, 1983; Schlichter, 1983; Lederman, 1986; Frazier, 1988; Pizzini, Abell, & Shepardson, 1988; Hesse, 1989; Jackett, 1990; Chiapetta, Waxman, & Sethna, 1990). In his appropriately titled "Abandoning the Scientistic Legacy of Science Education," Richard Duschl (1988) describes what for this current author is the problem of the AAAS speaker: "A significant source of the authoritarian view of science is the ideology of scientism—a belief that the scope of scientific authority is unlimited and beyond reproach." The mental cul-de-sac of scientism and those who espouse it is pointed out by Nadeau and Desautels (1984) in terms which perhaps even one of its "logical, rational" disciples might be able to understand as, logically, dangerously self-limiting:

> Scientism implies an attitude toward science that sees it not only as an activity involving special knowledge, because of its specific and time-tested method of solving problems, but as one with a cognitive basis which is beyond question. Scientific activity is thus immune to criticism, because any criticism, to be considered scientifically valid, must itself be scientifically based.

Given Henry Bauer's incisive reminders of the real natures of "science" and "scientific behavior" cited earlier, the positive arrogance of any single individual feeling/believing (not knowing) that they have the right to deprogram people from one set of beliefs to another (their own) makes a real educator want to scream (which perhaps I'm doing a little of now. Please forgive my lack of complete detachment about educating young people.)

The AAAS speaker, and those like him among us, can only be responsible for bad science-public interactions, and for progress-inhibiting myth-making.

> 'Myths are errors that result both from scientists bringing societal preconceptions into science, and from scientists feeding society ideas that masquerade as science.' (Mahadeva, 1989)

The final suspected piece to the AAAS speaker's antiscience, antiprogress scientism was revealed in the question-and-answer period. This current author, reflecting on his own course, could not contain his curiosity without asking the following question:

> 'Don't you feel that it is **a** requirement of the scientific community not to interact with the general public's heartfelt beliefs in any kind of derisive fashion?'

The answer, sadly, horrifyingly, was:

> 'No, I'm sorry. I don't agree with you on that point . . . [restates question] . . . I think that some beliefs at some point are very humorous; and. . . [stumbling phrase] . . . debunking, certain beliefs deserve debunking.'

In my "let the students discover" course such an attitude would be disastrous. Certainly, wielding the power of the professorate, the instructor could beat the students' minds into unrebellious and phoney "desired behaviors," in the same way any guru autocratically dominates (for the moment) the disciples. These, I think, would be unwilling disciples and the resultant crop of "taught-minds" would be programmed indeed: against science and "scientists-gurus." It brings to mind the student outrage against the idea that a group of Authoritarians would get together and sign a pamphlet simply declaring (without the data) that something didn't exist. (Bok, Jerome, & Kurtz, 1975) Even if the studies, when examined, showed that the alleged phenomena had little or no support, the outrage at such Inquisitional Dogmatism was still, appropriately, there. Such extreme behaviors by some Scientistic gurus must be driven by some deep personal needs which blind them to the communal damage they do. Although one sympathizes with such problems, one still insists that we must as a "group called scientists," take the public sensitivities (and the research process) into better account. A definition, off the street, of the ultimate "loser" is the following: someone who doesn't have a dream, and who tries to destroy yours. This is a category that we, and science in general, need to avoid. Courses like *Science* and *Parascience* may be one way to do it.

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Appendix 1

Opinion survey on paranormal and anomalistic phenomena.

1. Intelligent life forms exist elsewhere in the galaxy. _____
2. The full moon has behavioral effects on human beings. _____
3. Human beings have been possessed by demons. _____
4. A high technological civilization (Atlantis) existed in ancient times. _____
5. Our spiritual existence continues after physical death. _____
6. In the Bermuda Triangle, vehicles vanish for paranormal reasons. _____
7. Individuals may cure others by faith-healing "laying on of hands." _____
8. Extraterrestrial Intelligences are visiting our planet in spacecraft. _____
9. It is within our power to communicate by mental telepathy. _____
10. Poltergeists cause moving objects in "haunted houses." _____
11. The position of the Sun, Moon, & planets at our births affects our future. _____
12. A large unclassified anthropoid (Bigfoot) exists in the Pacific Coast's Mountain regions. _____
13. The shape of the Pyramid has special powers. _____
14. People can travel out-of-their-bodies by "astral projection." _____

15. It's possible to detect water and other undersurface items by using dowsing rods. _____
16. People can project force onto external objects directly from their minds (PK). _____
17. Premonitions of the future occur occasionally in dreams. _____
18. The actual burial cloth of Jesus Christ exists in Turin, Italy. _____
19. Ancient extraterrestrial visitors are responsible for some of the great building constructions of our past. _____
20. Individuals have solved crimes by psychic means. _____
21. A large unclassified water-creature exists in Loch Ness. _____
22. Some people have recently been abducted and examined on board alien spacecraft. _____
23. Human beings have a subtle, non-material body called the Aura. _____
24. Stonehenge was a megalithic structure capable of astronomical predictions (ex. eclipses). _____
25. Dinosaurs still exist in relatively unexplored areas of our planet. _____
26. People once "dead" may return to the world by reincarnation. _____
27. Ancient extraterrestrial visitors are responsible for ancient legends in some cultures. _____
28. It is possible to remove pain using insertion of superficial needles (acupuncture). _____
29. A Great Flood once occurred which covered most of the Earth and destroyed most of humanity. _____
30. Apparitions of dead persons have lingered on Earth and occasionally show themselves. _____

Scale of personal opinions about paranormal and anomalistic phenomena.

10—Certainly true.
9—Extremely strong probability that this is true
8—Strong probability that this is true.
7—A moderate ("fair") probability that this is true.
6—A slightly greater probability that this is true.
5—No preference, true or false, on this.
4—A slightly greater probability that this is false
3—A moderate ("fair") probability that this is false.
2—Strong probability that this is false.
I—Extremely strong probability that this is false.
0—Certainly false.

?#	Subject Matter	Entry	Exit	Change	#+
1	Extraterrestrial intelligence	7.55	7.09	−0.46	2
2	Lunar effects	6.91	5.84	−1.07	~
3	Demonic possession	6.00	4.20	−1.80	~
4	Hitechnology atlantis	6.04	4.33	−1.71	~
5	Life-after-death	7.88	7.10	−0.78	~
6	Bermuda triangle	6.08	4.37	−1.71	~
7	Faith-healing	5.27	3.96	−1.31	~
8	UFOs as extraterrestrial	5.85	5.13	−0.72	1
9	Mental telepathy	7.39	6.36	−1.03	~
10	Poltergeists	6.00	5.51	−0.49	2
11	Astrology	4.54	4.31	−0.23	3
12	Bigfoot	5.47	4.92	−0.55	2
13	Pyramid power	4.96	3.86	−1.10	~
14	Out-of-body experiences	5.37	4.91	−.46	2
15	Dowsing	5.52	4.71	−0.78	1
16	Psychokinesis	5.99	5.68	−0.31	3
17	Dream premonitions	7.72	6.63	−1.09	~
18	Shroud of Turin	6.05	5.83	−0.22	4
19	Ancient astronauts' buildings	5.13	3.02	−2.11	~
20	Psychic crime-solving	7.21	6.13	−1.08	~
21	Loch Ness monster	5.94	4.85	−1.09	2
22	UFO abductions	4.50	3.79	−0.71	1
23	Human Aura	6.88	5.86	−1.02	~
24	Stonehenge astro-computer	6.56	6.24	−0.32	1
25	Extant dinosaurs	3.60	3.92	+0.32	4
26	Reincarnation	5.30	5.24	−0.06	3
27	Ancient astronauts' legends	5.19	4.04	−1.15	~
28	Acupuncture	8.00	7.04	−0.86	1
29	World-encompassing flood	6.89	5.94	−0.85	1
30	Apparitions	6.19	5.11	−1.08	~

Note. The responses of seven classes averaged for the "Entry" and "Exit" polls. Occasions for a single class where the responses rose rather than fell are numbered in the column marked "#+" (e.g., in 2 classes out of 7, the Exit poll response on ETI, ?#1, was higher). Total # of students = 189.