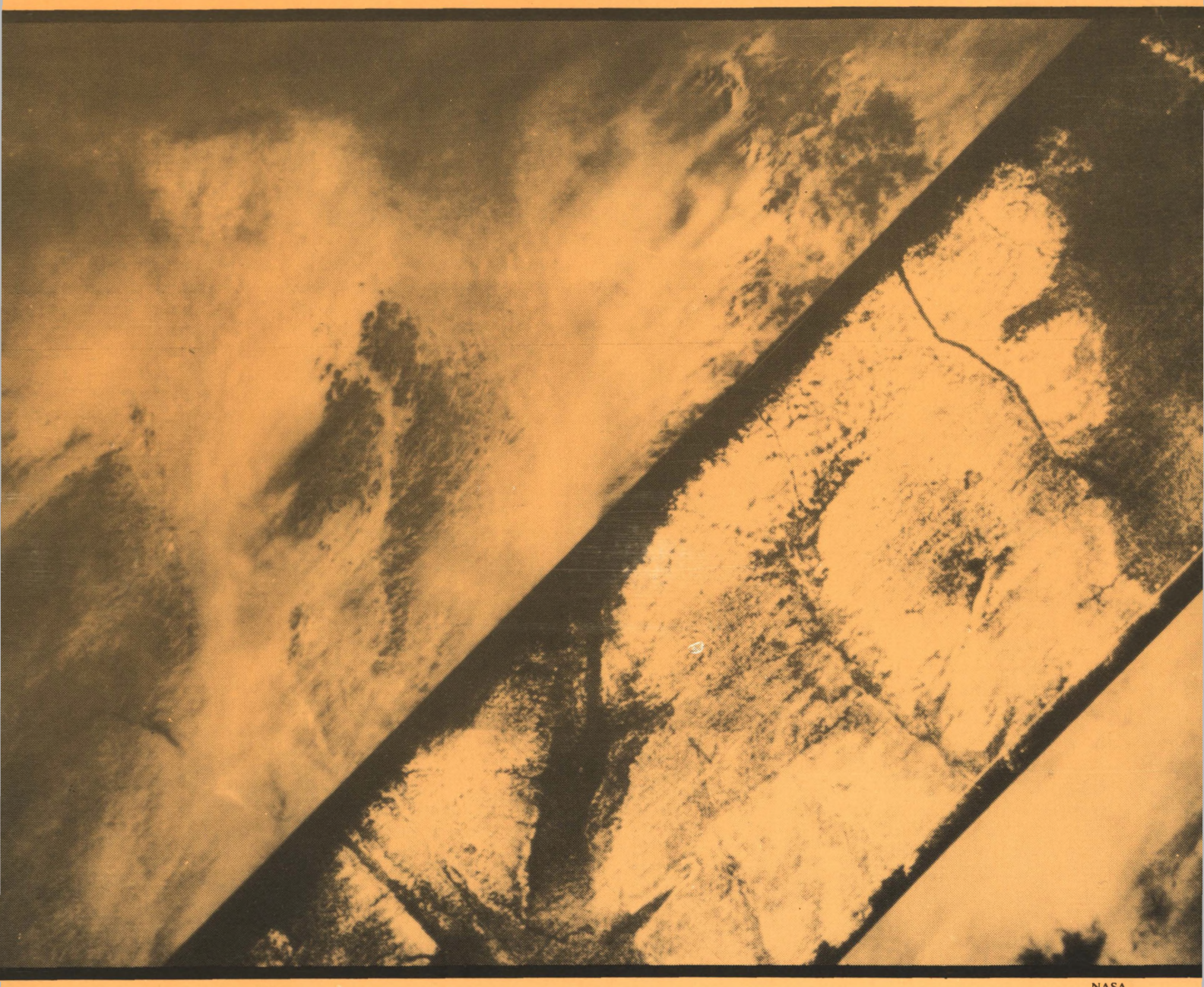
Pursuit

'Science is the Pursuit of the Unexplained'



NASA

Dispelling the Sands of Time and the Desert . . .

Radar aboard the space shuttle *Columbia* caught a momentary reflection from a very ancient time when much of the Sahara was a fertile land, freshened by lakes, rivers and many streams. In a long cycle of climatic change the waters receded, leaving the soil to destruction by sun and wind, and only dry riverbeds for remembrance. Jon Singer adds a Fortean twist to the discovery, on pages 2-4.

Journal of SITU
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THE SOCIETY FOR THE INVESTIGATION OF THE UNEXPLAINED

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SITU (pronounced *sit' - you*) is a Latin word meaning "place." SITU is also an acronym referring to THE SOCIETY FOR THE INVESTIGATION OF THE UNEXPLAINED.

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THE QUARTERLY JOURNAL OF THE

Pursuit®

SOCIETY FOR THE INVESTIGATION OF THE UNEXPLAINED

'SCIENCE IS THE PURSUIT OF THE UNEXPLAINED'

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Front cover: NASA radar image superimposed on cutaway satellite photograph of identical area of the Sahara.

Back cover: Grid-like patterns thought to be Maya canals, as starkly revealed by radar-imaging from above the rain-forested lowlands of Guatemala as were the ancient riverbeds beneath Sahara's sands.

'15 ... going on 16'

Pursuit has completed fifteen years of continuous publication and now faces a future bright in prospect, certain in opportunity and firmly demanding our best. We are proud to acknowledge and express thanks for some special friends without whose help we could not have come this far.

You, the SITU member, top the list. Speech is useless until it is heard; writing is meaningless until it is read. Only after one or the other occurs can reasoning begin—and with it our work, our worry and our reward in the knowledge that together we are finding significant pieces of truth to fit into the puzzle of the universe and its life.

Charles Fort, himself a curiosity for possessing the most curious mind of our times, deserves unending thanks for opening the wide, wild world of strange phenomena to public notice. Previous pages have enlightened various facets of his life, and this issue highlights three major aspects of Fort's work in timely sequence:

—from the past comes the massive evidence he compiled to show that unexplained phenomena have been a perceptible part of universal life at least since international communication made extensive data-gathering possible. For another segment of "Fort's Notes" from the early 1800s, see pages 46-48.

—at present the influence of Fort's perceptiveness continues to be felt around the world, as we learn from the letter and newsclip from Calcutta, on page 42.

—for the future, the usefulness of Fort's data in modern research such as Dr. M. A. Persinger has been doing for several years is described in the Special Report to SITU beginning on page 21.

We are grateful for the remembrance of Ivan T. Sanderson who founded SITU and guided the Society through adolescence to adulthood with spirit and enthusiasm scarcely diminished by the terrible disease that wasted him. We appreciate the legacy of his scholarship, some of which is only now providing the historical background necessary to improved research of such recurring phenomena as Sasquatch and the yeti (names less abhorrent to Sanderson than Bigfoot and Abominable Snowman). A fine example is his "Traditions of Submen in Arctic and Subarctic North America," a paper which he edited following its first appearance and which is republished beginning on page 5.

Also in mind are many others who have contributed much to *Pursuit*'s progress, but our thanks cannot be adequately expressed in the space available; postponed they must be, but not forgotten.

Trying to compress so much of the vast spectrum of phenomena into fewer than fifty pages only four times a year is like getting into a tight pair of shoes. We hope you will take little note of our discomfort, but if it bothers you, please tell us. We want you to enjoy *your Pursuit* of 1983.

—The editors

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Beneath Sahara's Sands

by Jon Douglas Singer, M.A.

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RECENT research into the mysteries of the past led me back to a strange discovery made by the Russian mystic George Ivanovitch Gurdjieff. My fascination with the origins of occult theories was stirred when I learned that Gurdjieff had taken a more than passing interest in the Fortean aspects of archeological investigation and discovery. It seems odd that Charles Fort did not mention Gurdjieff, who died in 1949.

Early in his career, Gurdjieff claimed he had found a rare, probably unique map of what he called "pre-sand Egypt." The map must have depicted an extremely ancient region of pre-dynastic times, else why the reference to "pre-sand"? It was, perhaps, the last relic of a civilization that was already dust when Narmer and his heir Aha, the first important pharaohs of the First Dynasty, took the throne of the Two Lands of the Nile around 3100 B.C.

Gurdjieff's father no doubt inspired his son's interest in old legends of the desert. The mystic's sire was a professional bard who entertained audiences all across Turkey with songs which set to music the traditional epic poetry of the tribal peoples. Later on, the younger Gurdjieff came under the tutelage of an elderly Russian aristocrat, Prince Yuri Lubovedsky. The prince studied occult perceptions and ancient myths which he collected from around the world, apparently with the same enthusiasm that Fort applied to his massive note-taking of anomalous events of the early 1800s. Unlike Fort, however, Lubovedsky is almost unknown today, and none of his research is available in translation.

He was especially interested in ancient legends of the Deluge and the pre-Flood world. His search for the ultimate meaning of life at length took him to the remote Sarmoung monastery in central Asia, headquarters of a Buddhist brotherhood. Gurdjieff also visited Sarmoung but returned to the West to teach the "new philosophy" he compiled from a mixture of western and eastern mysticism. He taught and his students practiced a variety of mental and physical, yoga-like and "Whirling Dervish" exercises, all intended to awaken dormant parts of the mind to a high level of awareness.

In the course of his peripatetic journeys, Gurdjieff encountered an Armenian monk who showed him a strange map of "pre-sand" Egypt. The fate of this map is unknown, but Gurdjieff's story was recalled by an unexpected disclosure only weeks ago.

In November 1982 The New York Times and Science and Time magazines published accounts of fortuitous discoveries made by NASA's space shuttle *Columbia* during the year-earlier mission which a faulty fuel cell had somewhat abbreviated. Pictures taken from orbit were studied by various scientific teams for more than a year. These were not photographs made by conventional cameras; they were radar images recorded by a relatively new technology. Among the targets of the radar beams was a 50-kilometer-wide area of the Sahara desert including the northwest corner of Sudan and the southern portion of the Nile valley in Egypt. What they reflected was processed by high-tech, image-enhancing methods utilizing computers.

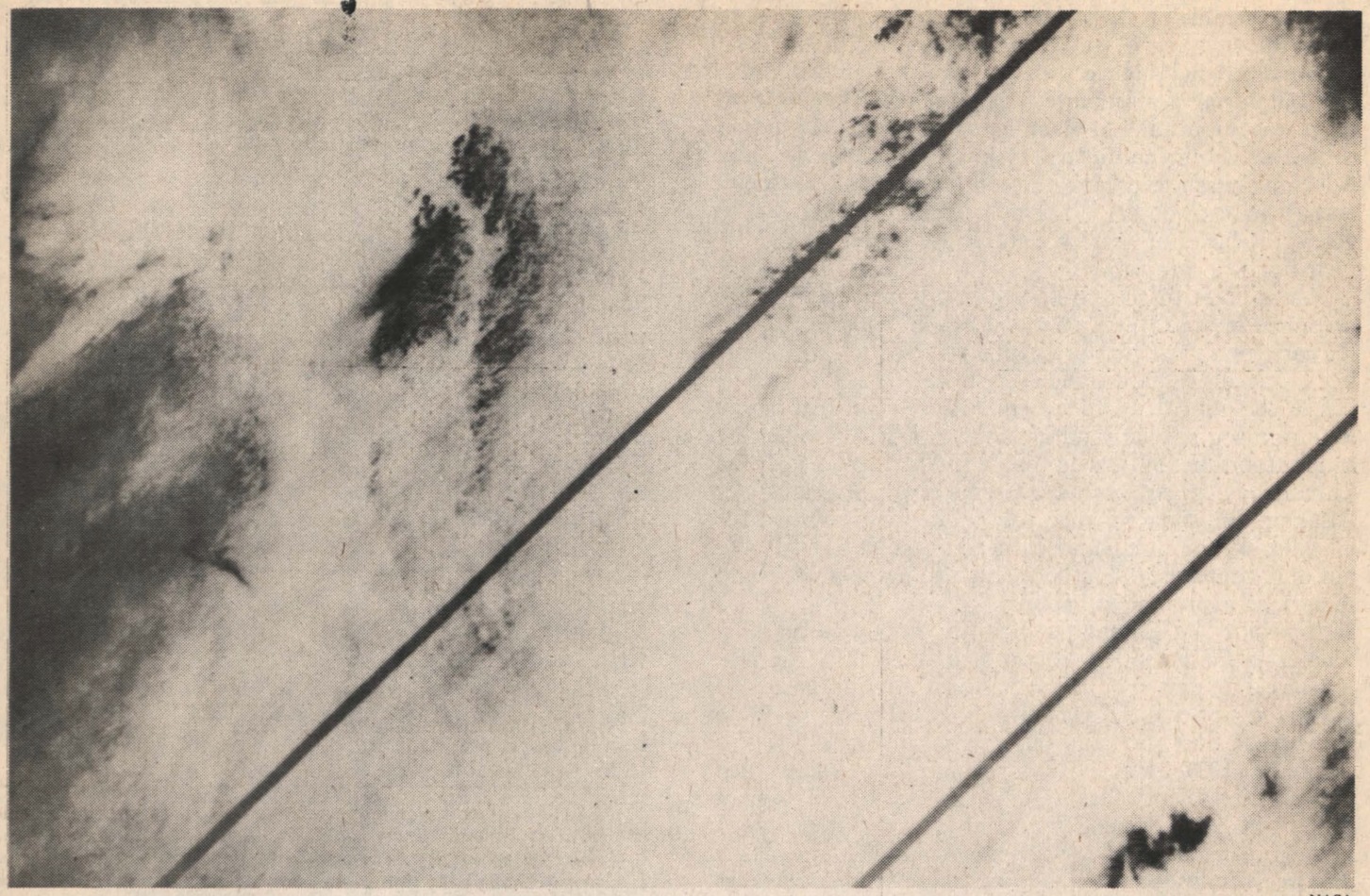
The images revealed unmistakable traces of buried ancient rivers which flowed across a green Sahara during a fertile time when the Ice Age irrigated the whole Earth. How long the "green age" lasted has been variously estimated from a scarcely comprehensible 200,000 years ago to a comparatively recent 10,000 years ago. Whenever it came, the end of the Ice Age caused a drying-up of the region as rain patterns shifted northward. Worsening climate enhanced the gradual dessication of North Africa. The great sands appeared, sweeping northward, eastward and westward.

Excepted for a time were large areas now covered by sand; these were still green as recently as 4000 years ago, according to artifactual evidence collected over hundreds of years before the space shuttle made its serendipitous find. Relics and campsites dating back to the time of the ape-man Homo erectus, who lived 200,000 years ago, have been excavated in the region. Neolithic remains and petroglyphs from about 7000 years ago were unearthed in bordering areas such as Burg el Tutur in northern Sudan. One petroglyph depicted a type of longhorned bovine upon which the ancient Egyptian and modern Nilotic economic systems both depended. Rock carvings from the western Sahara identify horse-drawn chariots as imports by Indo-European invaders. The space-project radar found the best evidence of all: dozens of ancient river beds which moved water west and south of the Nile and may have converged in a huge drainage area as large as the Caspian Sea.

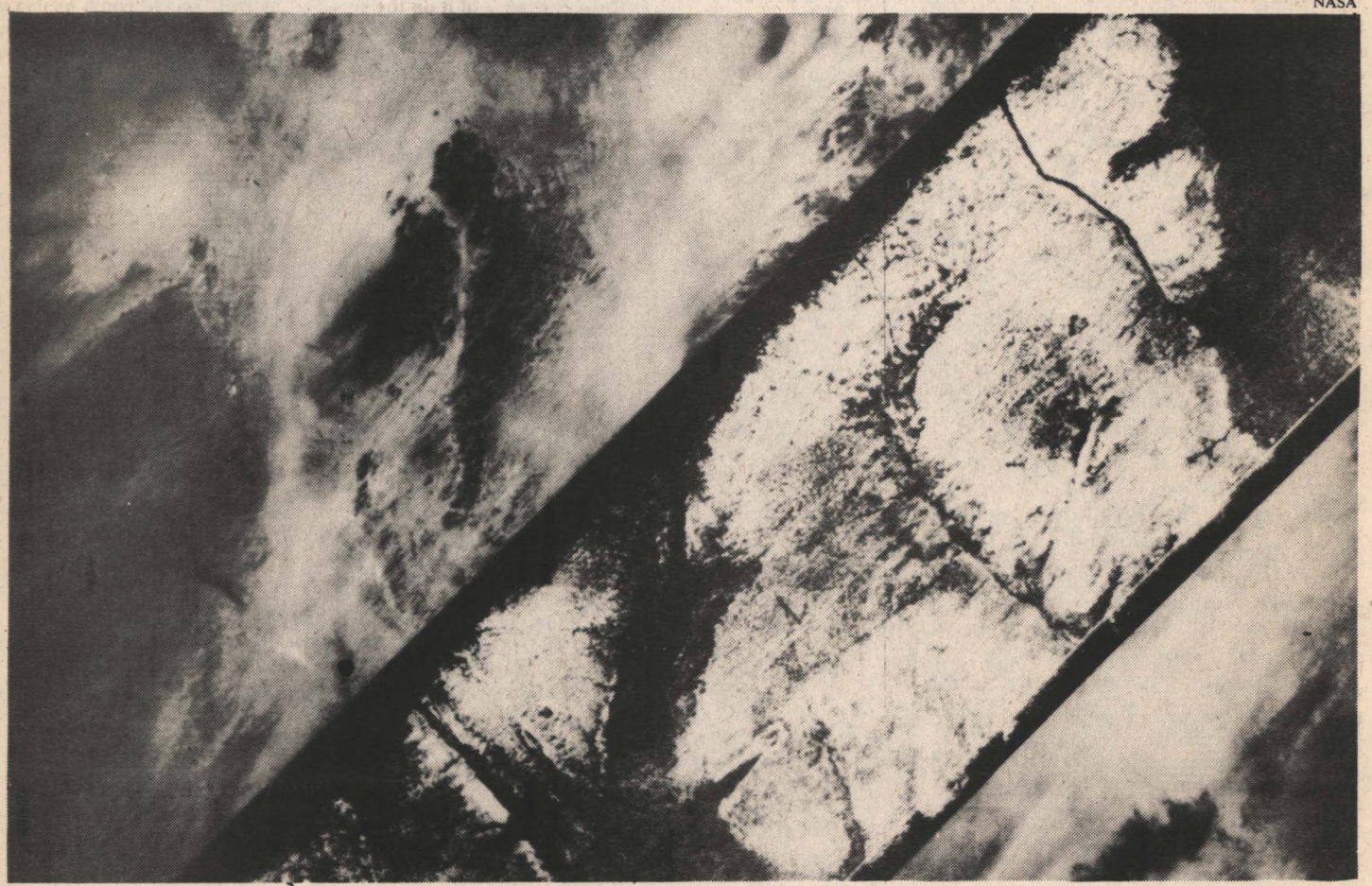
Satellite cameras pictured only windblown sands in a 50-km.-wide strip of Sahara desert (*above*). But *Columbia's* radar image detected subsurface beds of ancient rivers (*below*) in the same area—"topography that could only have been buried" since "there was no trace of it on the surface," as U.S.G.S. research geologist Carol Breed explained. Added John McCauley (also U.S.G.S.) who headed the group of picture analysts: "We were able to look through and use radar as a time machine."

There is an Arabic legend about the City of Brass, located beneath the Sahara sands. Other old tales insist that the Nile once flowed *west*, to converge with the Niger or empty into the Atlantic! Another story describes an inland sea in the Sahara. Geologists seem certain that Lake Chad was much larger during the last Ice Age than it now is. Archeologists have recently unearthed ruins of a pre-dynastic Egyptian-like civilization—a full-fledged kingdom—in northern Sudan called Ta-Seti, or "bow-land" in translation, the name reflecting the fame of its native archers. It is believed that much of the ancient Egyptian population originated there, that later migrations from the Near East and Libya modified the earlier culture and seeded the dynastic Egyptian civilization.

Other evidence of geological changes which have affected the Sahara region and the Nile Valley was published in Science magazine in 1973. Aerial photographs of the



NASA



Great Pyramids of Giza were examined in an attempt to solve the mystery of their alignment. The three Great Pyramids are not aligned with the present due-north direction but deviate four minutes west of north. The misalignment was no mistake in planning or construction but was caused by continental drift, say physicists G. Pawley and N. Abrahamsen; even now the continents continue to pull away from each other, so it is no wonder that after ±4500 years, the bases of these structures are no longer true to their builders' projection.

More clues to the mystery of "pre-sand" Egypt are presented in John West's *Serpent in the Sky*. West builds the case for a pre-dynastic Egyptian civilization with roots in a much earlier culture and even suggests that it should be identified with Atlantis. He mentions both Gurdjieff and a lesser-known scholar and mystic, R. A. Schwaller de Lubicz (born in 1891), who fought in World War I for the Lithuanians against both the Germans and Russians. An Alsatian philosopher turned soldier, he was rewarded for his valor by the Lithuanian prince Luzace de Lubicz who not only conferred knighthood but also permission to add the prince's surname to his own.

Schwaller de Lubicz pursued an eclectic career as a scholar in mathematics, botany and metallurgy; he also took great interest in more exotic studies such as the arcane technology of stained glass windows, alchemy and the writings of European and Oriental occultists. He visited Egypt in 1937, studied Egyptology for awhile, then published his theory that Egyptian science was highly advanced in very ancient times, that the system called Pythagorean mathematics was known in Egypt long before the Greek philosopher Pythagoras thought of it. Schwaller de Lubicz believed that Egyptian temples and other structures were planned according to a complex mathematical alignment and that basic engineering science was well understood by the time Egypt's dynastic history began, about 4500 B.C.*

Both de Lubicz and West studied the Sphinx and both concluded that such aged erosion could not have been caused by wind-blown sand, as most Egyptologists have claimed, but was rather the result of water action—specifically, a combination of great floods from the Nile and sea water. Tradition asserts that the Sphinx was built about 1400 B.C. by the pharaoh Thutmose IV after a dream in which the gods commanded him to construct the monument. But West believes that the Sphinx was really built at a much earlier time, perhaps 13,500 years ago when drastic deluges backed up from the Nile Valley and may have reached Giza.

West's photographs of the base of the Sphinx show rocks which do appear to have been smoothed by water action. He dates several floods in the Nile Valley from 15,000 B.C. to 10,000 B.C., the same time-frame in which Plato placed the era of Atlantis. Both de Lubicz and Gurdjieff are cited in West's book as agreeing that the Sphinx was a pre-dynastic monument appropriated by Thutmose IV who then left his name on it (many examples of this practice abound throughout dynastic Egyptian history).

*Before Egypt was united (c. 3100 B.C.) there were two kingdoms: Shemau (Upper Egypt) and To-Mehu (Lower Egypt), formed by the union of smaller kingdoms and city-states. The predynastic cvilization I refer to is of a much earlier time (c. 10,000 B.C.). Most scholars, however, dismiss such references as mythological at best, and at worst, as speculative or imaginary.

Heavy line shows path of space shuttle *Columbia* on its flight in November 1981. In the dry Sahara, radar waves were able to pierce to depths of five meters, reflecting from bedrock.

Thus there is a considerable body of circumstantial evidence that a pre-dynastic, pre-Egyptian civilization flourished in the Nile Valley at the end of the Ice Age. Charles Hapgood† attributed his *Maps of the Ancient Sea Kings* to that remote era. Although the surviving maps he described are products of Renaissance or Medieval times, they were allegedly copied from earlier Roman, Greek and Egyptian maps deposited in the Library of Alexandria long before it was destroyed with all of its priceless contents by Arab vandals in the seventh century.

Was Gurdjieff's map of pre-sand Egypt one of the maps of the "sea kings"? Someday we may know. New archeological discoveries are being made all the time, and a follow-up mission of more-sophisticated radar imaging is scheduled for a space shuttle flight in August 1984. "The plan is to concentrate and get much more coverage of the Sahara region," says Charles Elachi who helped analyze *Columbia's* 1981 images at the Jet Propulsion Laboratory in Pasadena, California.

Wonder will remain, however, about the Armenian monk from whom Gurdjieff obtained his map. Did it start its journey in Egypt or elsewhere? Was the Armenian in touch with Coptic Christians (both Armenian and Coptic Christianity date from about the same time)? Why was the map preserved? Finally, the most disturbing and perhaps the most eerie and provocative question of all: How well did Gurdjieff's map match modern maps of pre-sand Egypt—maps which can only be made by exotic scanning devices aboard a *spaceship*?

†Charles Hapgood died in Fitchburg, Mass., on December 21, 1982. See obituary, page 45.

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Traditions of Submen in Arctic and Subarctic North America

by Ivan T. Sanderson

THE possibility of the continued existence of some fully haired or furred human primitives, submen, or even possibly subhominids on the continent of North America has now for long been mooted. Most of these have originated from north of a line that may be drawn from about the 40th parallel (i.e., 80 miles north of San Francisco) on the west coast of the United States; north up the eastern face of the Cascades; around the Guttered Scablands of Oregon; to the Idaho Rockies in the region of the Salmon River. Thence, this line of southern demarcation crosses the Rockies to their eastern face in Montana, and then runs (back) northwest to the lower Nahanni Valley about the Laird River in the Canadian North West Territories. From that point it travels southeast through the northern third of Alberta, Saskatchewan and Manitoba to the south of the great Clay Belt, rimming James Bay of Hudson Bay, and thence continues almost due east to Cape St. Charles at the eastern extremity of Labrador. Immediately west of Lake Superior, however, one report emanates from the true wilderness area of extreme northern Minnesota.

These reports were previously for the most part concentrated around the lower Fraser River area of British Columbia, and north up the coast of that province. In this area Burns and others have reported upon many dozen cases of alleged sightings of such creatures and finds of their foot-tracks. They are, in that area called Sasquatches, a coined name derived from several similar-sounding names for them given by various indigenous Amerindian tribes. The existence of such very large if not truly "giant" (seven feet or over) creatures thereabouts has always been fully accepted by the Amerinds and of later years has become quite widely current among white people. In the unopened strip of forested territory along the coast and on the multitudinous islands off that coast their existence is fully accepted by everybody, and it is notable that when the Amerinds of that area speak of them in English, they call them "apes" though they still assert that they show many human traits—notably, being able to throw stones, over-arm, with great force and accuracy. It should be noted that as Prof. Kortland has recently suggested, no animal, other than man, is known to be able to perform this act.

The matter of Sasquatches, however, has until recently been considered so esoteric that anthropologists have not only failed to take it seriously but also have not found it worthwhile reading the reports, all of which have necessarily been by non-specialists without scientific training, and have, unfortunately, been published in the daily press or popular magazines. Nevertheless, the body of reports from the British Columbia area that are now on record—and including some official ones, and several sworn affidavits—is quite considerable, and at least one properly equipped scientific expedition was launched, in 1962, in pursuit of them.

There have, however, also been rumors and reports of similar creatures made throughout the past century, emanating from a very much wider area; in fact, from all over the subarctic and arctic regions of North America, north of the line demarcated above, and all the way from Alaska to Labrador and north even to Greenland. During the course of some twenty years' research into the question of what have unfortunately become popularly and almost universally known as "abominable snowmen," [and which we have recently designated "ABSMs"], a number of these reports came to our attention, but always second-hand, even as regards their alleged publication. It was therefore decided some years ago to endeavor to track down the original statements. This effort has now brought to light a number of important items which are herewith discussed-preliminarily, but none of these is yet in any way exhaustively researched, as will be noted in the body of the text below. From each, a number of further references have been obtained. At this stage of our investigations, however, we have to put on record our surprise at the wealth of this material, and even more so at the recent date of the publication of a great part of it. That such reports—and coming from persons of such standing as Knud V. J. Rasmussen—could be universally ignored, seems inexplicable.

As will be further discussed below, Gladwin, over a decade ago, suggested in a scientific—though in some aspects wholly unacceptable—context, that several waves of extreme primitives (including some, in his opinion, of pigmy stature); of submen (in the form of Neanderthalers); and possibly even of subhominids, which we would today probably assign to the Pithecanthropine branch of the anthropoid stem of the Primates, crossed the Bering Strait and populated the Americas. If Gladwin was right in this basic suggestion, almost everything that we have to say hereunder displays perfect conformity.

Pre-Amerindian Man was in North America and probably South America. Nobody can any longer deny this fact, for these proto-Amerinds have left us too many artifacts and encampment sites that, by radiocarbon and other precise dating methods, have now been shown to be of origins prior to the last, and possibly even to the one-but-last, southward advance of the polar ice. There is no

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A lengthier version of this article appeared in 1963 in *Genus*, a publication of the Italian Society for Genetics and Eugenics which is sponsored by the National Council of Research in Rome. A copy of *Genus*, with editorial changes specified in the author's handwriting, was found among Ivan Sanderson's papers after his death. The edited version was followed in preparing the article for *Pursuit*.

reason to suppose that all these types were wiped out prior to post-glacial times, and there is no evidence that they were so exterminated; while there is now considerable evidence that some may have survived until today in the vast and as yet unexplored territories of the far north.

The Eskimos of today maintain a large body of tradition about a race of very primitive people with revolting habits who occupied their territories prior to their own arrival. This tradition spreads all the way from Alaska to Greenland and throughout the Canadian Arctic Islands. These creatures are said to have been very tall, fully haired, dim-witted and retiring; but to have fought savagely among themselves, been carnivorous, and to have gone naked, though they built circular encampments of very large stones with whale-ribs and skin roofs. The Eskimos say they had primitive stone and bone implements. They are referred to today on Baffin Island and north to Greenland as "Toonijuk" but are called by many different though similar names to the west.

This tradition has been reported upon by many, including Rasmussen and, most notably, by Katharine Scherman in her *Spring on an Arctic Island*. Rasmussen has even stated that some of these creatures existed in Greenland within the current century but were driven up into some "inaccessible valleys" by Eskimos. This, as Scherman has pointed out, seems hardly credible since the interior of that country immediately behind the narrow coastal strip is an ice-cap. However, there are still large areas of Greenland not fully explored despite massive air-travel over much of its periphery. Also, the extreme north, around the Cape Maurice Jesup area, is not glaciated and is extremely hard of access over land, and even from the sea, due to its fjordlike topography.

These Toonijuk are said by the Eskimos to have been of giant size and to have had some exceptional and, to them as well as to us, disgusting habits. They are said to have preferred rotten meat and, it is alleged, their females tucked meat under their clothing (?) to promote decomposition by their body-warmth. Further, since they did not know how to cure skins, they are said to have wetted them and then worn these raw to dry them; and then to have used them for bedding. Perhaps the most peculiar custom ascribed to the Toonijuk, as reported by Scherman, is that young men were sewn up in fresh seal skins containing "worms" (maggots?) which, by sucking their blood, reduced their weight and so made them fleet, lightweight hunters. These maggots are believed by the Eskimos to have been fostered in the rotting carcasses of birds and one such—an auk—was said by Rasmussen to have been discovered in Greenland in his time and to have been declared by the local Eskimos to have been left there by a party of Toonijuk who, they said, had only just fled back into those "inaccessible valleys" of the interior.

While regarded as being utterly primitive, the Toonijuk are said to have lived in underground houses (though without sleeping platforms) and to have had pottery—or at least "cooking pots"—and some weapons. In Greenland, the Eskimos say that they went naked but that their bodies were covered with feather-like fur; in more westerly areas, they are said to have used skin clothing. Everybody agrees that they were very good hunters; could *call* game by voice or gesture; and were so strong that they could back an adult Bearded Seal. In addition to these details, Scherman records—from information obtained from the Eskimos of north Baffinland, as transcribed by P. J. Murdoch, an agent of the Hudson's Bay Company, who speaks fluent Eskimo—that the Toonijuk were not dangerous to the Eskimo but, to the contrary, were very timid and cowardly, and were particularly afraid of dogs which they apparently did not understand. All agree that they fought a great deal among themselves, but some Eskimos assert that their own ancestors hunted down the Toonijuk individually and so eventually exterminated them. Yet, Greenlanders insist that even today some linger on in their country but that they are excessively wary—in fact, much more so than animals.

Scherman further notes that: "Until 1902 an extremely primitive tribe of Thule people lived on Southampton Island, and some of their customs were those (alleged to be) of the Toonijuk." [The Thule, along with groups named the Dorset Islanders and the Sarquaq, constitute known previous inhabitants of the Canadian Islands and the far north.] Scherman (1955) herself visited what was then stated by the Eskimos of Baffinland to be a Toonijuk settlement on Bylot Island, and gives a clear description of it.

In a small isolated valley her party was shown a series of circular mounds. These proved to be composed of very large stones half buried in the permafrost. Each circle was dug out and had obviously once been roofed; they were entered by what had been a three-foot-high tunnel; were paved with large flat stones; and had stone benches at the back. Around the walls were very old rotten bones of the Greenland Right Whale. The party was greatly impressed by the ability of the original builders to have dug so deeply into the permafrost with only crude stone and bone implements; and even more so, by their having transported these enormous stones, which were not of local origin, even if they had had the use of dogs and sleds. Their Eskimo companions told them that the Toonijuk could lift rocks that no Eskimo could handle; that their houses were roofed with whale ribs; and that two whale jaw-bones were placed on either side of the entrance tunnel. However, this site, as Scherman remarks, showed abundant signs of having been occupied by Eskimos for long and frequent periods since its original construction.

It is most significant to note that the description of these round-houses coincides very closely with the Neolithic "Round-Houses" of the Shetlands, Orkneys, and the Hebrides off the coast of Scotland which also were circular, sunk about three feet, surrounded by stone walls that rose some three feet above the ground, and had domed roofs made of a "wheel" of large whale ribs over which skins, peat-sod, or other insulating material was placed. The Eskimos still make stone igloos with ingeniously constructed roofs of overlapping stone slabs and which also have tunnel entrances, but they are of nothing like the size described; nor do the stones of which they are built in any way approach the size of those used in the structures said to have been built by the Toonijuk.

But of even more interest is the description of a nearby cairn of very large stones which had partly collapsed. The interior of this is said to have been hollow, and in it lay a number of large human bones. One of the party leaned in and extracted what is said to have been a female pelvis; but as there were no professional anthropologists in the party, they very properly replaced this and closed up the cairn to the best of their ability. Scherman quite rightly makes a strong plea for this site to be visited by competent experts

and thoroughly examined before such potentially priceless relics finally disintegrate; and she ends by asking the pertinent question "Aside from the Toonijuk, if they ever existed, who else could have been here?"

Her only other thought is that they could have been Norsemen, whose sturdy build and stature, greater than that of the Eskimo, coupled with their propensity for feuding, might have given rise to legends that in time became transferred from one alien race to another; and she ends with the extremely significant remark that there were traditions and apparently detailed knowledge of White Men among the Eskimos long before recorded history. What is more, Scherman goes on to the effect that in the year 1632, Captain Luke Foxe of the vessel *Charles* stated that he visited an island upon which he found no living people but a large number of small graves in which were tiny human skeletons only four feet in length, surrounded by bows, arrows, and bone lances. They were all adults, and there is some implication that not all of them were skeletons but might have been whole frozen bodies. His actual report goes as follows:

> This island doth lie in 64d. and 10m. of latitude;[1] and I took this place to be the m. e. end of Sir Thomas Buttons' *Ut ultra*.[2] I could see to the northeastwards of this at least ten leagues, but no land at east, or southeast, it being as cleare an evening as could be imagined. The land to be seen was from the north northeast to the west southward.
>
> The news from land was that this island was a Sepulchre, for the savages had laid their dead (I cannot say interred), for it is all stone, as they cannot dig therein, but lay the corpse on the stones, and wall them about with the same, coffining them also by laying the sides of old sleds about, which have been artificially made. The boards are some nine or ten feet long, four inches thick. In what manner the tree they have been made out of was cloven or sawen, it was so smooth that we could not discern, the burials had been so old.
>
> And, as in other places of those countries, they bury all their utensils, as bows, arrows, strings, darts, lances, and other implements carved in bone. The longest corpse was not above four feet long,[3] with their heads laid to the west. It may be that they travel, as the Tartar and the Semoaid; for, if they had remained here, there would have been some newer burials. There was one place walled four-square, and seated within with earth each side was four or five yards in length; in the middle was three stones, laid one above another, man's height. We took this to be some place of ceremony at the burial of the dead."

Nothing further is recorded or known of this discovery; nor has the island itself been relocated. Again, Scherman notes that the present-day Baffinland Eskimos firmly believe that there were, in addition to the giant Toonijuk, a race of very small humans, or pigmies, in the Canadian Arctic before the coming of their own people. And, once again, we may note that hardby, in the neolithic Round-Houses of the west European Isles, there remains a very strong tradition and much legend about "Little People" (Pixies, Elves, Leprechauns, and so forth) who are said to have inhabited the adjacent hills in early times.

We should note also that Gladwin's theory envisions one of the waves of humanoids that entered the New World as being a race of pigmy stature, related to the ancestors of the Negritos and Negrillos, whom he suggests arrived here after the Neanderthalers but before the Amerinds and the Eskimos. There is nothing impossible in this, for pigmies need not have "black" skins or inhabit the tropics; nor, conversely, need the skins of any who reached the Arctic have been pale yellow. The skin-color of animals is probably due more to percentage of oxygenation than to temperature, quantity, or periodicity of sunlight (see the work of Fage, Derouet, and W. D. and M. P. Burbanck and Edwards on albinism in cave animals). Primitives of small stature—four to five feet—could have been of any skin-color; and just because all known living "pigmies" have dark skin means nothing.

In 1953, a most curious little book entitled (perhaps somewhat appropriately) *The Strangest Story Ever Told* was privately published in New York by a Miss Virginia Colp, in the name of her father, Harry D. Colp. In a preface, Miss Colp explains that this, as a manuscript, was found by her mother among the possessions of her late father, then some years deceased. The slim volume, only 46 pages in length, presents a straightforward story, starting in the year 1900 and ending in 1925. It is published without comment.

There is no confirmatory evidence presented in the book, and we have been unable to trace any through other sources. Search has been instituted for the other persons named or mentioned in the incidents recorded, but all would now be gentlemen of very advanced age, while the original author states categorically that he had given his word that he would not disclose their names. (His daughter cannot be expected to break this trust.)

The book is divided into seven chapters, each of which gives an account of incidents that were alleged to have occurred to a number of people in a somewhat limited wilderness area east of Thomas Bay—and centered apparently around the headwaters of the Patterson River—on the coast of the Alaskan Panhandle. Thomas Bay opens inshore from Kupreanof Island, which lies about halfway between Juneau and Wrangell. The latter is just south of the mouth of the Stikine River and is on the north tip of Wrangell Island.

The story begins in 1900. Harry Colp at that time was resident in Wrangell where he apparently worked for a small sawmill. He had three partners in prospecting enterprises. These he names "Charlie," "John," and "Fred," for purposes of identification. It appears that the first-named had learned from an old Amerind that free-gold quartz in quantity was exposed on a scree in the area named, and the other three partners staked him to a trip by boat to investigate. He left in early May and returned a month later entirely dispossessed but for his canoe, a paddle, and the clothes he wore. He brought a piece of quartz, shot through with gold flecks. He refused to discuss his

(Continued on page 48)

1. There is no island exactly in this latitude. Probably the observation is somewhat out, and that one of the islands off Cape Fullerton is the island in question.

2. It seems, from the narrative, that Foxe must have passed near Tom Island. As he makes no mention of having seen it, the fog-banks probably prevented him (from doing so).

3. They seem to be people of small stature. God send me better for my adventures than these.

Higher Dimensions and The Barrier

by Daniel Eden *(Continued from Pursuit No. 60, Fourth Quarter 1982)*

Part II
Barrier Physics Notes

IN Part I, I described the concept of a "barrier" that locks our world into a three-dimensional hyperplane of a higher space. Five categories of data were presented which seemed to provide possible evidence for both a higher space (R_4) and at least one fixed hyperplane (S_3) within this space.

In these notes, I will endeavor to further develop the physical notion of the barrier. Also, I intend to point out some of the unique and bizarre predictions that the model makes.

To begin, I should say that the barrier force F_b is a real physical force that can impart a kinetic energy $T = \frac{1}{2}mv^2$ and a potential energy U(r) to any object that has mass. Under normal circumstances, we exist in a state of stable equilibrium with respect to the barrier, that is, $T = U(r) = 0$. However, any force that has a fourth dimensional component, $F = F(x,y,z,q)$, can disturb our equilibrium to give us a non-zero T and U(r).

The underlying framework of the model will be constructed from two basic notions which I will call the FUNDAMENTAL POSTULATES. They go as follows:

I. The barrier force F_b is an attractive force that acts perpendicular to the S_3 hyperplane. It is directed toward the hyperplane along the fourth spatial dimension q.

II. Regions of R_4 space immediately surrounding the S_3 hyperplane have an intrinsic friction that dampens motion along the positive and negative directions of the q-axis.

With these two fundamental postulates, a rational model of higher space can be developed that has testable implications.

The first prediction of the model is concerned with the concept of a central force. A *central force* acts between two particles with the following characteristics:

i. The magnitude of the force depends only on the distance between the two particles.

ii. The force acts along the line joining the two particles.

The barrier model makes the following prediction concerning such central forces:

A central force within our hyperplane will not act as an unconstrained central force in higher space.

Why should this be? F_b is fixed in the direction that it can act (Postulate I). Because it is fixed along the q axis, it cannot always act along the line that connects two particles. Therefore, any force that is central in S_3 will be found to have a new non-central component (F_b) in R_4. This directly violates the second characteristic of a central force. The conclusion is that there are no unconstrained central forces in R_4 whose origins are within the hyperplane.

Why is this result so important? The two major central forces in our world are the electrostatic force and the gravitational force. It has been shown that if these two forces were allowed to act as unconstrained central forces in R_4, then planetary orbits and atomic orbits could not be stable (*Am. J. Physics*, 37, p. 1222).

This has always been a powerful objection to the concept of higher space-like dimensions. However, now we can surmise that because the barrier places a physical constraint on central forces, it thereby contributes to the stability of their orbital paths. To my knowledge, this is the first physical model ever proposed that can even begin to address the problems of orbital stability in a space of more than three dimensions.

Now we move on, to another area where the model can make interesting predictions. This concerns the motions of small displacements from equilibrium.

I am not prepared to advance the general formula for the potential energy U(r) of the barrier. However, if we limit our discussions to very small displacements from equilibrium, we can use the following equation for an approximation of the motions to be expected: $U(r) = \frac{1}{2}kq^2$. From this potential energy, the following equation for the barrier force can be derived:

$$F_b = -kq.$$

This is the equation of a restoring force. The negative sign indicates that the force is attractive and it is always directed toward the origin (the hyperplane). The term k is a constant and q is simply the distance moved into the fourth dimension. The term q can be either positive or negative with $+q$ being one direction and $-q$ being the other direction along the q axis.

Oscillation and Damping

Now suppose a small R_4 bumps an object from our world into the $+q$ direction of the fourth dimension. The barrier force will act to push it back. However, the inertia of the object will cause it to overshoot the origin and so it will become extended into the $-q$ direction. The barrier again will push it back. In the absence of friction, the mass will continue to oscillate forever in a state of simple harmonic motion. The frequency of this motion is given by

$$f = \frac{1}{2\pi}\sqrt{\frac{k}{m}}.$$

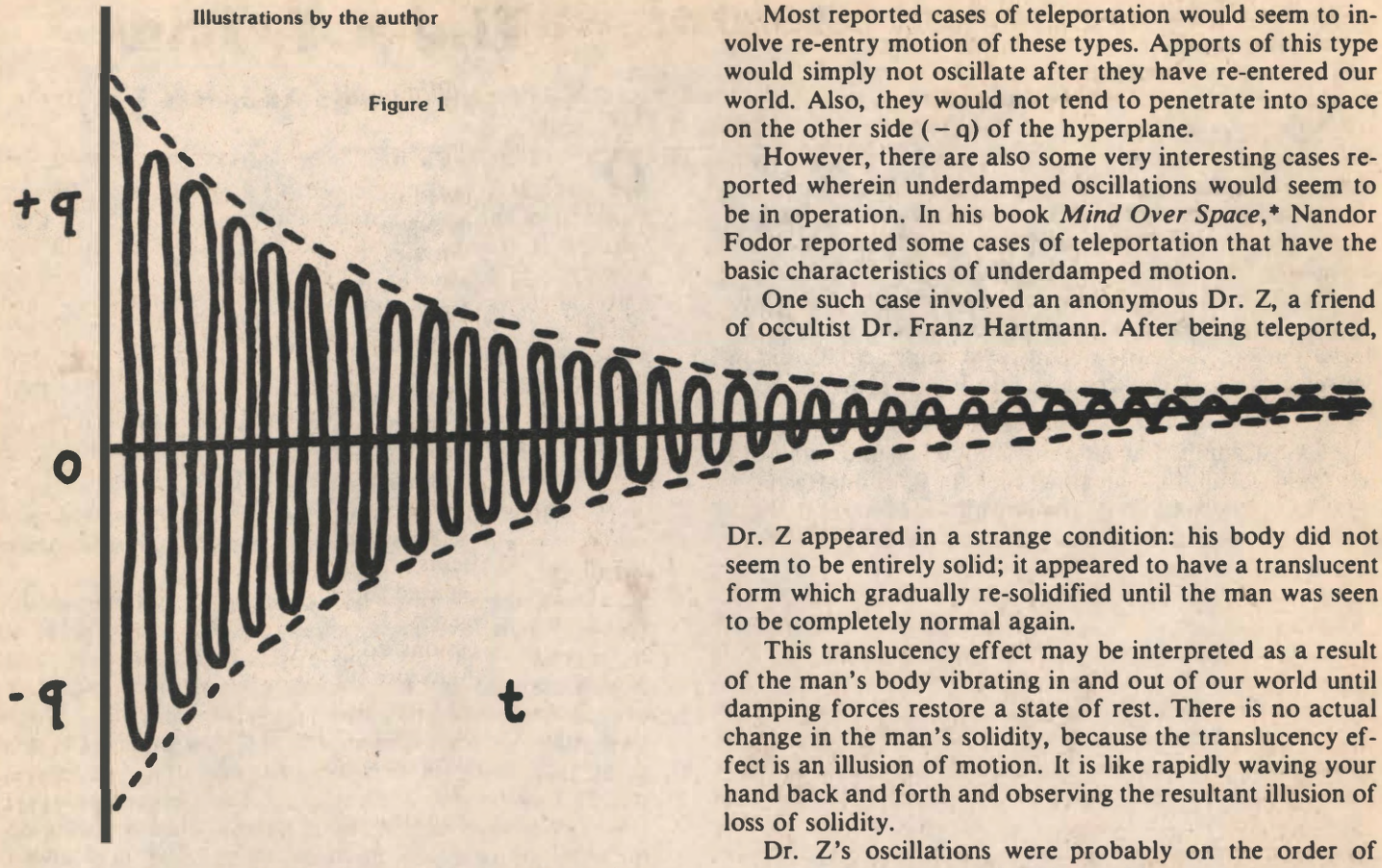
However, there is good reason to believe that some kind of natural friction is present in the real world. One indication of this is that poltergeist apports tend to be warm, or even hot, immediately after appearing in a room. In frictional damping, the kinetic energy of motion is usually converted into heat.

That nature should provide some form of damping is an important aspect of this particular model. At the very least, we can surmise that a small damping force has been acting over billions of years to form the stable equilibrium of planets and stars that we can see in our hyperplane. Without some intrinsic damping in R_4, it seems that the astronomical world would be more chaotic than it appears.

Assuming that some such natural friction is involved (invoking Postulate II), then simple harmonic motion is no longer in operation. When the frictional forces are small,

Illustrations by the author

Figure 1



the motion becomes "underdamped" harmonic motion. Graphed over time, it looks like Figure 1.

The amplitude of the vibration (the dotted lines) falls off as an exponential, $q = Ae^{-bt}$, where A and b are constants. The frequency of the oscillation will tend to be somewhat slower than the value calculated for undamped-motion.

In cases where the friction is greater, the motion is either "overdamped" or even "critically damped." Here the oscillatory motion is completely overwhelmed by friction. In these cases the object would return to our world with no apparent vibration. Critically damped (a) and overdamped (b) motions take the form shown in Figure 2, graphed over time.

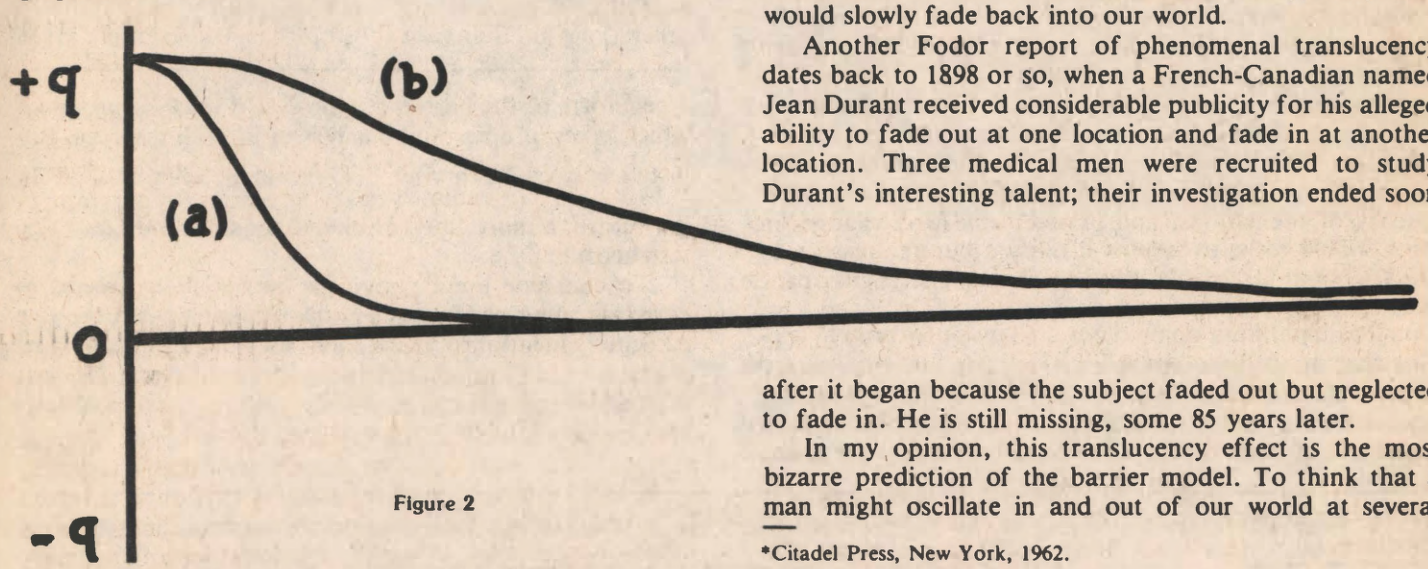


Figure 2

Most reported cases of teleportation would seem to involve re-entry motion of these types. Apports of this type would simply not oscillate after they have re-entered our world. Also, they would not tend to penetrate into space on the other side (−q) of the hyperplane.

However, there are also some very interesting cases reported wherein underdamped oscillations would seem to be in operation. In his book *Mind Over Space*,* Nandor Fodor reported some cases of teleportation that have the basic characteristics of underdamped motion.

One such case involved an anonymous Dr. Z, a friend of occultist Dr. Franz Hartmann. After being teleported, Dr. Z appeared in a strange condition: his body did not seem to be entirely solid; it appeared to have a translucent form which gradually re-solidified until the man was seen to be completely normal again.

This translucency effect may be interpreted as a result of the man's body vibrating in and out of our world until damping forces restore a state of rest. There is no actual change in the man's solidity, because the translucency effect is an illusion of motion. It is like rapidly waving your hand back and forth and observing the resultant illusion of loss of solidity.

Dr. Z's oscillations were probably on the order of several cycles per second. This would seem to be near the minimum rate necessary to produce the visual effects reported. Given half a chance, modern laboratory equipment could easily determine the exact rate of such oscillation. A high-precision, variable-speed stroboscope could do the job. A more elegant method would be to monitor a beam of low-intensity laser light as it passed through the region of oscillation. Perhaps we will be able to utilize such techniques to monitor barrier oscillation in the future.

Another case of translucency involved the famous Egyptologist Sir Ernest Wallis Budge. Fodor reports that Budge met two men, "an African and an Indian," who could fade out slowly, as did the Cheshire Cat in Lewis Carroll's *Alice in Wonderland*. Eventually, they also would slowly fade back into our world.

Another Fodor report of phenomenal translucency dates back to 1898 or so, when a French-Canadian named Jean Durant received considerable publicity for his alleged ability to fade out at one location and fade in at another location. Three medical men were recruited to study Durant's interesting talent; their investigation ended soon after it began because the subject faded out but neglected to fade in. He is still missing, some 85 years later.

In my opinion, this translucency effect is the most bizarre prediction of the barrier model. To think that a man might oscillate in and out of our world at several

*Citadel Press, New York, 1962.

cycles per second is grotesque. However, as Hereward Carrington might have been tempted to say, the universe will astound us with new delights here, and old terrors there, even as it primes us for the local asylum.

Another possible effect associated with barrier oscillation involves temporary weight loss. Some Russian scientists have been toying with the notion that limited portions of the human body may become extended into R_4. Furthermore, they postulate that any such "displaced mass" will be hidden from the Earth's gravitation.

In 1977 a Russian immigrant to the West, Dr. August Stern, claimed that cases of alleged levitation, and "partial levitation" (i.e., partial weight reduction), actually did involve such mass displacements into higher space.

I must admit that I do not altogether understand the reasoning behind the idea that mass in R_4 is unaffected by gravity. However, if we temporarily assume that this is true, then we can determine what are the implications for barrier oscillation.

For instance, suppose that in the previously mentioned translucency case of Dr. Z, a point is reached wherein 99% of his body mass is being repeatedly displaced into R_4. This means that he will have an apparent gravitational mass (m) which is far less than his original mass (m_0). Being extended into R_4, this bulk of his mass is simply hidden from gravitation. His apparent weight ($F = mg$) will only be 1% of his original weight ($F_0 = m_0 g$). Strangely enough, the witnesses to Dr. Z's translucency actually claimed that he had become as light as a feather. (This case seems to support the Russian hypothesis that mass can be hidden from gravity.)

As the amplitude of Dr. Z's oscillations decreases exponentially, his apparent mass would approach his original mass, $m \longrightarrow m_0$, in magnitude. The apparent mass will be equal to the original mass when the oscillations are finally damped to a halt.

This suggests an easy method to determine if an object is experiencing small, underdamped oscillations. If you continuously weigh an apport immediately after its alleged teleportation, it should show a gradual increase in weight until the original weight has been reached. As the final approach of m to m_0 is very slow, a sensitive weight scale might be able to detect the change in mass, even after a considerable time has elapsed from the moment of teleportation, assuming of course that the motion has not been subject to overdamping or critical damping.

I suggest that the universe has room for all three modes of frictional damping. Our problem is to determine the circumstances under which each mode will occur. Data such as the thermal profile of fresh apports, the observed frequency of oscillations, and plots of any mass changes in time should serve to give us a fairly accurate measure of the frictional forces involved as well as the strength of the barrier itself.

Although I have pointed out the kinds of vibratory motion that can be expected, let me reiterate that I have used only a rough approximation of the true barrier force. The equations only apply to relatively small disturbances from equilibrium. In cases where the disturbing forces are great, a new form of the barrier potential U(r) must be proposed which takes into account changes in F_b with distance. For instance, does F_b vary as $\frac{1}{r^2}$, or maybe even as $\frac{1}{r^3}$? In the future, a more fully developed model should take this into account.

To conclude these notes, the barrier model seems to correlate some widely diverse data ranging from the five categories mentioned in Part I to the potential stability of planetary orbits in space. It is my general contention that the barrier concept can provide us with accurate and testable insights into the nature of higher space.

Daniel Eden will follow his scaling of The Barrier with an article on "Short Range Teleportation Physics" in the next issue.

The E.T. Law

by George Andrews

DR. Brian T. Clifford, who works for the Pentagon, recently broke the news that contact between residents of the United States and extraterrestrials or their vehicles is strictly illegal, and that according to a law *already on the books*, anyone guilty of such contact automatically becomes a wanted criminal to be fined $5,000 and jailed for one year. According to Dr. Clifford, whose commandng officers have been assuring the public for the last 35 years that UFOs are nothing more than hoaxes and delusions to be dismissed with a condescending smile: "This is really no joke. It's a very serious matter."

There are two points I wish to make:

• **1211.101 Applicability.** *"The provisions of this part apply to all NASA manned and unmanned space missions..."*

I could dismiss this whole controversy as a tempest in a teapot if the above passage contained the word "only" so as to read: "The provisions of this part apply only to all NASA manned and unmanned space missions...". However, it does not contain that one little word which would have made all the difference. If the government was suddenly faced with the accomplished fact of an undeniable overt ET visitation, in the absence of any other legislation, this regulation could therefore be construed as being applicable to all space missions, NASA or non-NASA, whether of terrestrial or extra-terrestrial origin. As it stands, this law is applicable to UFO contact. The meaning would have to be stretched, but the loophole does exist.

• **1211.102 Definitions.** (b) (2): *"Touched directly or been in close proximity to (or been exposed directly to)..."*

Even without including "indirect exposure," anyone involved in a UFO close encounter would become eligible for indefinite quarantine under armed guard according to the above. By including indirect exposure, the NASA administrator is empowered to make the definition mean just about anything he wants it to. An example of indirect exposure is given, but an example is not a definition. Unless indirect exposure is defined precisely, it can mean almost anything. The possibility is not specifically ruled out that other types of indirect exposure than the example given

British Bases at Power Points?

by Dr. Arlan Keith Andrews, Sr.

WHAT strange fascination causes Man to gather and to build at certain holy places around the world? Wars have been fought over many of these so-called "power points" or holy places—locations that seem quite worthless to modern civilization. Jerusalem, for example, has been such a holy place since the beginning of history, and yet remains a contested area in the continuing Arab-Israel conflicts. But, aside from pride and historical significance, it seems to have no other value that makes it worth the blood of generations.

One possible explanation lies in the concept of prehistoric "power points," scouted out and settled by ancient sensitives. In his book, *The View Over Atlantis*, author John Michell reported that many such sites were purposely fortified to take advantage of certain natural energy flows that are unknown today. These power points still remain settled in Great Britain, along straight lines called "leys" by their modern rediscoverer, Alfred Watkins.*

While on a pleasure trip to esoteric sites in England and Scotland it occurred to me that perhaps Modern Man is making better use of the ancient "power points" than he might realize. One afternoon and night I visited the Findhorn spiritualist commune at Moray Firth, located near Inverness, Scotland, on the shores of the North Sea. Findhorn's settlement was directed by a trance entity purporting to be aboard a UFO. The community has flourished during the past ten years and is world-renowned for its powerful psychic vibrations and its gardens of tropical plants in such a cold climate. Immediately I was struck by the fact that this "power point" is adjacent to the Kinloss Royal Air Force Base. I thought that the strategic worth of that northern location probably determined the siting of the base.

Not far away lay the mysterious shores of Loch Ness, with its not-then-discovered megalithic stone circles lying in the eternal darkness of the murky waters. And, of course, living in those waters is perhaps one of the strangest creatures on our planet.

One of the most significant of the straight-line "ley" tracks is the alignment that includes the Salisbury cathedral, the ancient Stone-Age fort called Old Sarum, and the most unforgettable megalithic structure, Stonehenge. Long held in reverence or fear by the late-coming Saxons and Normans, Stonehenge has been a holy site in legend for thousands of years. Indeed, the recent improvements in carbon-14 dating technique indicate that these burdened stones are older even than the Great Pyramid of Egypt! The latest theories by scientists explain the concentric circles of giant standing stones as a bank of incredibly sophisticated astronomical computers—hardly the work of naked savages. The modern-age tourist might notice, as I did, that there is very heavy British army helicopter activity in the "ley" area around Salisbury, Old Sarum and Stonehenge. It would be interesting to know the exact location of *that* base!

Warminster, England, is a world-famous UFO center. Its most noted author, Arthur Shuttlewood, said in his 1967 book, *The Warminster Mystery*, that the nearby knolls called Cradle Hill and Star Hill are thought to be very strong "power points,"

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Following his investigative travels to British "power points," Dr. Andrews returned to his home in Indiana to continue work on a "book/comic, by my son Kris (16), me, and another collaborator, entitled *The Timelost*. Should be out in June."

*Alfred Watkins, a British merchant, had a vision in the early 1920s while riding through the English countryside near Hereford. He seemed to see an ancient network of straight lines connecting the various mounds, megalithic sites and old churches. When he plotted all of the sites—including crossroads, moats and wells—he found many alignments. His theory of alignments is explained in his book *The Old Straight Track* (recent edition: Ballantine Books, 1973).

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might be considered valid grounds to "quarantine" a person or group of persons.

This legislation was put through Congress without having been mentioned to the taxpaying citizens Congress is supposed to represent. Thus from one day to the next we learn that, without having informed the public, the Congress of the United States has created a whole new criminal class: UFO contactees. The lame excuse offered for this bitter pill is that extra-terrestrials might have a virus that could wipe out the human race. This is certainly one of the many possibilities inherent in such contact, but just as certainly not the only one, and in itself not a valid reason to make all contact illegal or to declare contactees criminals to be fined and jailed immediately. The primary effect of such a law would not be to prevent contact (which is often involuntary), it would be to silence witnesses. If enforced, the law would prevent publication of contactee reports except under cover of anonymity, and unleash a modern Inquisition in the Land of the Free. However, it is unenforceable, so obviously absurd and unfair that the public will refuse to accept it.

The law is a joke. The citizens of the United States will greet it with a resounding Bronx cheer, laugh it out of court, and oblige Congress to repeal it. Those in the unenviable position of trying to enforce it will find themselves like people with sieves trying to stop the ocean tide. If there had never before in human history been contact with extra-terrestrials, extreme precautions might be advisable, but contact cases in recent years number in the thousands and tens of thousands. Are all these normally law-abiding citizens to be declared criminals from one minute to the next, fined, and automatically jailed for one year? What other laws has Congress passed surreptitiously without informing the public?

What other surprises have our trusted representatives prepared for us? No matter what they may be, one thing is for sure: contact between humans and extra-terrestrials has been occurring at periodic intervals ever since the Sumerians built the ziggurats, and will continue to occur whether the Pentagon likes it or not.

Fire-Walking on Mt. Takao

by James McClenon, Ph.D.

The pyre is set ablaze . . . then covered with cedar branches (right)

Photographs by the author

FIRE-WALKING has been performed in modern times in Greece, Bulgaria, Spain, Haiti, Polynesia, Australia, Africa, China, Japan, Ceylon, India, and (by Indian immigrants) in Mauritius, Trinidad, and Natal. Ritual fire-handling is also practiced in numerous localities (for example, by various independent holiness groups such as the "Free Pentecostals" in Southern Appalachia: Kane, 1982).

On March 13, 1983, I participated in the fire-walking ritual (Hiwatari) at Mt. Takao, Japan. This ritual is conducted yearly by the Yakuo-in temple at Mt. Takao. Its function is to train Yamabushi, or mountain priests, who belong to the Shingon sect of Buddhism. The day on which I attended their ritual the weather was cool (approximately 50° F.) and rain was drizzling.

The ceremony began at 1:30 p.m. with a dramatic prologue. Officiating monks brandished swords in ceremonial fashion, shot sacred arrows into the air, and led the fifty or so participating monks in the chanting of Buddhist sutras. At 2 p.m. a huge pyre of wood, about eight meters long, was set afire. Special "nedegi" (ceremonial wooden boards) were later added to the blaze in accordance with the belief that human ailments when transferred to the boards would be destroyed in the flames.

After raking out the coals and throwing ceremonial salt on them, the officiants led the Yamabushi, all barefoot, across the glowing bed. The time was 3:11 p.m. Joining the lay people who were welcomed to follow, I took off my shoes and socks and stood among the crowd waiting to brave the embers. It appeared to me that the people who had walked before had trampled out two pathways along which the glow was diminishing as embers turned to ash. "This looks fairly easy," I thought to myself.

My state of mind was similar to that of a person about to make his first parachute jump from an airplane. The continuous chanting of the priests contributed to the feeling of excitement. This state of mind is important to an understanding of the "altered-consciousness" explanation often and typically given for the ability of the fire-walker to perform his act with befitting panache and no sense of risk.

As the time approached for me to cross the coals (two people were in front of me) a priest raked the fiery bed to smooth our passage; another priest threw ceremonial salt in a pattern that vaguely established new "walking lanes." I was standing next behind a very ancient woman who walked very slowly. I followed her across the coals and made no attempt to overtake her, though I believe I would have walked much more rapidly if I had been given the chance.

My feet were red and numb from the cool air and drizzling rain. As I crossed the embers I felt nothing. After completing the fire-walk (3:19 p.m.) I inspected my feet. They were unblistered. One of the priests pronounced a special blessing upon all those who had participated in the ceremony. (I counted about 100 lay persons and blamed the rain for preventing a larger attendance.)

I heard of no one getting burnt. Among the reasons advanced for the non-blistering of human feet during fire-walking, theories having to do with the Leidenfrost effect and others involving the psychic state of the participants are the most prevalent.

Coe (1958) and Walker (1977) suggest that a thin layer of water-vapor forms under the soles of the feet of the fire-walker, protecting his or her feet from blistering. This theory is derived from the Leidenfrost effect, observable in any kitchen: When you drop water on a flat surface, such as a frypan, and it is sufficiently hot, the

Raking out the coals

liquid rolls around on the surface in droplets that seem to dance on the thin layer of vapor beneath; but if the surface is not hot enough, the water immediately vaporizes. The theory holds that a water-vapor barrier protects the fire-walker's feet.

Coe (1978), who has himself engaged in many fire-walking and fire-handling demonstrations, has modified his previous pronouncements regarding the Leidenfrost-effect theory. He now believes that trance states of mind can aid in conferring immunity to burns and professes to having received this immunity in his own altered states of consciousness. Kane (1982) supports belief in the necessity of the trance state and cites his observation of various Pentecostal holiness groups in their practice of ceremonial fire-handling.

During the 1930s Harry Price, a psychical researcher, organized a series of fire-walking tests (Darling 1935; Anonymous, 1935 1937 1938; Price 1937). The tests indicated that fire-walking is not a trick, and that it can be performed in a normal manner with chemically untreated feet. Moisture on the soles was seen as a disadvantage since it may cause hot coals to adhere to the skin and raise blisters.

Price rejected the Leidenfrost effect as an explanation for the non-blistering. He reasoned that the low thermal conductivity of burning wood embers and the short time of contact between the foot and ember surfaces made fire-walking more of an athletic exercise than a physical or psychic phenomenon. He believed that confidence and steadiness in walking were important and that immunity was somewhat limited. Demonstration tests showed that participants could walk over the coals a distance of 12 feet in 4 or less steps and maintain a total time of contact with the ember surfaces of less than 2.2 seconds without getting burned. The experiments were performed with untrained Englishmen as subjects, and no alteration of state of consciousness was perceived and none appeared to be needed.

However, the fire-walking reported by Coe (1978), Kane (1982), Freeman (1974), Hansen (1982) and others seem greatly to exceed the Price experiments in terms of duration and temperature. For example, Coe (1978) described taking 60 continuous steps across a pit in which the temperature had reached 1200° F., and Freeman reported a fire-walk over a 20-yard distance in India.

My personal experience contributes only slightly to the body of knowledge about fire-walking that has accumulated over the past half century. At Mt. Takao I observed that the coal-bed temperature did not appear particularly hot, probably because of the drizzling rain and the thinness of the bed. In only 1 hour and 2 minutes the modest pile of small logs, many no larger than branches, burned down sufficiently to be raked into a bed of coals. Although there was no opportunity to measure the temperature, it seemed likely that this bed of coals was much cooler than those described in typical fire-walking tests elsewhere, as in Price's tests, for example, where

The first Yamabushi walk

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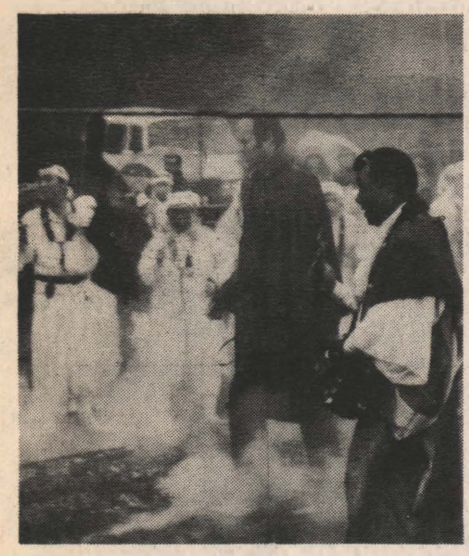
temperatures ranged from 430° to 800° Celsius. (The Leidenfrost effect, when demonstrated under controlled conditions with a metal plate, requires a surface temperature of between 200° and 250° C. before the plate is sufficiently hot for the effect to occur.)



The author's walk

In the Mt. Takao ceremony the coal bed temperature must have lessened as walkers tramped out the embers and rain helped to extinguish the fire. The Yamabushi walkers who were first to "complete the course" performed under more stringent conditions than those who, like myself, were positioned to walk later. Although "new" embers were from time to time raked into the trampled paths of black ash, the overall temperature certainly declined steadily, and the lay people who were the last to walk encountered the least risk of being burned. At some point during the afternoon, the surface temperature probably fell even below the 200° to 250° C. requirement for the Leidenfrost effect.

I am uncertain as to the exact process associated with the fire-walking phenomenon. At one time, I accepted the Leidenfrost effect as a likely explanation of the non-blistering of the walkers' feet. Now I am not so sure. It still seems possible that a combination of processes may function at different temperature levels to inhibit blistering. But no theory satisfactorily explains (in a scientific manner) the numerous cases where some fire-walkers have been burned and others have remained unscathed under identical conditions. (For exemplary cases, see Kane 1982, Darling 1935, Freeman 1974, and Feigen 1969).

At the Mt. Takao ceremony I did not observe or hear of anyone who burned his or her feet. It is my belief that the relatively low temperature and the trampling out of "walking lanes" by experienced Yamabushi should receive full credit for the admirable safety record compiled during the afternoon of March 13, 1983.

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Energy Forges the Armor

by Harriet A. Boswell

IN these days of exciting developments in many areas of research, it is no longer necessary for a "scientist" to fear ridicule or ostracism by his peers if he ventures into examining the fascinating challenges of the paranormal. The closing decades of the twentieth century have brought what was once labeled "superstition" or "pious delusion" out of the mire of bigotry and materialistic prejudice.

The drive of the need to *know* has tempered the bitterness which has long existed between science and religion. We now are in times of happy prospect that the extremists in both areas are convncing each other that condemnation without investigation is truly one of man's greatest hindrances to progress.

Semantic stumbling blocks are being swept aside in the rushing tide of searching and researching. Ancient wisdoms repeatedly refer to man's "light," not always with that particular term, but the principle to which it refers is increasingly clear. Except for those extremists previously mentioned, the religionist's word "aura" now is considered to be virtually synonymous with the scientist's term "energy field" as it is applied to the force field around objects, particularly animate ones.

Awareness of the presence of this energy field has been kept alive for centuries by religious philosophies in spite of rejection by materialists. Probing into the mysteries of natural law by those of scientific bent no longer draws furious charges of "sacrilege" except from fanatical religious zealots.

The acknowledgment of the aura as a reality and understanding of its nature and function are long overdue. No living being is without one, and all forms of matter radiate some form of energy; but man's ability to think makes his particular emanation of energy important in its influence on others and of benefit or detriment to himself.

Art forms have depicted this manifestation by means of lines radiating from the simple stick forms in primitive cave drawings to the later practice of painting halos around the heads of figures to represent highly evolved individuals. Even the crowns of royal authority were an early symbolism of such development since rulers were considered to embody the spiritual, moral and physical ideals man is meant to express. Though most frequently portrayed about the head, this energy field radiates from the entire body.

Ancient records and religious traditions have shown that the aura has many functions. Not the least of these

references is in the New Testament of the Christian Bible. Ephesians 6:11-17 sets forth a description by St. Paul of the protective role played by the aura as the "whole armor of God." The principle here expressed in religious phraseology can be explained in more scientific terms today.

As more research is done into the nature of thought, it becomes increasingly clear that a thought based upon conviction generates more energy than one which is neutral or lukewarm. Thought-energy is an important factor in the construction and maintenance of the auric field of all sensory forms of matter. Although what we call lower animal forms and plants have fascinating energy fields, the role of the human aura is both pervasive and influential.

For centuries it has been claimed that only very "gifted" people could actually see the aura. This idea was nurtured, possibly, by the upper hierarchies of the priesthoods of virtually every culture known to man; it set the spiritual leadership apart from the legions of followers! Nowadays most anyone who is willing to take the time and put forth the effort can reactivate this natural ability which functions so well in childhood but diminishes in most of us with the passage of time.

The charge of "imagination," "hallucination" or "after-vision" no longer presents a challenge to proof of the existence of the auric field, thanks largely to the advent of the Kirlian technique of consistently registering the radiation on photographic paper or film. This breakthrough has led to experimentation with videotape and other methods of capturing the elusive light of the energy field, holding forth more hope of discovering undeniable evidence of its reality, nature and activity. After all, even our advanced technology cannot photograph or measure anything which has no existence in some form or dimension.

To see the aura, one need only place a subject in front of a non-reflective, plain background (such as a home movie screen) in a room dimly lit with no shadows being cast around or by the subject. The viewer then focuses his eyes on a spot somewhere on the face of the sitter, keeping his gaze steady until he feels as if his eyes were going out of focus. It will then appear that a light is gradually becoming visible around the head, growing both in size and intensity while the gaze continues.

As the practice is repeated, the field becomes visible more quickly, and color and movement become more apparent. Time is a variable; one person may see clearly in a matter of minutes while another may require hours of training. This is extended sight-perception; one is not accustomed to using the sense of sight to accommodate this frequency. In the same way, a musician extending his sense of hearing would be able to hear nuances the average listener could not catch.

If the subject under observation is capable of deep concentration, the light can be made noticeably stronger and more active if he will think of something about which he has strong feelings. Conviction in the mind of the subject strengthens the field.

A rather crude analogy may clarify the manner in which thought energy can be used to build and maintain the protective shield to which reference was made earlier.

An electric fan, without the current turned on, will have an energy field since it is made up of a certain number of molecules vibrating at a certain frequency. The moment electricity activates the mechanism the results can be appreciated immediately. The energy flow is increased and directed by the very design of the physical structure which is the fan. This flow becomes stronger as the energy input is increased. When the fan is in a state of immobility its energy field is at a minimum, just as the human body has its lowest level of energy output while in a state of suspended animation.

A small ball, such as a ping-pong ball, tossed at a fan which is not activated, will strike the fan. Once the energy output is increased, the flow will deflect the ball from its target. As the flow is strengthened by increased power, a ball of greater size and weight will be deflected also. The energy field now serves as a cushion or shield.

And so it is with the human aura. The human body also is designed in such a manner as to maintain a minimal field while in a state of mental or physical inertia. Once the "power" is turned on by the activity of the mind, the strength or impact of the field is increased in proportion to the motivation behind the thought.

In a somewhat mysterious way the nature of the thought-energy output into the human-energy field is a determining factor in the constructive or destructive nature of the energy itself. Constructive or positive thought produces the healing energy from the hand of the healer, while destructive or negative thought produces the devitalizing emanation from one who is intent upon weakening or destroying.

Regardless of the nature of the thought—negative or positive—the *intensity* of belief or desire is the determining factor in the strength of the energy flow. Nature must act within its own laws, and nature does not question motivation.

In the instance of fire-walkers, for example, the preparation for the demonstration is an energy-building mental discipline. Mishap is prevented only when the power output for protection is sufficiently strong to create and maintain the "cushion" which prevents actual contact with the hot coals. Belief that the coals *cannot* burn forges the armor, while the slightest doubt causes chinks of vulnerability. No fire-walker takes his performance casually; it is an accomplishment for which he has been prepared through some kind of consciousness-raising ritual, as a general rule centering on the belief that the coals will not burn him. It doesn't matter whether his conviction is based upon a belief in the protection of his deity, a strong desire to show his manliness, or a scientific understanding of the nature of the energy—as long as he *knows* he will not burn, he will not.

Could this be evidence of the "whole armor of God"? Fear, doubt and similar stress-emotions render us susceptible to the intrusion of damaging influences and experiences. These kinds of thoughts produce visible streaks and patches of absence of light

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Mrs. Boswell has spent more than 40 years researching the field she describes as "the unknown and unproven which man encounters in his quest for understanding of his own mental, physical and spiritual potentials in an effort to enrich his life." The course in parapsychology she taught in the public schools of Palm Beach County, Florida, was the first of its kind to be offered for credit in any of the nation's public school systems.

(energy) in the auric field. They appear to alter the structure of the field, changing the nature of the whole erratically, breaking its shield-like construction, while the religionist's "faith as a grain of mustard seed" seems to be the switch that locks on the impenetrable armor.

Difficult but not impossible to capture on video-tape or film, the changing of the energy field from weak to strong can be captured. It is most likely that the shield which the faith of the fire-walker produces could be so registered, showing the intensity concentrated around the feet. In the case of the handling of white-hot metal, the strength of the aura would be greatest around the hand. Thought is an energy-flow, and will or intelligence give it direction or a target.

Research of this area should hold great appeal for those of an adventurous nature. The aura is gaining increased recognition for the part it plays in the "laying on of hands" in holistic healing, but its value may extend far beyond that application. A better understanding of the aura in a *preventive* role may be forthcoming through further investigations of the fire-walking and fire-handling phenomenon.

Do You Believe in Precognition?

☐ Yes ☐ No

Then consider the following and re-evaluate your response:

SELF-TEST OF BELIEF IN PRECOGNITION

1. Think back to a time shortly before you first laid eyes on your spouse.

2. Imagine (at that time) you and your spouse-to-be walking down the street in opposite directions right past each other.

3. Discounting the factor of sexual attraction per se (and of possible otherwise-intriguing aspects of his/her physical appearance), do you believe you would have simply walked right past him / her without *any* strange or unusual *internal* response, feeling, or reaction on your part?

If your answer is anything short of a resounding NO!, face up to the fact that you DO believe in precognition!

—Neil M. Lorber

Wetzels in Wonderland II

Was It All Just Coincidence . . . or Was It Something They 8?

Loren Coleman's article in Pursuit, Volume 15, Number 4, "The Strange Case of the Two Charlie Wetzels", is not only peppered with synchronous names, it is full of eights!

1958 - First paragraph mention of Bigfoot sightings

July 8 - Charles Wetzel's birthday

Nov. 8, 1958 - his sighting of the creature

1888 - birth year of the second Charles Wetzel

July 28, 1958 - date of his sighting

Furthermore, using the standard numerology system of assigning digits to the letters of the alphabet:

1	2	3	4	5	6	7	8	9
A	B	C	D	E	F	G	H	I
J	K	L	M	N	O	P	Q	R
S	T	U	V	W	X	Y	Z	

KFI, the radio station to which the first Wetzel was listening, breaks down to:

K	F	I	
2	6	9	2 + 6 + 9 = 17 1 + 7 = 8

The name of Jerry Crew, mentioned in the first paragraph is:

J	E	R	R	Y		C	R	E	W	
1	5	9	9	7	+	3	9	5	5	= 53 5 + 3 = 8

Jerry Crew reported "strange incidents" near Bluff Creek:

B	L	U	F	F	C	R	E	E	K	
2	3	3	6	6	3	9	5	5	2	= 44 4 + 4 = 8

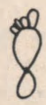
In numerology, numbers have characteristic qualities, and 8 represents organization. In true Fortean spirit, I must ask: Is there some organization effort represented in the network of events, people, dates, places (and even a radio station!) represented here?!

Incidentally, the author's name breaks down thus:

L	A	U	R	E	N		C	O	L	E	M	A	N
3	1	3	9	5	5		3	6	3	5	4	1	5 = 53

5 + 3 = (yes!) 8 !!

There are also a lot of 1's in the story, but I won't go on this way - other than to suggest that this whole thing may be Bigfoot's signature:



Anne FitzGerald

Anne FitzGerald

P.S. Pursuit is great fun!

The Pseudoscience of Antiufology

by Stanton T. Friedman

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TWO examples of the pseudoscience of antiufology have recently surfaced. Both involve the famous abduction of Betty and Barney Hill by UFO occupants in New Hampshire in 1961 and the associated star-map work done by Marjorie Fish. Both debunkers, Carl Sagan and the Amazing Randi, are members of that fascinating group of propagandists, the Committee for the Scientific Investigation of Claims of the Paranormal.

Dr. Carl Sagan is one of America's best-known scientists. His picture has appeared on the covers of Time and Newsweek magazines. He has made several appearances on the Johnny Carson show. Three of his books have become best-sellers; for one of them, *Dragons of Eden*, he was given a Pulitzer Prize. His COSMOS series for PBS-TV is in reruns and has been shown in many countries.

Much to his credit, Dr. Sagan has occasionally spoken out on controversial issues his academic colleagues have disdained to discuss, including, for example, the theories of the late Immanuel Velikovsky. From the mid-1960s onward he has spoken out about UFOs. He was one of six scientists who presented live testimony to a Congressional symposium on UFOs sponsored by the House Committee on Science and Astronautics in July 1968. He was a co-organizer of an all-day session on UFOs sponsored by the American Association for the Advancement of Science at its meeting in Boston in December 1969; he edited the proceedings of the session which Cornell University Press published in book form in 1972.

To raise one's hand in criticism of a colleague so renowned is always risky. Motives become suspect, expectations are questioned, and the critic soon learns, if he didn't already know, that many people prefer not to hear, listen to, or think about what the critic says or writes; they only wish he would go away.

Such a role does not become the serious scientist; those of us who work in the labs and libraries of current and historical investigation can only concur with the statement of purpose embedded in a recent "message" from the executive council of the Committee for the Scientific Investigation of Claims of the Paranormal: "We want to encourage public awareness of the need for scientific evidence as a basis of belief." But what are we to think when one, two or several members of the committee, having subscribed to the purpose, reject it in their actions and continue to "discover" only such evidence as will fit a pet hypothesis or personal speculation?

Admittedly Dr. Carl Sagan is a master of the written and spoken word; his charisma on camera excites envy. But a careful examination of what he has written and spoken suggests that he is much more concerned with cosmetics of style than with consideration of evidence. For example, he has written and stated in forums such as the Carson show that "there are interesting UFO sightings that are not reliable and reliable sightings that are not interesting, but there are no interesting sightings that are reliable and no reliable sightings that are interesting." The statement comes across with Dr. Sagan's usual vigor and aggressive confidence but without benefit of any data to support it or any reference to such data. No wonder: the statement is completely at odds with the facts!

The largest government-sponsored study of UFOs ever made showed the exact opposite: the most reliable sightings are the most interesting because they are most likely to be unidentifiable and *not* able to be classified as insufficient information. Dr. Sagan has, of course, seen these data in *Blue Book Special Report 14* but has, for whatever reason, consistently ignored them.

In his nine-minute presentation about UFOs on the "Encyclopedia Galactica" segment (December 14, 1980) of the COSMOS PBS television series, Dr. Sagan made statements that were false and left out very significant information that was true; the result was a serious misrepresentation of UFOs and the Hill case and star-map work in particular, communicated to a public which had every right to expect the truth, the whole truth and nothing but the truth from so eminent a scientist. Alas for those unsuspecting viewers, there was, and is, a great deal of information about the Hill encounter and the star-map work, all of it available at the time but ignored by Dr. Sagan then and since. John Fuller's book *The Interrupted Journey* is based primarily on the tapes made by the noted psychiatrist Dr. Benjamin Simon during some six months of weekly regressive-hypnosis sessions. There are five widely disseminated articles about the star-map work, including a series of pro and con comments which Dr. Sagan has.

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Sagan set the tone for the segment by saying "What counts is not what seems plausible, not what we would like to believe, not what one or two witnesses claim, but only what is supported by hard evidence. Extraordinary claims require extraordinary evidence." This is a reasonable requirement, but within seconds Dr. Sagan appeared to have forgotten it. "There must be other civilizations far older and more advanced than ours," he intoned—without then (or ever) providing any evidence to support his assertion.

Viewers might have expected this focus on evidence to lead into a discussion of the extraordinary evidence offered by the many multiple-witness cases, the more than 2000 landing-trace cases from 64 countries, the more than 3000

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pilots' UFO sightings reported from 40 countries, the combined radar-visual sightings, the dozens of abductions that have been investigated, the remarkable similarity of evidence from all over the world, and the still- and motion-picture footage that has been validated by scientific investigation. Instead, Dr. Sagan unlimbered another one-liner and fired it safely over the heads of those on the other side of the tube. "This subject," he said, "has more, I think, to do with religion and superstition than with science."

There is a large body of evidence and opinion taken from large segments of the scientific community and the general population concerning attitudes about UFOs; it is available in the public record for all to know:

—69% of scientists and engineers who expressed an opinion about UFOs accept UFO reality, according to a 1979 poll;

—all Gallup polls have shown that the greater the education, the more likely is acceptance of UFOs as real (almost 3 to 1 among those with college education);

—there are at least a dozen volumes of papers written by reputable scientists about UFOs;

—there are five or more Ph.D. theses about UFOs; and

—Sagan himself has published papers in volumes of good materials despite his own lack of investigation.

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Speaking of the Hill case, Sagan says: "They had observed, so they said, a strange moving light in the sky, by definition an unidentified flying object. It seemed to follow them for miles . . . after a time the lighting patterns on the UFO changed. It appeared to land. It blocked the road, preventing them from driving on. They said they saw mouthless creatures approaching who were not exactly human . . . At this point the story becomes still stranger. They lost all recollection of what happened in the next few hours. But weeks later, they said, they recalled some details and discussed the experience with others. Twenty-six months later, under hypnosis, they reported that a UFO had landed and that the crew had emerged. They were captured, they said, and then taken aboard the craft. That was the story . . ."

Anyone reading *The Interrupted Journey* would know this as a grossly distorted version of what happened, and not just because the memory block occurred before the UFO landed or because it landed off the road, not on it. The actual observations by Betty and Barney lasted longer than thirty minutes and involved the use of binoculars; their description was of a large, round craft with two rows of windows; it was seen from less than 200 yards away and was no mere "light in the sky." The night was beautifully clear with a bright moon and lots of stars visible; yet the dramatization by Los Angeles station KCET-TV showed the windshield wipers running! It had Betty and Barney staggering out of the car like absolute fools, beckoned by a Close-Encounter-of-the-Third-Kind light, with no beings around. The first hypnosis session took place 27 months after the event; more significant were the ensuing six months of weekly sessions, most with Betty and Barney hypnotized independently and amnesia induced afterwards. But no viewer of COSMOS would have had any reason to believe there was more than one session or suspect that such detailed recall was possible more than two years after the event.

Sagan spent several minutes misrepresenting the star-map work. He held up a drawing in which a number of points were connected by single, straight, solid lines, and went on to say: "She was also shown a strange window through which she could see a glowing pattern of dots connected with lines. It was, they told her, a star map displaying the routes of interstellar commerce . . . here's what Betty Hill said it looked like." But the simple drawing shown by Dr. Sagan was *not* at all what Betty drew. Her drawing, in response to post-hypnotic suggestion that it be done only if remembered accurately, had two large circles with five curved, solid lines between them. There were solid double-lines connecting several pairs of stars farther up. The lines are crucial because, as noted in the book, "the heavy lines were trade routes . . . the solid lines were places they went occasionally, and the broken lines were expeditions."

Another point-and-line drawing came into view and Sagan noted it had been "widely publicized by UFO enthusiasts." He didn't mention that the enthusiasts were scientists like myself. He further downgraded both maps (poor enough simulants to begin with) by getting rid of the lines altogether; they were irrelevant, he said, because "these particular stars are selected from a large catalog . . . our vantage point in space is also selected to make the best possible fit. If you can pick and choose from a large number of stars viewed from any vantage point in space you want, you can always find something resembling the pattern you are looking for."

It is strange indeed that nobody has found a better fit. Sagan's description was complete nonsense. He never mentioned the crucial work of Marjorie Fish, though the record establishes that he was aware of it. Ms. Fish built a total of 23 different 3-dimensional models of our local galactic neighborhood. She examined the models from all directions. She spent five years and thousands of woman-hours of labor trying to find a 3-d pattern that matched what Betty had drawn and that met a set of well-spelled-out ground rules. She found one, and only one, pattern that matched angle for angle and line-length for line-length. No viewer who had not read one or more of the many published papers about the project would have learned the first thing about the star-map work or Marjorie Fish, or would have detected Dr. Sagan's massive misrepresentation.

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Under rigorous examination, the pattern-stars recorded by Betty Hill all turn out to be sun-like stars. They were *not* pre-selected. They are the only ones that fit and the only sun-like stars in the specific volume of space—a 2/3 cube—found by Marjorie Fish to snugly contain the map. Of special importance is the fact that only about one-twentieth of the stars near us are sun-like stars. The chance that correspondence between what Betty drew and Marjorie found could be coincidence is something less than one

in a thousand. The pattern also makes sense on a 3-d "travel" basis (i.e., nearest star to nearest star); it includes the sun and defines the large, round, base stars. Obviously, a 3-d region of space with stars in it will appear different when observed from different directions. No drawing or 3-d model can replicate the view from all directions at once, although motion-pictures of a model taken from different vantage points might provide a reasonable simulation. No viewer could know without being told that the base stars were Zeta 1 and Zeta 2 Reticuli—the closest-to-each-other pair of sun-like stars in our neighborhood and about 1000 times closer to each other than our sun is to its nearest neighbor.

These simple but very important facts were not spelled out prior to Marjorie Fish's map work; the accuracy of her work has since been verified (and praised) by all of the several astronomers who have checked it. Still to be answered is a crucial question: Is the identification of these two special stars as the base stars of the Hill map a coincidence? Or . . . ?

Less important but nonetheless puzzling is Sagan's failure to mention Ms. Fish's work or refer to any of the numerous publications which have dealt with it in considerable detail. The time constraints of telecasting could not have bothered him that much, else why would the last portion of the UFO segment be devoted to showing pictures to the accompaniment of a script which could only have been intended to entertain viewers; it was almost completely devoid of evidential content. Why would a scientist be so unscientific?

A clue to his misbehavior may lie within (or behind) Sagan's closing comments: "The search for alien civilizations retains its importance despite the striking failure of the UFO evidence. . . . For myself I find something irresistible in the idea of discovering a token—maybe a simple inscription—which could provide a key to understanding an alien and exotic civilization." Could it also be that Dr. Sagan is loath to admit that important work establishing the probability of alien Earth-visitations might be accomplished by an amateur astronomer in her trailer-home, using evidence provided under hypnosis by a social worker and her postal-clerk husband, and not by such exalted seekers as himself?

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Protests were lodged to no avail with KCET-TV in Los Angeles concerning what appear to be clear violations of the FCC fairness doctrine in the COSMOS segment. In controversial issues of public importance the FCC requires that a reasonable opportunity be provided for presentation of contrasting viewpoints; and deliberate attempts to mislead or misinform the public are forbidden.

If the FCC equal-time rule offers only delayed and insufficient remedy for Dr. Sagan's journalistically and scientifically unethical TV segment, how much more difficult it is to deal with the even less-accurate published presentation of similar material by one of Sagan's CSICOP colleagues, the Amazing Randi, in his aptly titled book *Flim Flam* (Lippincott-Crowel, 1980). We hope that articles such as the one you are reading, letters to the editors in the U.S., Canada and beyond, and the consensus of many study groups will serve to straighten out his distortions.

Randi is a stage magician of considerable note and a self-professed master of deception. That he is neither a seeker for truth nor of scientific or objective bent is clearly demonstrated by his hatchet job on UFOs in general and the Hill case and Marjorie Fish's star-map work in particular. But Randi's main problem is getting his facts straight.

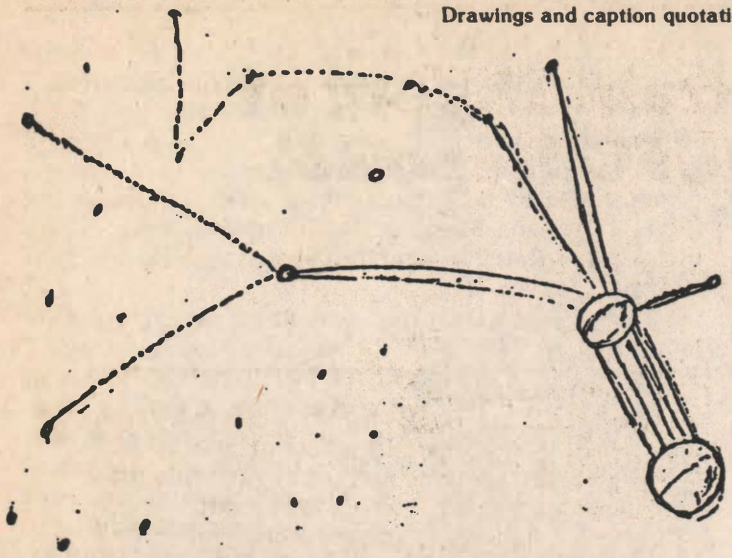
Writing of the Hill experience, Randi says: "It was immortalized in John Fuller's book *Incident at Exeter.*" There are all of 6½ pages about the Hill case in *Incident at Exeter*, but there are 350 pages about it in Fuller's *Interrupted Journey*. Randi says: "It seems evident that Mrs. Hill saw the planet Jupiter, talked her husband into believing it was a UFO and then imagined that she had been taken aboard and made to forget the experience which she remembered only after a dream of the supposed event kept recurring. But when she had her story in full bloom, Betty Hill was able to suddenly recall—three years after the event—that she had seen a navigation map in the control room and she sketched it for posterity. This map is one of several that are said to support the Hill claim."

It is difficult indeed to imagine a more inaccurate rendition of the Hill sighting, though perhaps some other CSICOP member could dream one up. Betty and Barney Hill *both* observed the UFO through binoculars; sketches of what they saw are in the *Interrupted Journey*; and if it was Jupiter or any other planet that was seen, how come no astronomer has yet told us that his more sophisticated equipment had also noted two rows of windows on the body and lights at the outside extensions?

Barney Hill's re-living of his abduction under hypnosis has enormous emotional content, as anybody who has read the book or seen the TV movie "The UFO Incident" would know. Both he and Betty reported their sighting to the U.S. Air Force shortly after it happened. To say that Betty "suddenly" recalled the experience is an absurdity to anyone who examines the transcripts of the weekly hypnosis sessions which began 27 months after the experience and ended 33 months afterward. Nobody connected with the case says the map represented a navigation map. Nobody says Betty was in the control room. She drew only one map, responding to post-hypnotic suggestion which included an important instruction: what she drew had to be recalled accurately or she should refrain from drawing it.

As to Ms. Fish, Randi generously admits to her existence (which Sagan failed to note) and her relevance to the Hill case. But when discussion turns to details of the star-map work, he lets us see just how amazing the inaccuracies of the Amazing Randi can be. He says: "She somewhat rearranged the viewpoint and redrew a section of the constellation known as Reticulum to conform." Total malarkey! Ms. Fish did an enormous amount of painstaking work. She made accurate 3-d models of our galactic neighborhood, some with as many as 250 color-coded beads hung on nylon fishline, each bead representing a particular star in its proper location in space. The base stars did, indeed, turn out to be located in the constellation of Reticulum, but the others are not. Randi doesn't seem to know that a constellation is a quite small

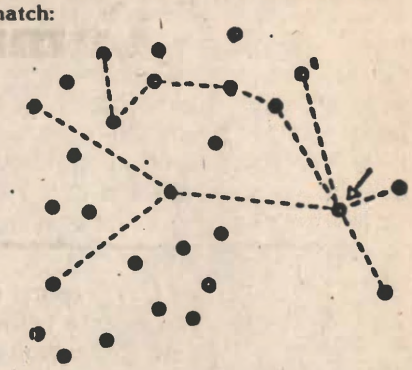
Drawings and caption quotations courtesy of Stanton Friedman

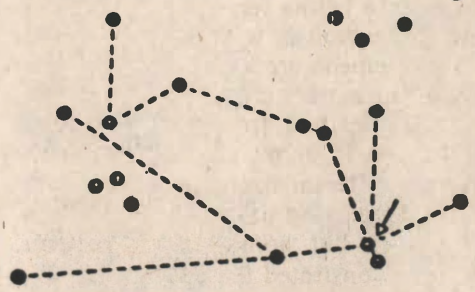


Fuller's *Interrupted Journey* displayed the above drawing in slightly larger size with the following caption: "Under hypnosis, Betty Hill described a map she was shown 'by the leader aboard the ship.' Later, she sketched it. She said she was told that the heavy lines marked regular trade routes, and the broken lines recorded various space expeditions."

Randi's *Flim Flam* incorrectly attributed the first schematic drawing to Betty Hill, then sought to debunk the " map" with three similar drawings, two more incorrect attributions and finally, an obvious mismatch:

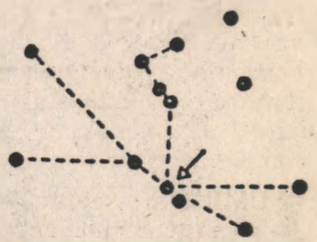
"Betty Hill's drawing of the aliens' stellar navigation map with 'trade routes' indicated. 'S' designates the sun; the arrow points to the aliens' home star."

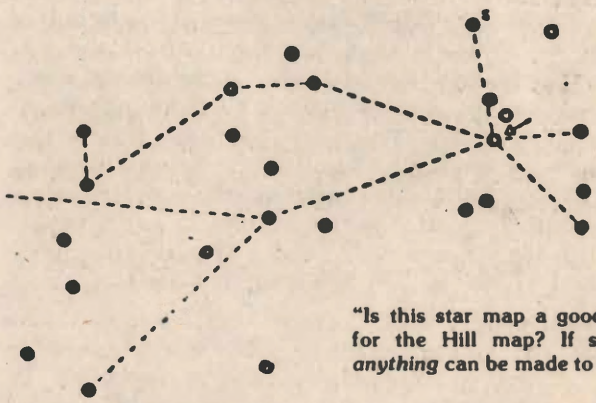




"A section of the constellation Reticulum, re-oriented and drawn by Marjorie Fish with Hill's 'trade routes' added."

"The constellation Pegasus as it appears on an ordinary star map, with Hill's 'trade routes' added as she saw them."





"Is this star map a good match for the Hill map? If so, then *anything* can be made to fit. . . ."

region of the sky containing stars at nearly the same angular direction from Earth but, in most instances, not close to each other. They may even be at greater distances from each other than they are from Earth.

Randi also presents a point-and-line drawing and claims that it shows what Betty Hill drew. It clearly does not, as anybody who had looked at Betty's map would know. Randi has single, straight, dash-lines making up the pattern. No multiple or curved or solid lines are shown, yet all are on Betty's map; thus Randi can do as Sagan did: throw out the lines and say that there is no correspondence between what Marjorie found from her 3-d work and what Betty drew. This is a bit like comparing Marilyn Monroe and a circus fat lady by looking at their skeletons and saying they are similar; the rest of the body is needed to get an accurate picture.

Randi, unlike Sagan, has no professional astronomer's axe to grind—not even an amateur astronomer's hatchet. Magic, not science, is Randi's milieu. Both men have favored the pseudoscience of antiufology in a remarkable mix of their talents, and there's no saying what effect this may have on the attitude of a public already confused by UFOs and possibly related phenomena. Whatever happens next, neither magic nor pseudoscience should be allowed to slow the search for evidence or tamper with it, or denigrate the obligation of science to investigate widely, to hypothesize reasonably, and tell the truth, the whole truth and nothing but the truth.

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The Tectonic Strain Theory of Luminosities (UFO Reports)

by M. A. Persinger, Ph.D.

Abstract

►Numbers of UFO reports (UFORs) frequently increase weeks to months before seismic events. These observations are commensurate with the explanation that most UFO phenomena are associated with tectonic strain within the earth's crust. Data from the Center for UFO Studies and from Fate magazine were examined through 1-, 3-, 6-, 12-, and 24-month time frames within different-size spatial windows. Temporal analyses employing six-month increments within relatively large but homogeneous tectonic regions optimally demonstrated the relationship between UFORs and consequent seismic activity. In the central U.S.A., UFORs tended to increase during the six-month increment just before an increase in V or less intensity earth tremors and to increase after very large quakes. A percentage change in the number of low intensity quakes was preceded by a comparable percentage change in UFORs. All major types of UFORs correlated with the optimal seismic measures; only the strangest type of reports were not significantly related. The space-time scales at which the phenomenon is most apparent strongly suggests the central role of some fundamental geophysical process.

Introduction

LUMINOUS, spherical displays with mean durations of about 10 minutes and spatial volumes in the order of 10 to 100 cubic meters have been frequently reported for hundreds of years. As social beliefs and cultural explanations changed, the names of these odd luminosities altered as well. During the eighteenth century, these peculiar lights were attributed to spiritual sources; during the nineteenth century secular labels, such as "odd luminosity," "airship," or "peculiar meteor train," were applied. More recent nomenclature such as UFOs, extraterrestrial crafts, or celestial guardians has reflected the interest in space research and substitution of traditional religious beliefs.

Explanations for UFO-related luminosities have been almost as numerous as the number of observations. Like the labels used in previous times, the explanations often reflect the fads and fallacies of a particular generation. To date only one theory has been developed that can (a) generate testable hypotheses, (b) be verified (or refuted) with available data, and (c) be used to *predict* the occurrence of UFO reports. As a reflection of the central process involved, it is called the *tectonic strain theory* of UFOs. [1,2,3]

Recent analyses employing extrapolations[4] from this theory have elucidated several interesting properties of UFO-related luminosities. Discriminant functions that accurately classified 95% of the cases Charles Fort reported as "odd luminosities" within European space between the years 1850 to 1900 accurately predicted *all* of the UFO flap periods between the years 1950 to 1980. In addition, these functions indicated that UFO-like reports *should* have occurred during the intervening decades. During these decades, there were no reports of UFOs and spaceships. There were reports, however, of mysterious airplanes, foo-fighters, and ghost rockets.

When applied to the U.S.A., the tectonic strain model has been equally illuminating. Multiple regression equations derived from UFO reports collected during the years 1950 to 1975 and applied to the years 1820 to 1949, accurately predict the famous 1947 flap. Interestingly, these equations also predict that an unprecedented flap should have occurred during the first half of the year 1897. Like the European data, these analyses also indicate that UFO-like flaps should have been present during the 1920s and 1930s. UFOs were not reported; odd airships and disappearing airplanes were often epidemic.

The central theme of this concept is that most (but not all) UFO-related luminosities are associated with tectonic strain within the earth's crust. As the strain accumulates locally, the likelihood of UFO phenomena being generated in the vicinity increases dramatically. The specific locus of UFO occurrences reflects the local spaces traditionally associated with strain accumulation (and release). Fault lines or fracture zones are obvious examples.

Tectonic strain in this context is a *hypothetical construct*. Although most geophysicists would accept the explanation that strain exists within the earth's crust, the existence of strain is inferred from distortions in surface topography, time-related, increased ellipsticity of round

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holes bored into rock beds, or rock bursts. Most of all, strain is inferred by the occurrence of earthquakes.

Tests of the tectonic strain theory of UFO-related luminosities have involved the most observable correlate of strain: earthquakes. Occurrences of earthquakes within an area indicate that strain has existed and hence the conditions for generating UFO-like luminosities have occurred. The theory does *not* state that UFOs cause earthquakes or earthquakes cause UFOs. Instead, the theory states that a third factor, *tectonic strain*, produces both UFOs and earthquakes.

The formal description of the tectonic strain theory is important at this point in the history of UFO research for two reasons. First, it has been frequently misconstrued by popular writers. Many journalists have assumed that UFOs occur only at the times of earthquakes. Consequently, UFOs occurring before or after earthquakes are not explained by the model. This interpretation is not correct.

Secondly, understanding the formal definition of theory allows one to apply it accurately. If UFOs are assumed to be associated with tectonic strain, then most UFOs should occur *before* earthquakes. An earthquake only verifies that stress and strain have been present. Since a specific area is prone to particular *patterns* of seismic activity, they could be used to infer which strain conditions are optimal to produce UFO displays.

Ultimately, the precision of the tectonic strain theory for predicting UFO events must be determined by the technology and methodology of the most relevant discipline, in this case geophysics. However, the first-order operations to determine the basic characteristics of a phenomenon are the same in all of the sciences. To solve a problem, the frontier researcher must know the optimal temporal and spatial windows in which to see it. Once established, the internal consistency of predictions generated from the theory and its reliable application in different situations can be evaluated.

Methods

Fine resolution of any phenomenon is limited by the measurement procedure and apparatus. Elementary positivism dictates that scientists do not directly study principles or operations. Instead, scientists really measure changes in instruments. We assume these changes accurately represent some fundamental and persistent process.

We do *not* directly measure UFO-related luminosities. Although most of us would agree that UFOs appear to share common characteristics throughout space and time, we have not measured the central processes. Instead, we have recorded what people *say* about UFO events; they are presumed to have occurred. In short, we do not measure UFOs, we record UFO *reports* (UFORs).

All scientific disciplines, from astronomy to zoology, have invested significant portions of their resources towards the determination of the *validity* and the *reliability* of central measurement procedures. Evaluations of validity are required to determine if the scientist is measuring what he or she is supposed (usually on the basis of some theory or assumption) to be measuring. Reliability is an indicator of the similarity of several repeated measurements in the same situation.

Few studies have addressed this problem in UFO research. UFORs are often assumed to be totally valid and reliable. If a person or group of people say they saw a round disc with portholes, many researchers assume the event (as described) actually occurred. If one researcher finds that there was a 100% increase in the number of UFORs in his sample, other researchers assume that this increase would have occurred if they had sampled as well. The many complex social-psychological and statistical processes that contribute to the UFOR measurement (what people report) are ignored.

Before the technology of modern geophysics can be applied to UFO phenomena, the problems of validity and reliability of measurement will have to be carefully considered. There is, however, a more fundamental presumption that must be recognized first. If the contributing variables to UFORs are considered to be more or less consistent, how well do they reflect the number of UFO *events*?

This question must be answered to determine the inherent error in the "measurement apparatus," in this instance, the human species. If each portion of the earth's surface was viewed by a human being, twenty-four hours of every day, then we could conclude that the total sample of UFORs closely approximates the total number of UFO events. (We still would not know any more about the validity of those reports, unless we had some other instrumentation, such as video recorders obtaining information simultaneously.)

If we assume that UFORs are only a sample of the total UFO events that have occurred during a particular time and in a specific space, then we can begin to analyze the UFO characteristics by determining the *relative* variation in different samples. Whereas one sample of UFORs with a baseline of let's say 1000 records per month may suddenly increase to 5000 reports, a second sample with a baseline of 10 reports may increase to 50 reports. Although the absolute number is different (and may reflect the number of operators in the field organization), the relative changes would be compatible.

To test this reliability across data samples, UFORs from two separate pools were obtained. The first pool was from CUFOs (Center for UFO Studies) in Illinois. The monthly totals of various UFOR types were obtained on computer tape for the years 1950 to 1970. The second pool was obtained from the reports published in FATE magazine. These reports had been placed on the master data file involved with previous studies and only required a sort program.

All analyses were completed with SPSS software on a Dec 2020 System computer. Since this report is concerned with the UFO phenomena and not statistical methods, specific procedures for determining distribution properties (means, skewness, measures of variance) will not be discussed in detail. However, they cannot be ignored in this research.

The CUFOS pool contained about 100 times the number of reports contained within the FATE sample. Between the years 1950 and 1970, for example, the number of total UFORs within the central U.S.A. from the CUFOS pool was about 8,000. A total of 80 reports were sorted from the FATE sample for this period.

CUFOS data are coded according to one of nine different types of UFO reports that reflect increasing properties of strangeness. A total of 2,200 of the reports were

specifically classified. The major portion of the reports for this region, about 70% of them, were left in the non-classified category. The correlation between each type of UFOR and the non-classified types with the total number of UFORs reflected the numerical weighting of the sample. For example, the non-classified cases, which characterized most of the reports were correlated 0.70 with the total sample. Only types VIII and IX were not significantly correlated with the main pool.

The FATE sample did not contain elaborate internal differentiations. In our original classification scheme, we allocated six categories of UFO types, similar in concept to the CUFOS file. However, the numbers of UFORs not classified in the main "general" UFO category were so small that they were not used in this analysis. The problems and limitations of this procedure have been discussed elsewhere.[5,6]

Correlation analyses between UFORs per six-month increment (January-June; July-December) for each year between 1950 and 1970 for the FATE data and similar data-arrays from the CUFOS sample, demonstrated coefficients between +0.40 and +0.70. All combined classifications within the CUFOS sample correlated about +0.45 with "general" UFORs within the FATE data. On the other hand, Type III and IV reports within the CUFOS sample correlated +0.65 with the FATE data. These types of UFORs involve "odd luminosities moving with peculiar trajectories," the kind most frequently reported in FATE as UFO events.

Numbers of reports can be influenced by multiple measures of the "same" event or by clusters of UFO events related to the "same" process. Thus if a flurry of UFO events occurred during a short period (a month) within a populated region, UFORs could be escalated significantly. Many of these UFORs would be in essence repeated measures of the same phenomenon. In this instance, simple totals of UFORs would not be reliable measures of UFO phenomena over time.

One way to attenuate this effect is to derive "flap scores" for each increment. Instead of dealing with actual numbers of reports, either a 0, 1 or 2 is considered. A "0" refers to a low frequency period (even though there may still be a constant stream of UFORs), while a "1" refers to a typical flap period. A "2" designation is reserved for extraordinary flap periods. During 20 years within the central U.S.A., for example, there have only been about 4 or 5 (about 10% of the time) superflap increments.

Correlations of flap scores between the FATE and CUFOs data were much higher. Flap scores for Type III and IV UFORs from the CUFOS sample correlated 0.80 with the flap scores for total UFORs within the FATE sample. The major discrepancy between the FATE and CUFOS data occurred for the years 1966 to 1968. Before and after this period, flap evaluations are remarkably similar.

In general, we can conclude that some sytematic response is being recorded. Two separate data samples, one based upon written correspondence and field investigations and the second based upon newspaper reports and personal interviews, demonstrated more or less similar fluctuations over time. The question of validity has not been answered. For now, we will assume that the number of UFORs are systematically related to the number of UFO events.

Measurements

Sometimes a phenomenon can be overlooked if the measurement is too crude or inappropriate. Total numbers of UFORs per unit time is the simplest form of

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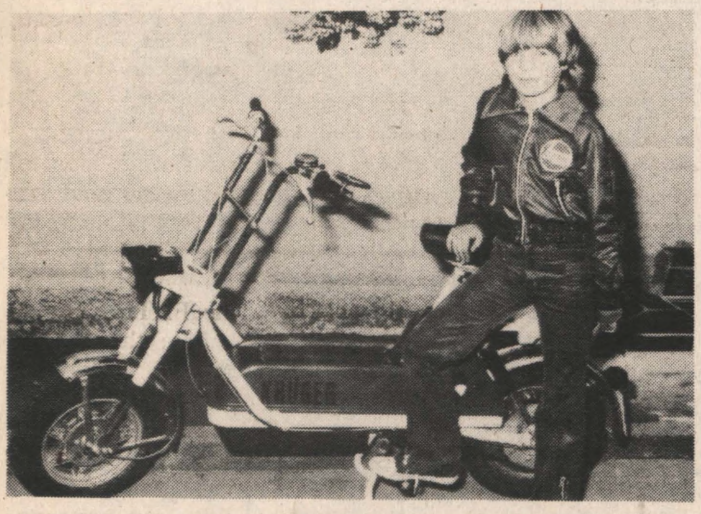
"... as there has been a steady erosion in U.S. activity in the basic sciences, there has been an increase in the level of such activity in Western Europe and Japan. If that continues, we are in danger of losing our position of scientific leadership." —Val. L. Fitch, Professor of Physics at Princeton University, in an interview with U.S. News & World Report magazine, June 21, 1982.



'Watch me!'

New-Age Energy Technology

Newsnotes by Dr. Rolf Schaffranke

West Germany: The prototype first motorcycle equipped with a "flux motor" (the inventor's designation for a tachion field converter or gravity-field generator) of 2 KW output has completed a test run of approximately 20,000 km without any repairs. Its principle of operation: The T-converter is constantly recharging the electrical power battery of the vehicle, resulting in an operation which is noiseless, fuelless and polution-free. . . . A new factory for the production of gravity-energy-field converters in the town of Oldenburg is scheduled to produce individual home heating units. The design of automobile power plants based on the same principle is also in preparation. Probable efficiency factors of several hundred percent are anticipated.

Japan: Mazda continues research on the "magnetic Wankel engine" (45 HP) for electric automobiles, based on the principle of Kure Tekko. The gravity research of Prof. S. Seike is now sponsored by Hitachi, after millions of Japanese received updated information via popular

(Continued on page 45)

measurement. With this procedure, the total numbers of UFORs, regardless of category or classification, are correlated with the total number of appropriate seismic measures. Figure 1 contains a scattergram of the relationship between UFORs and V or less intensity (Modified Mercalli) quakes within the central portion of the U.S.A.

The correlation coefficient for this relationship is +0.70. Stated alternatively, about 50% of the variance in UFORs can be accounted for by knowing the seismic activity (or vice versa). Note the existence of the outlier. This single point, when 25 quakes were associated with 850 UFO reports, has the potential to distort the relationship. In this instance, however, the removal of this single point does not appreciably lower the correlation coefficient.

One way to attenuate the effects of "outliers" and the existence of skewness within a data sample is to calculate square root values. Most of my analyses include square root values of UFORs and earthquakes as well as the absolute data. Calculation of square root values preferentially attenuates the larger (outlier) values. Since they often reflect non-linear processes and most statistical models are based upon linear assumptions, square root operations frequently reduce error measurements.

A non-linear process is something that may not be involved with the same source of variance as the other points. For example, a large outlier may reflect another phenomenon altogether. One candidate that may contribute to the inflation of UFORs, especially during flap periods, has been social facilitation. It is manifested in non-systematic, excessive media coverage or social climate. Both contribute to "band wagon" effects.

Another measurement problem that has entered in UFO research is the change in collection criteria or data source. Whereas the FATE source has been subject to more or less the consistent selection criteria of the editors, the massive CUFOS data sources have changed. A large portion of the data before 1965 was derived from *Project Blue Book* or related sources. Data after this period involve inputs from correspondence and specific field groups. The sudden shift is clearly evident when the cumulative record of the number of UFORs is graphed as a function of years (Figure 2).

These problems plague more than just the larger organizations like CUFOS. As interest changes and specific field researchers join or resign from field committees, the absolute number of UFORs recorded may change dramatically. In addition, there is "habituation variance." A mediocre UFOR may receive excessive coverage following a paucity of reports while a very important UFOR may be ignored if it is occurring during a large flap period.

One interesting trend in many UFO organizations, even in Fort's collection period, is the gradual and continuous increase over time in UFOR numbers as the key investigators become more organized or more selective in their interests. Often this increased slope of UFORs over time is misconstrued to represent an increase in UFO

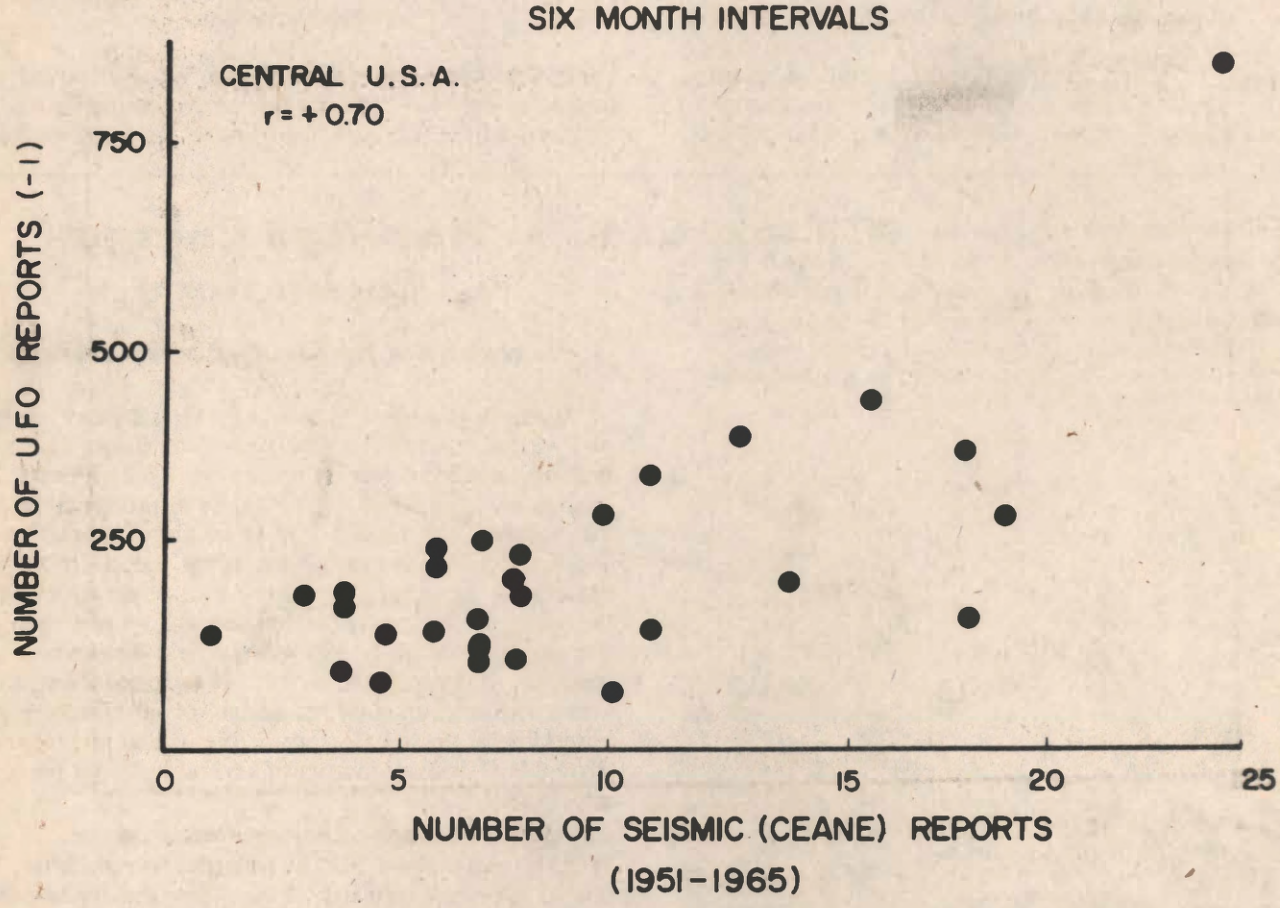


Figure 1. Scattergram of the numbers of V or less intensity (Modified Mercalli) earthquakes within the central, northeastern and eastern regions (CEANE) of the U.S.A. and the total number of UFORs (from CUFOS) in the central U.S.A. during the previous six-month interval (-1) for the years 1951 to 1965.

'Precise elucidation of the controlling variables of UFO phenomena should not detract from the mystery of Fortean events. Indeed, it increases the appeal even more. For now we know there is an empirical handle by which we can open the door to even more profound discoveries.'

phenomena when actually it simply reflects artifacts of sampling procedures. The actual numbers of UFORs may not have changed if the data sampling procedures had been kept constant.

One way to attenuate this problem is to use measures of *percentage change* over time. With this method, a given increment of analysis is used, let's say, six months. For demonstration, a six-month increment was selected that involved the total number of UFORs during January to June and July to December of every year in the data sample. To calculate percentage change over time (a routine procedure with SPSS software), the numbers of UFORs in a given increment is subtracted from the numbers of UFORs in the previous increment. The difference is then divided by the total number of UFORs in the previous increment and multiplied by 100.

The measurement is called percentage change and indicates the relative alteration with respect to the previous increment. A major advantage of this measurement is that abrupt shifts in data sample numbers do not adversely affect it. Suppose, during a period when a UFO organization was beginning, two adjacent increments shifted from 20 to 200 UFORs during the six-month increment before an increase in earth tremor activity. A few years later, after the organization had gained broader data coverage, two adjacent increments shifted from 200 to 2000 UFORs before the *same type* of increased earth tremor activity. Ordinary correlation analyses with absolute values would not detect the UFOR-tectonic relationship.

However, the percentage change in UFOR measures would clearly show the tectonic effect because the relative change within the data samples would be the same for the same number of earth tremors. The only major deviation from the pattern would occur at those key interface years (increments) when the small data samples merge with the larger data samples. This would be seen in a cumulative record of UFORs as a sudden jump and maintained change in the baseline.

In the CUFOS data file, a sudden jump in the numbers of UFORs occurred after the year 1965. After that year, the strong correlations between UFORs and earthquake numbers dropped precipitously (shown in Figure 2). Even

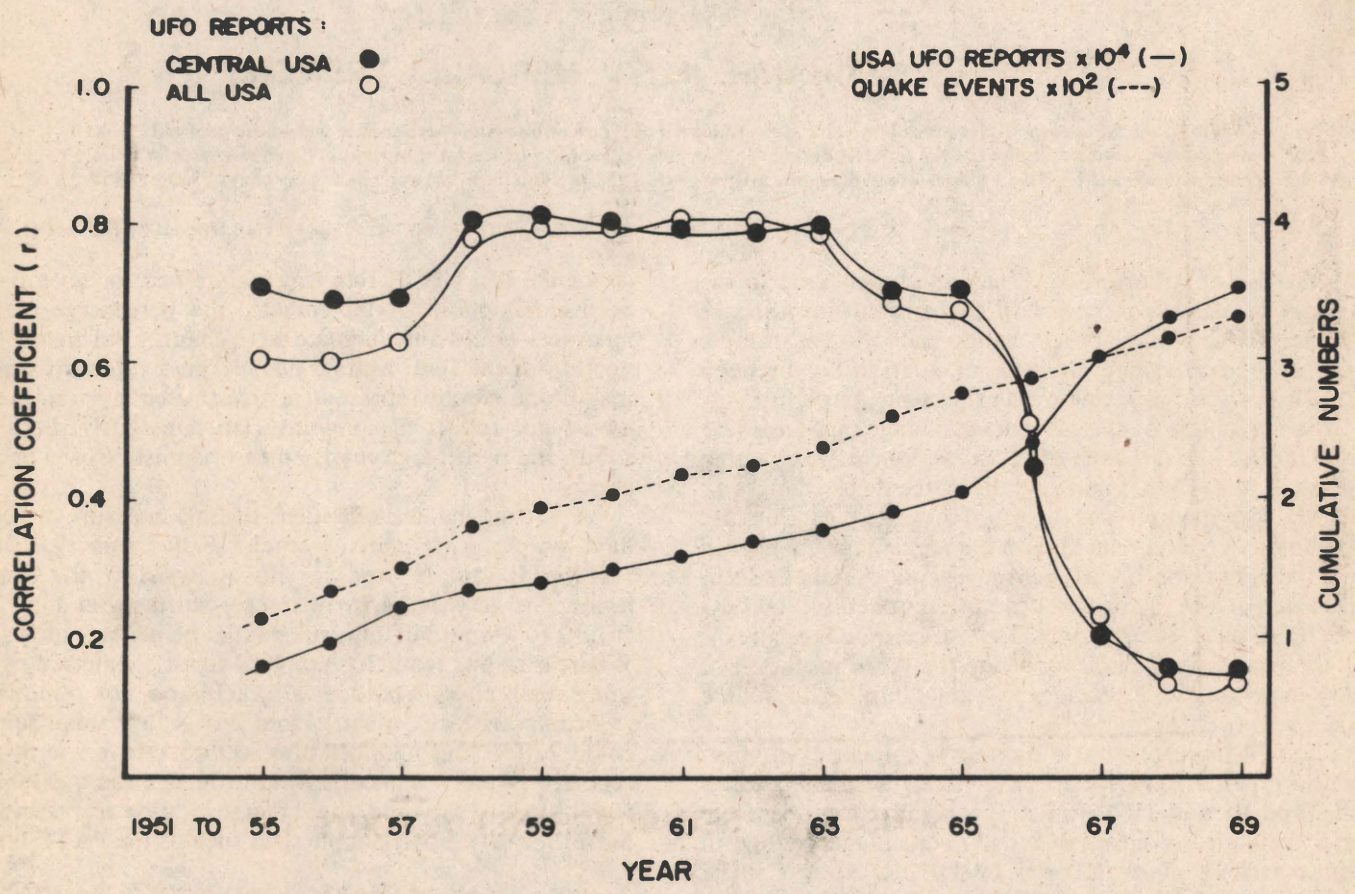


Figure 2. Correlation coefficients between numbers of low intensity tremors and UFORs during the previous six-month period as a function of years. The solid line (small closed circles) refers to the cumulative numbers of UFORs throughout the U.S.A. from the UFOCAT file while the broken line (small closed circles) refers to the cumulative numbers of low intensity quakes within the central U.S.A.

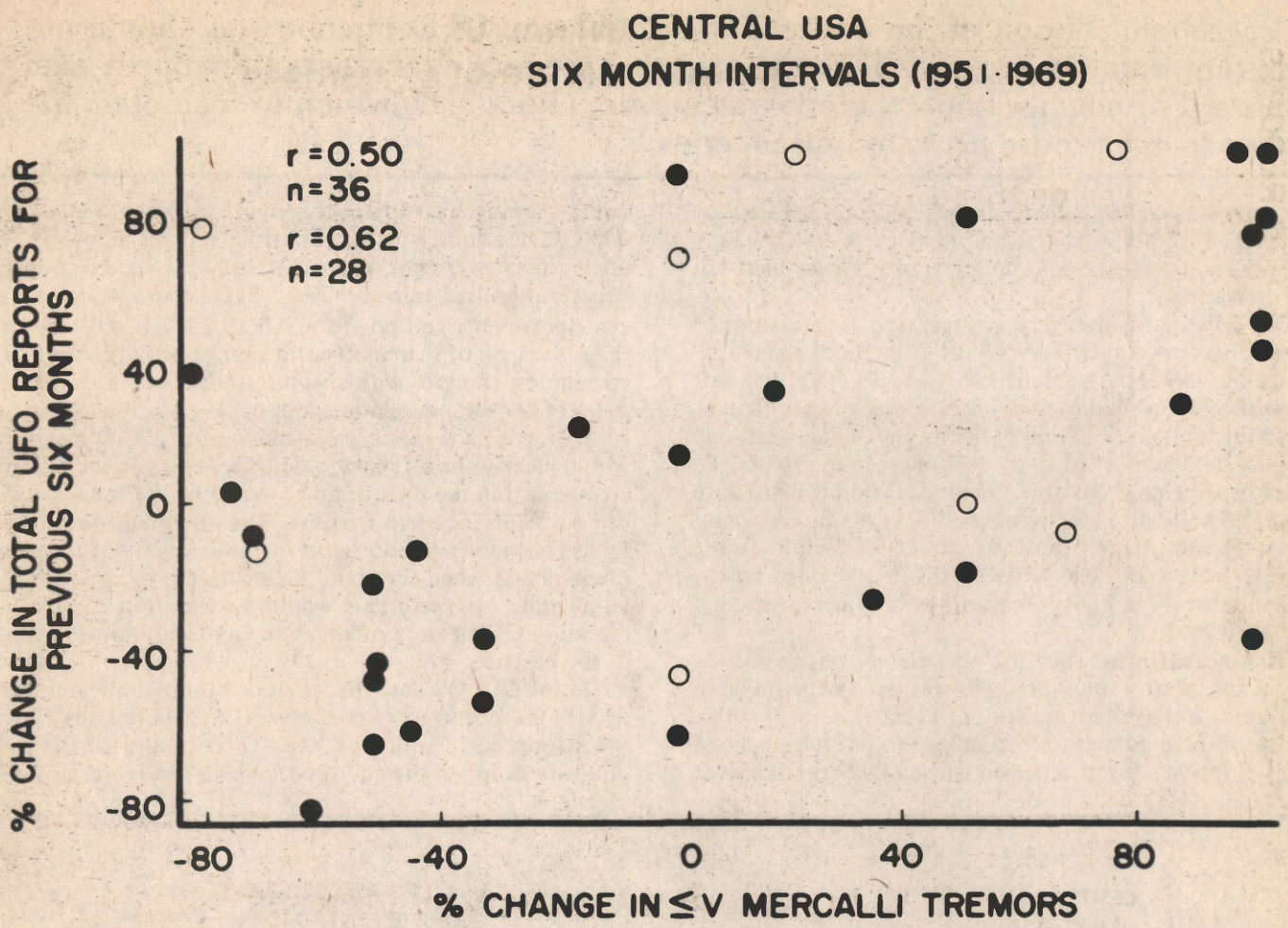


Figure 3. Scattergram of the percentage change in numbers of V or less intensity earthquakes within the central U.S.A. and the percentage change in total UFORs during the previous six-month periods for that region. Open circles refer to increments after 1965. Two r values are shown, one for the years 1951 to 1965 (n = 28) and one for the years 1951 to 1969 (n = 36).

Charts and tables for this article and map on facing page were prepared by the author.

with the use of square root values, the large jump in the numbers of UFORs recorded by that organization masks the effects. On the other hand, the FATE sample demonstrated the same intensity of relationship between UFORs and seismic activity, regardless of the period.

The usefulness of the percentage change measures (for both UFORs and numbers of earth tremors) can be seen in Figures 3 and 4. In Figure 3, the percentage changes in UFORs from the previous temporal increment (in this case six months) were correlated with the percentage changes in the numbers of appropriate seismic events. As can be seen, regardless of the change in absolute numbers of UFORs in CUFOS data, the relationship with seismic measures is still clear. The open circles indicate the years suspected of being interfaces with changes in data sampling or source procedures (i.e., after 1965).

Figure 4 indicates that the effect is evident even when specific types of UFORs are considered. It demonstrates that Type III and IV UFORs, specifically, are positively and systematically correlated with percentage change in seismic activity. Type III and IV UFORs appear to be modern examples of the classic luminosity reports mentioned by Charles Fort.

The major disadvantage of this measure is that it reflects *only* relative changes from the previous increments. If a UFOR flap was maintained for several successive (six months) increments, the percentage change measures would only indicate large changes during the *first* portion of the flap. Maintained elevated values of similar magnitude would represent no *relative* change and hence would not reflect the ongoing flap. Obviously, both absolute and percentage change measure must be used in concert.

A secondary disadvantage of this measure involves data samples with relatively small UFOR numbers, such as the FATE sample used in this analysis. If the sample number is very small, then integer shifts from 1 to 2 or from 2 to 4 would involve substantial percentage increases. Whereas a shift from 2000 to 4000 reports collected by the same researchers would in all likelihood not respond to recording artifacts, a shift from 2 to 4 in a small sample could reflect the nuances of selection. An error of one report, in these instances, could influence the measure by 50%. Most of the time, these measures have not been very useful for very small sample sizes such as the FATE series.

Optimal Increment of Space

Our previous work[2,5] indicated that spatial increments in the order of one degree longitude-latitude blocks are

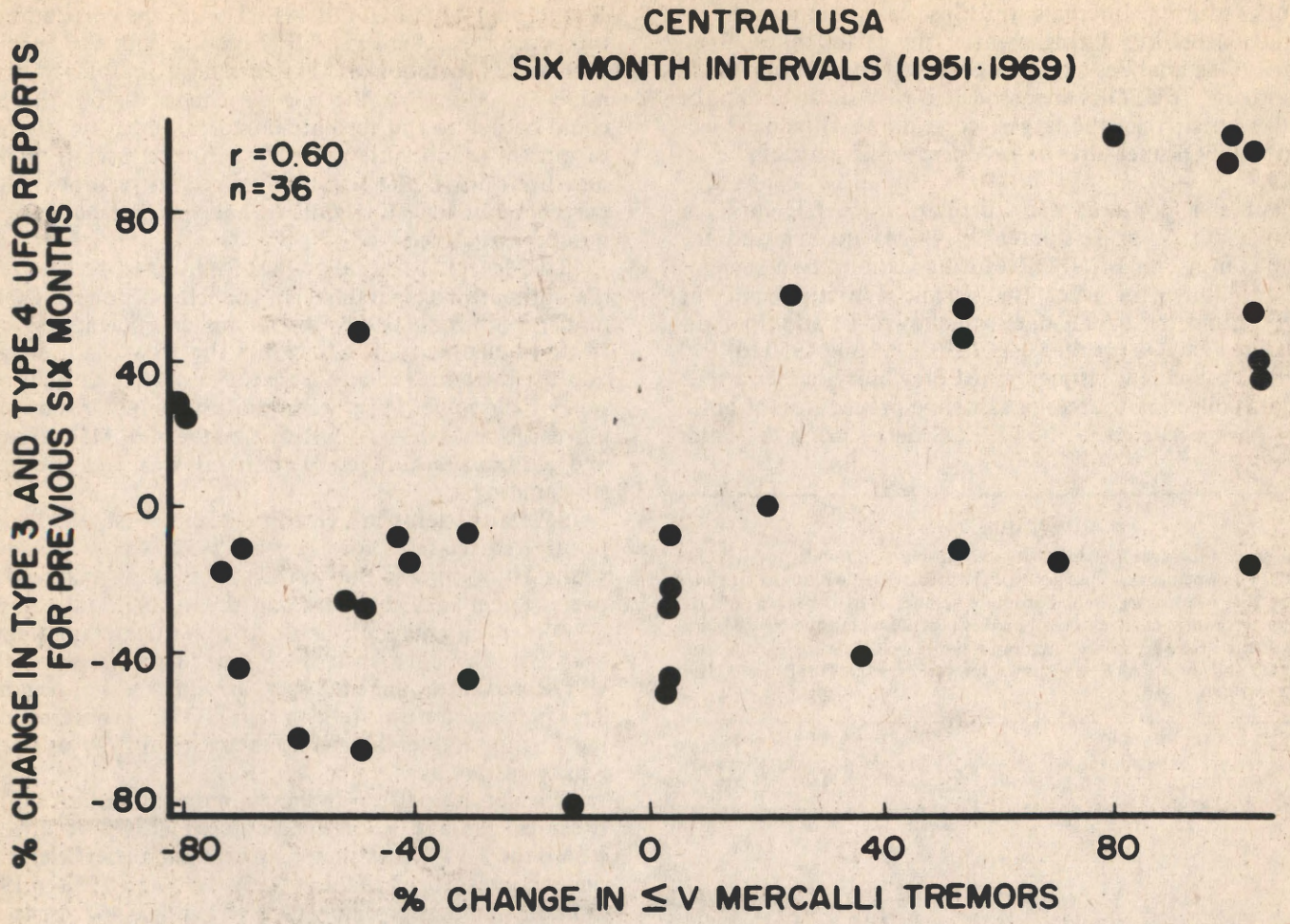


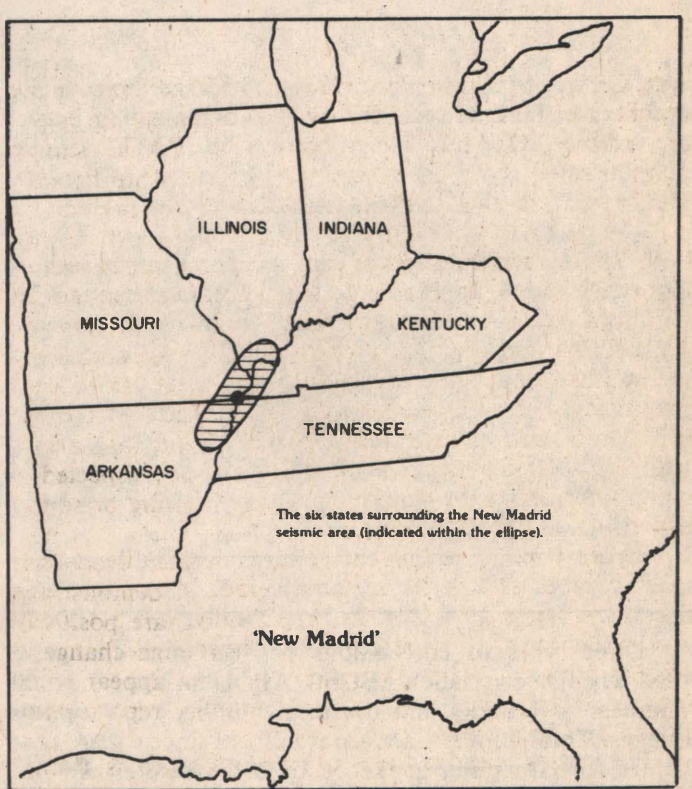
Figure 4. Scattergram of the percentage change in the numbers of V or less intensity earthquake numbers within the central U.S.A. and the percentage change in Type III and Type IV UFOCAT luminosities during the previous six-month periods.

minimal areas to discern the large-scale relationships between UFO reports and seismic activity. Even with this increment, there was significant spatial displacement, that is, the maximum relationship between UFO report numbers and seismic activity could occur within adjacent increments. Increments the size of the United States as a whole, were too large. They over-included areas with different seismic signatures and UFO patterns, producing an average that masked important individual differences within areas.

To determine "window size," UFORs were selected for the New Madrid states (Missouri, Arkansas, Illinois, Kentucky, Tennessee, and Indiana). The temporal increment of analyses for this part of the study was six months. Measures of UFORs within these areas for January to June and for July to December for these years were calculated by computer. Total number of intensity V (Modified Mercalli) earthquakes or intensity VI-VII, were also determined from Boulder, Colorado, data sources for these areas and this period.

The various UFOR measures for the CUFOs and FATE data were lagged ±2 increments from the contemporary interval by SPSS software. Detailed descriptions of symmetrical temporal lag analyses have been discussed earlier.[6] Such analyses allow quantitative comparisons of

(Continued on next page)



The six states surrounding the New Madrid seismic area (indicated within the ellipse).

UFORs during intervals (in this case, six-month increments) before, during or after the earthquakes. Symmetrical lag analyses can be used to test the tectonic strain hypothesis. If UFORs are associated with strain within the earth's crust, then the largest correlations should be evident in UFOR measures *before* increases in earthquake activity.

Table 1 contains the correlation coefficients for numbers of V or less intensity (MM) quakes and the various measures of UFORs during six-month increments before, during or after the seismic activity. Both the CUFOs and the FATE data are shown. In addition, the separate analyses for the years 1950-1965 and 1950 to 1970 are also presented. As mentioned previously, either a shift in data collection sources or sampling procedures (or both) may have occurred in the CUFOS data during the latter period.

TABLE 1

Lag correlation coefficients between absolute numbers of UFORs (ABUFO) or percentage change in UFORs (%UFOR) within the six states of the New Madrid region and absolute number of earthquakes (ABQU) or the percentage change in earthquakes (%QU) within the New Madrid area or this area plus the surrounding states. Two data samples, one from CUFOS and from FATE, are shown for two intervals (1952 to 1965 and 1952 to 1969).

	SIX STATES			SIX STATES + SURROUND		
LAG	ABUFO/ ABQU	%UFOR/ ABQU	%UFOR/ %QU	ABUFO/ ABQU	%UFOR/ ABQU	%UFOR/ %QU
			1952-1965 (28 cases)			
			CUFOS			
-2	-0.16	0.02	-0.00	-0.19	-0.06	-0.30
-1	0.36	0.13	0.08	0.75*	0.47*	0.47*
0	-0.04	-0.15	-0.15	-0.05	-0.33	-0.22
+1	-0.05	0.19	0.08	0.06	0.22	0.31
+2	-0.08	-0.07	-0.05	-0.31	-0.40	-0.45
			FATE			
-2	0.05	-0.19	-0.28	0.08	-0.17	-0.36
-1	0.41	0.28	0.26	0.58*	0.34	0.22
0	0.05	-0.16	-0.22	0.09	-0.17	-0.06
+1	0.04	0.10	0.04	0.04	-0.06	-0.05
+2	0.02	-0.04	-0.14	0.04	-0.04	0.01
			1952-1969 (36 cases)			
			CUFOS			
-2	-0.01	0.00	0.03	0.15	-0.11	-0.28
-1	-0.25	0.11	0.13	-0.23	0.39	0.39
0	-0.28	-0.19	-0.28	-0.22	-0.31	-0.31
+1	-0.19	0.19	0.35	-0.04	0.25	0.29
+2	-0.07	0.00	-0.41	-0.11	-0.29	-0.32
			FATE			
-2	-0.03	-0.21	-0.28	0.10	-0.15	-0.27
-1	0.40	0.25	0.25	0.55*	0.26	0.17
0	0.04	-0.17	-0.21	0.07	-0.14	-0.13
+1	0.04	0.09	-0.02	0.06	0.00	0.08
+2	0.04	-0.01	-0.12	-0.03	-0.00	-0.07

* $p < .01$

Three types of correlations between measures were used. The first correlation ABUFO/ABQU involved the total numbers of UFORs and the total number of V or less quakes. Total numbers are reported here since square root values for either the quake or UFOR measures did not significantly alter the magnitude of the coefficients. The second method (% UFOR/ABQU) was the correlation of the percentage change in UFO reports with the absolute numbers of earthquakes. This was done in order to determine any effects in the relative change in UFORs that could be tied to the absolute numbers (intensity of strain) of quakes (or the inferred total strain release). The final measure (% UFOR/% QU) involved correlations of the percentage change in UFORs with the percentage change in numbers of quakes.

Two levels of spatial analyses were used to determine the optimal space parameters. The left portion of Table I (under "Six States Only") contains coefficients for correlations between UFORs within the New Madrid states and the earthquakes within that area *only*. The right portion of the table ("Six States and Surround") shows the correlations between UFORs within the New Madrid states and earthquake numbers within this area *plus* the states surrounding it.

Several patterns are clearly evident. First, the highest positive correlations for the years 1952-1965 were (a two-year shift is required due to the nature of lag analyses) between earthquake numbers and the absolute numbers of UFORs during the previous six-month interval (lag = −1). In all other instances, the correlations between UFOR and earthquake numbers are either less or negative. This pattern confirms reports that UFORs proliferate during six-month intervals before increases in IV-V or less intensity earthquakes.[3]

The second pattern is the maintained relationship between earthquake activity and antecedent UFOR numbers within the FATE data sample. Correlation coefficients for the two intervals of analyses (1952-1965 and 1952 to 1970) did not change appreciably (+0.41 and +0.40, respectively, for the first spatial analysis; +0.58 and +0.55, respectively, for the second spatial analysis). The CUFOS results, however, demonstrated significant alterations when data after the year 1965 were entered. The highest correlations involved the percent change variables which tend to attenuate the effects of shifts in absolute numbers.

The third and most important result is the difference between the left and right portion of the table. Correlation coefficients between UFOR and seismic measures are significantly higher if the numbers of low intensity tremors from the areas surrounding the New Madrid states are included in the analysis. For example, in the CUFOS data, the correlation between earthquake measures within the six states and antecedent UFORs was only 0.36. When the UFORs from the previous six-month interval were correlated with earthquake numbers within the six states *plus* the surrounding states, the coefficient was elevated to +0.75.

These data indicate that a substantial portion of the variance in earthquake numbers required to explain UFORs may originate from outside the area. Both the FATE and CUFOS data demonstrated that earthquake activity in the surrounding states contributes to the variation in UFO report numbers within the New Madrid states. This difference was quite large. Without seismic data from the surrounding area only 12% rather than 50% of the variance in UFOR numbers was accommodated.

Extrapolation of these results to other spatial regions of the world would be premature at this time. Depending upon the characteristics of local geology, the interaction between near- and far-field stresses and the overall intensi-

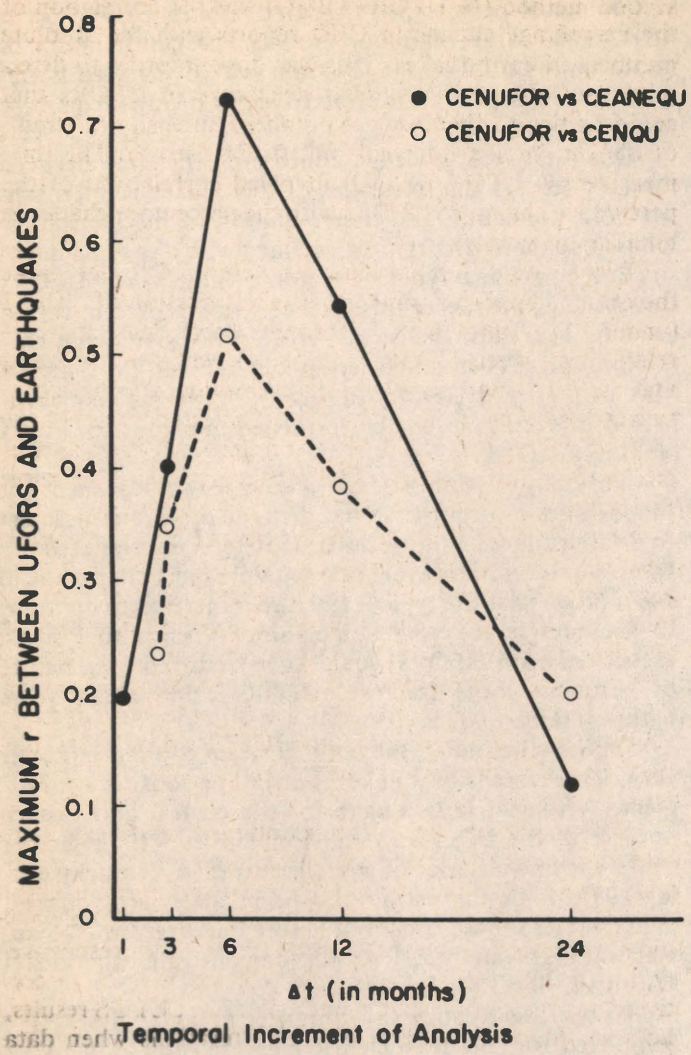


Figure 5. Maximum r (correlation coefficient) values between UFORs and earthquake numbers as a function of the temporal increment of analyses (in months) for UFORs within the central U.S.A. and earthquakes throughout the central and eastern portion of the U.S.A. (closed circles) and for UFORs within the central U.S.A. and quakes within that region only (open circles).

ty of the strain accumulation within crustal blocks, the "optimal" area could change quite dramatically. The critical feature for the UFO field researcher is that a significant portion of the strain involved with UFORs in his proximity may be manifested in strain displays (earthquakes) many hundreds of kilometers away.

Optimal Increment of Time

To determine, empirically, the optimal temporal increment, data from CUFOS for the years 1952 to 1965 from the central U.S.A. were used. They were sorted into the following temporal summaries: 1 month, 3 months, 6 months, 12 months, and 24 months. The one-month increment simply involved the totals of UFORs for each month during that period. Totals of UFORs for every two years, starting with 1950-1951, etc., determined the last increment.

Intensity V or less earthquake numbers for each of these temporal increments were determined for the area from which the UFORs were taken (the central U.S.A.) and for central, eastern, and northeastern (CEANE) sectors. The latter area was included in light of the analyses in the last section. One would expect that even at large areas, earthquake activity from adjacent areas could contribute to the UFORs within a region.

The results of both analyses are presented in Figure 5. Like the analyses reported in the previous section, the largest correlation coefficients occurred between UFORs and the earthquake numbers both within and around (in this case the eastern half) of the region. The bivariate relationship between UFORs and earthquake numbers within the central section are still statistically significant, although the magnitude is somewhat less.

Quite clearly, an optimal temporal increment of analysis exists within the CUFOS sample. Both spatial areas indicate that maximum intensity bivariate correlation coefficients occurred within temporal increments of about six months. Significant correlations between UFORs and earthquakes were still apparent for the 3-month and 1-year increments. Shorter or longer increments did not reveal the relationship.

The coefficients presented on the vertical (Y) axis of Figure 5 indicate the maximum r value of any increment within the ± 2-year symmetrical lag analyses. As one would expect, the actual lag value of the maximum r changes with the analysis increment. Whereas the 6-month increment analyses involved lag = −1, the 3-month increment analyses isolated lag = −2, that is, two 3-month increments before an increase in earthquake activity. The 1-month increment data demonstrated the maximum r at lag = −4, or 4 months before the change in earthquake activity.

If this pattern is consistent, analyses increments of larger than 6 months should not have demonstrated significant lag effects. Instead, the maximum r should have involved contemporary (no lag) intervals. This observation was clear with the 24-month increments and less evident with the 12-month procedure. In the latter case, both the contemporary and the previous (year) interval were comparable in r values. Since a 12-month increment could still be dominated by the 6 months before the quake measure while a 24-month increment would be weighted by three other intervals besides the antecedent one, this pattern is expected.

Yearly increments of analyses have produced very large relationships between UFORs and earthquake activity, particularly in FATE data. In several previous studies[6,7] correlations of greater than +0.80 have been noted between UFORs and V or less tremor numbers within the same year for the central U.S.A. and the New Madrid states for the years 1948 to 1974. It is possible that, like the optimal spatial increment, the appropriate temporal increment of analysis could vary in different places.

The major limit of the present analysis is the *fixed* time span. For example, in the 3-month increments, which involved total UFOR measures for January-March, April-June, July-September, and October-December for each year, the analysis window is not flexible. Implicitly these analyses assume that the temporal lag between UFORs and earthquake incidence does not change over the years.

It is quite possible that there is a "changing or oscillating latency," much like a "moving average" within the data train. Visual inspections of the data and extrapolations from the tectonic theory suggest this effect. Indeed,

one expects that from time to time, the rate of strain accumulation should change as far-field stresses dominate the tectonic region. Consequently, the optimal temporal lag between UFORs and tremors would change as well.

This relationship should not be confused with a change in the number of tremors. A marked increase or decrease in the number of V or less quakes would still be reflected systematically in the *number* of UFOR measures. However, if the number of tremors within a given increment is *also* correlated with a change in the rate of strain accumulation, then the UFOR-seismic relationship could be markedly attenuated with a fixed-interval analysis.

If the optimal latency between UFORs and seismic activity ranged between 2 months and 8 months over several decades, then 3- or 6-month analyses would consistently miss the total pattern. Sometimes the relationship would fall within the first lag while other times, it would fall within previous lags. Without taking the changing time-lag into consideration, it may be difficult to isolate the intricate dynamics required for prediction.

One example of this pattern was found within the 1-month increment data for the years 1951-1955 in the CUFOS data. For this period only, V or less MM quakes correlated between +0.40 and +0.60 with all UFOR measures during the previous four months! Scattergrams demonstrated an extraordinarily systematic relationship for this period. In consequent periods, the optimal lag was no longer fixed but seemed to vary between one and five months.

There may be still longer optimal increments, especially if very slow shifts in seismic baseline activity occur over decades. The data arrays for the central U.S.A. are too short for long-term analyses. However, time-series of earthquake activity in central Europe clearly indicates an 11- to 12-year and possibly a 20-year periodicity in the numbers of seismic events. UFORs would ride on this baseline as well. Most year-to-year UFOR fluctuations would reflect the immediate change in tectonic strain.

The absolute number of UFORs should crest during peak seismic decades. A conspicuous shift in the baseline of numbers of UFORs was obvious in Great Britain during the great seismic bursting between the years 1890 and 1896 and 1900 to 1914. A worldwide escalation of UFOs, sampled from sources in Europe, the U.S.A. and South America, reflected the unprecedented peak in worldwide seismic activity between the years 1905 and 1908. Such activity levels were not evident again on a worldwide basis, for either UFORs or seismic activity, until the year 1954!

Optimal Earthquake Intensities

Most luminosities, as measured by UFORs, should become more evident during periods of increased tectonic strain or changes in strain. As early as 1974, when *Space-Time Transients and Unusual Events* was being written, the clearest seismic-UFO relationship involved IV-V or less MM intensity quakes. Technical works published since then have emphasized such small-intensity quakes. In general, they are equivalent to approximate 2.0 to 3.0 magnitude events.

The tectonic strain model does not necessarily preclude other relationships. Since the critical factor is crustal strain, luminosities could also occur, theoretically at least, after earthquakes, if strain was still evident. From a strictly seismological perspective, this kind of strain could occur after single large or major events. The continuation of strain or the adjustment to strain within the area is frequently indicated by a protracted series of low-magnitude aftershocks.

Quantitative knowledge concerning the time between the UFORs and the intensities of the quakes is important for both prediction and determination of mechanism. If we assume that UFORs are associated with a specific intensity (or correlated type) of tectonic strain, then UFORs should occur whenever this level of strain is present within an optimal area of the earth's crust. Since significant correlations have been noted repeatedly between IV-V or less MM quakes and UFORs during the previous six-month period, the strain levels that preceded these quakes would be one candidate.

Normally, within a given area one would expect the luminosities to occur first and then, as the strain increases to fracture levels, the seismic activity is precipitated. In some instances, however, one would expect the strain to accumulate past the typical fracture levels and to continue to accumulate for some time. Since the optimal strain associated with UFORs would have occurred long before the ultimate large fracture, UFORs could occur years before intense quakes.

On the other hand, the optimal strain could occur after very large intensity quakes during periods of adjustment. A typical large quake for the central and eastern portion of the U.S.A. would be intensity VII or greater MM. The last instance of a VII occurred in Kentucky during 1980. If optimal strain did occur after large quakes, then UFORs should occur not before but *after*wards. Symmetrical lag analyses would demonstrate significant "positive" lags.

To test this hypothesis, symmetrical lag analyses were completed for the three UFOR measures and either V or less intensity quakes or VI or greater intensity quakes within the central U.S.A. and the central, eastern and northern (CEANE) U.S.A. The analyses were applied to both the CUFOS and FATE data samples for the two intervals (1952-1965; 1952-1970). Six-month analysis increments were used.

The results of the CUFOS analyses are shown in Table 2. Again, for the smaller quakes (V or less), the most significant effect occurs between earthquake numbers and the numbers of UFORs during the previous six-month period (lag = −1). This relationship is evident for all measures during the 1952-1965 period. The trend is even obvious within the longer period, particularly in the percent change evaluations, although the correlation coefficients are barely statistically significant.

UFOR measures do not appear to be systematically correlated with the numbers of VI or greater intensity quakes within the appropriate regions. The only significant correlation between UFOR measures and the larger intensity quakes occurred with percentage change measures in the central-northeastern region (CEANE) only. In this area, a significant percentage increase in UFORs occurred during the six-month increment *after* an increase in the number of VI or greater quakes. This relationship was not evident in the central region only.

Correlations within the FATE sample demonstrated a similar pattern. Low intensity (V or less) quakes were most correlated with total UFOR numbers during the previous

TABLE 2

Lag correlation coefficients between absolute numbers of UFORs (ABUFO) or percentage change in UFORs (%UFOR) and the absolute number of either V or less intensity or VI or greater intensity quakes (ABQU) or the percentage change in either (%QU) for CUFOS-recorded data for the central and the southeastern and northeastern sectors (CEANE) of the U.S.A. for two periods 1952 to 1965 and 1952 to 1969.

LAG	ABUFO/ABQU		%UFOR/ABQU		%UFOR/%QU	
	≤V	>VI	≤V	≥VI	≤V	≥VI
			1952–1965			
			CEANE			
-2	-0.09	-0.20	-0.28	-0.33	-0.39	-0.39
-1	0.70*	0.13	0.49*	0.22	0.47*	0.34
0	-0.06	-0.07	-0.21	-0.13	-0.22	-0.20
+1	0.14	0.18	0.18	0.23	0.34	0.51*
+2	-0.13	-0.32	-0.40	-0.60*	-0.42	-0.57*
			CENTRAL			
-2	-0.05	0.05	-0.13	-0.11	-0.40	-0.40
-1	0.52*	-0.04	0.44	0.04	0.63*	0.02
0	0.00	0.14	-0.33	0.02	-0.38	0.13
+1	0.09	-0.12	0.10	0.01	0.43	-0.07
+2	0.27	0.00	-0.40	-0.13	-0.61*	-0.18
			1952–1969			
			CEANE			
-2	-0.24	-0.21	-0.23	-0.34	-0.40	-0.37
-1	0.15	0.06	0.41	0.19	0.30	0.21
0	-0.09	0.05	-0.19	-0.03	-0.16	-0.12
+1	-0.01	0.14	0.20	0.17	0.30	0.45*
+2	-0.20	-0.27	-0.32	-0.54*	-0.40	-0.54*
			CENTRAL			
-2	-0.23	0.00	-0.15	-0.22	-0.42	-0.11
-1	0.07	0.00	0.37	0.00	0.50*	-0.07
0	-0.11	0.16	-0.22	0.10	-0.21	0.15
+1	-0.08	0.11	0.06	0.01	0.25	0.00
+2	-0.15	0.06	-0.24	-0.19	-0.45	-0.24

*p <.01

TABLE 3

Lag correlation coefficients between absolute numbers of UFORs (ABUFO) or percentage change in UFORs (%UFOR) and the absolute number of either V or less intensity or VI or greater intensity quakes (ABQU) or the percentage change in either measure (%QU) for FATE-reported data from the central and the southeastern and northeastern sectors (CEANE) of the U.S.A.

LAG	ABUFO/ABQU		%UFOR/ABQU		%UFOR/%QU	
	≤V	≥VI	≤V	≥VI	≤V	≥VI
			1952–1965			
			CEANE			
-2	0.07	-0.01	-0.04	-0.06	-0.10	-0.03
-1	0.53*	0.10	0.07	0.00	-0.02	0.08
0	0.15	0.14	-0.14	-0.12	0.08	-0.20
+1	0.20	0.47*	-0.03	0.32	0.18	0.37
+2	-0.11	0.02	-0.34	-0.41	-0.38	-0.43
			CENTRAL			
-2	0.02	-0.06	0.08	-0.12	-0.05	-0.02
-1	0.35	0.01	0.01	0.09	0.40	0.00
0	0.02	0.12	-0.19	0.00	-0.37	0.24
+1	0.27	-0.13	0.15	0.16	0.34	-0.21
+2	-0.11	0.01	-0.36	0.07	-0.16	-0.15
			1952–1969			
			CEANE			
-2	0.09	-0.23	0.05	0.11	0.01	-0.11
-1	0.49*	0.11	0.07	0.04	-0.01	0.04
0	0.15	0.15	-0.08	-0.05	0.03	-0.13
+1	0.23	0.46*	-0.04	0.29	0.13	0.38
+2	-0.08	0.01	-0.25	-0.41	-0.27	-0.42
			CENTRAL			
-2	0.00	-0.03	-0.07	0.05	-0.11	0.09
-1	0.33	-0.06	0.19	0.08	0.34	-0.02
0	0.05	-0.12	0.07	0.04	-0.26	0.24
+1	0.28	-0.11	0.14	-0.07	0.30	-0.09
+2	0.05	-0.04	-0.31	0.00	-0.32	-0.20

* p <.01

six-month interval. Again, unlike the CUFOS data sample, the tendency for UFOR numbers to increase during the six-month interval before an increase in intensity V or less quakes was evident for both intervals of analysis.

A similar but weaker effect was also noted for larger quakes in the FATE sample. As can be seen in Table 3, the most significant correlations in the CEANE region of the U.S.A. occurred between the numbers of VI or greater quakes and the numbers of UFORs during the following six-month interval. It is also apparent somewhat in the percentage change measures. Like the CUFOS sample, the FATE sample did not indicate any significant quake correlations between UFORs and VI or greater quakes within the central section only.

Although positive correlations are important demonstrations of the tectonic strain theory, large negative correlations are important as well. Within both the CUFOS and FATE samples, several measures showed systematic negative correlations between VI or greater quakes and UFORs two increments later. Stated in an alternative manner, an increase in VI or greater quakes is associated with a very significant percentage decrease in UFORs compared to the previous interval.

The critical feature here is the percentage change with respect to the previous increment. In these instances, there would be a relative decrease in UFORs about one year after VI or greater quakes. Note, however, that the absolute numbers of UFORs may still be quite elevated, even maintained at flap or near-flap levels. However, the *relative* number of UFORs would decrease.

This pattern should not be ignored because of its apparent complexity. Since some of the largest negative *and* positive correlations for both the small and large quakes occur with the percentage change measures, there is a strong possibility that a significant portion of UFORs are coupled to some tectonic processes associated with *change* in strain parameters.

The absence of significant correlations between UFORs and large quakes is not conclusive since only two lag increments (one year) were used. UFOR numbers may increase several years before the incidence of the larger quakes within the central U.S.A. Previous reports, based upon FATE data for the New Madrid section only, indicated that UFORs increased one to three years before increased large-intensity quakes.[6]

Fort's data for Great Britain during the years 1850 to 1910 also indicate a "quake intensity-dependence" for the optimal lag in UFORs. Whereas normal seismic activity was associated with "luminosities" within the same year, peak numbers of luminosities were reported one to two years before above-average seismic intensities. In the two instances of extraordinary seismic events in Great Britain,

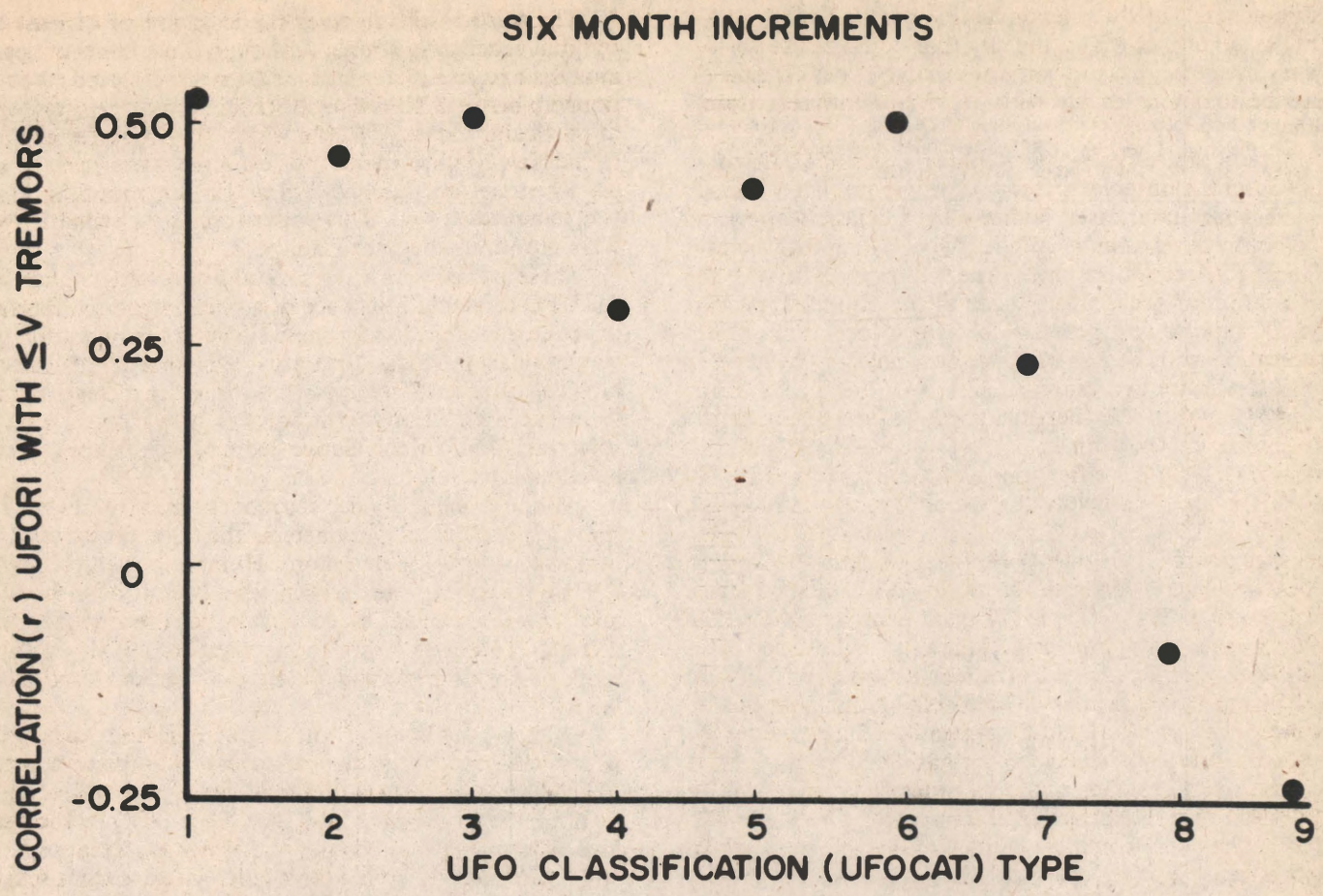


Figure 6. Maximum correlation (r) coefficients between numbers of V or less intensity tremors and numbers of UFORs for the different UFOCAT classification types, using six-month increments of analysis. The UFOCAT classification increases from least to greatest "strangeness" of the report.

UFOR activity began to increase *three* years before the major shock.

Determining Optimal Types of UFO Reports

One of the first conclusions obvious to the experienced UFO researcher is that all reports do not share the same properties. Most professional organizations recognize case differences as indicated by their uses of UFOR categories. For example, Hynek's now-famous triad involves close encounters of the first, second and third kind.

Objective and consistent differentiation of UFORs are critical procedures. Except for the unusual nature of UFO reports, there is no reason, a priori, to assume that all UFO reports originate from the same source of variance. We may be looking at quite different phenomena, each with a different mechanism. If this assumption is true, then any attempt to explain all UFO reports by a single theory (as opposed to an empty or non-testable explanation) must fail.

Overinclusion of many fundamentally different phenomena within the same arbitrary rubric has been a repeated impedence in the history of science. At one time, the diseases we now call pneumonia, influenza, cancer and emphysema were all placed, on the basis of superficial similarity, under the label "vapors."

One can imagine what would have happened if penicillin had been discovered during this period. Since this drug would optimally treat only the cases we now call pneumonia and not all the cases called "vapors," the efficacy of the drug would probably have been gravely underestimated. In fact, penicillin most likely would have been dismissed on the basis that it treated only "some" cases of vapors.

A similar problem may exist within UFOR label systems. Both statistical and experimental analyses indicate that some UFO reports are heavily loaded by natural processes associated with tectonic strair while others are influenced primarily by social conditions, personality variables, and even transient brain dysfunction. We must realize, of course, that in a statistical universe, there may even be some cases that are beyond our *present* methods of understanding. In fact, some UFORs may be unique; the events may happen only once.

Frankly, I do not expect the tectonic strain theory to explain *all* valid UFO reports. Analyses to date indicate that this theory can accommodate at least 50% but not more than about 75% of classic UFO cases. This asymptote may reflect the limit of the model itself or it may reflect the data sample. Most of the empirical tests for the theory have involved total UFO reports, that is, the summary of all classifications from either the CUFOS or FATE samples.

To test the relative relationship between different types of UFORs and optimal seismic parameters, separate analyses were completed for the nine types of UFORs according to the Saunders classification (CUFOS). The central theme for this classification is increasing

"strangeness" of the phenomena. Whereas Type I and II UFORs involve lights in the sky that could relate to ordinary meteoric or astronomical events. Types III and IV describe luminous events with multiple non-linear trajectories.

Type V or greater events include reports of UFOs moving within the observer's frame of reference. They include Hynek's encounter cases, Vallee's Type I classification and Keel's low level events. While Type VI reports involve "landing" descriptions and Type VII reports involve the observation of occupants outside of the object, Type VIII and IX reports require more bizarre information. Communication with beings or long-term physical changes in the observer are two criteria.

Figure 6 displays the final analyses of the maximum correlation values (with lag = −1) between the different types of CUFOS classifications and consequent seismic activity. The analyses involved six-month increments during the 1950 to 1965 period. As can be seen clearly, all of the major types of UFOR classes were significantly correlated with consequent increases in V or less intensity earth tremors. Even Type V and VI classifications, where the UFO enters the observer's frame of reference, were significantly correlated with the seismic events.

The most conspicuous deviation from this relationship involved the Type VIII and IX cases. Coefficient values for these cases are not statistically significant and negative. Because of the smaller numbers of cases within types of UFO reports as the strangeness increases, *partial correlation* analyses were completed with UFOR type, numbers of reports and seismic activity. The correlations between quake numbers and UFORs were not artifacts of simple differences in the number of reports. When the variances due to difference in numbers of UFORs in the various categories were held constant, the correlations between UFORs and seismic activity were not affected.

These results indicate that components of most UFOR categories could be accommodated by the tectonic strain theory. The failure of any significant portion of the two strangest types of UFOR classes to be correlated with earthquake numbers suggests that they may be associated with other sources of variance not related to tectonic strain. At this time, no variables have been isolated empirically that could accommodate the variance in these types of reports.

One cautionary statement is in order. Even though most categories of UFORs were correlated with V or less quakes, the r values indicate that between only 10% to 30% of the variance in these reports can be accommodated by knowing the consequent seismic pattern. This may indicate that a significant portion of the UFOR variance for all types of classifications may still involve non-seismic factors.

General Discussion

Several important results have emerged from this study. First, different data pools collected by different agencies confirm the variation in reports of UFOs during similar periods. Both data samples also confirm the correlation between these reports and the later occurrence of certain intensity earthquakes. Secondly, different types of UFORs were correlated with specific earthquake activity, thus suggesting a central process for which different labels have been given. Only the strangest of UFO types did not correlate with seismic measures.

The third result involves the isolation of at least one optimal space-time frame. Although three levels of spatial analysis and five different time frames were used, the relationship between UFORs and seismic activity was strongest at particular values. UFORs within the six states adjacent to the New Madrid region, for example, were best explained when seismic activity from the surrounding states was included as well. This pattern was seen primarily with a six-month increment of analyses.

These parameters have several important implications for UFO research. Existence of a phenomenon at this level of space and duration strongly suggests the operation of a geophysical process. Primary involvement of meteorological variables (which vary in the order of several days) seems unlikely. Long-term sources of variance, such as solar variations or correlative geomagnetic factors, cannot be eliminated.

Although large-space, six-month time-frames may be routine geophysical parameters, they are far beyond the limits of human perception. Human beings, including UFO researchers, exist within time-frames of a few days and spatial boundaries of a few hundred square kilometers. We expect to see things happen quickly, within a week or so, not slowly undulate over tens or hundreds of weeks.

Human observation of a phenomenon that exists within a temporal window of several months to a year is like the measurement of the millisecond actional potential measured in picosecond intervals. There are just too many increments to clearly see the phenomenon. Because of the large time required to see the whole, we experience sensory overload. We are left with a long series of apparently empty bins of time; often there is a compulsion to fill those bins with irrelevant information.

The tectonic theory can predict accurately when UFORs will occur within a particular space. Although the operations are complicated, they are not beyond the skills of the dedicated scientist who has access to computer software. However, because the phenomenon exists at a level of months, the predictions must occur within this period. The most conservative interpretation of this statement is that prediction to the nearest week may be beyond the limits of the data or the model, or both.

Other sciences are faced with comparable problems. At the level of decades or centuries, seismologists can predict earthquakes with great precision. Within the increments of years, behavioral scientists can predict, with great accuracy, the occurrence of psychological crises. Using daily windows, meteorologists can forecast the weather.

Only when the technicians of science go beyond the limit of the phenomenon being studied do the problems arise. When the seismologist attempts to use models molded from increments of decades to predict the occurrence of the next earthquake to the nearest day, he fails. When the meteorologist attempts to predict weather four months from now, to the day, the accuracy degenerates to noise. When the behavioral scientist attempts to determine when you will have a personality crisis to the nearest minute, the error is humiliating.

One solution to this dilemma is to expand secondary and tertiary components of the equation. Although the fundamental phenomenon may be controlled by long-duration sources, finer prediction could be made by introducing more transient factors. The latter would ride

upon the slow-moving baseline of the former like small wavelets upon the deeper body of water. These variables would be considered "trigger variables," that is, events that precipitate the phenomenon, given the primary condition is present.

The data patterns clearly indicate that the occurrence of UFORs within increments of six months are influenced by the imminent tectonic strain within the area. However, there should be other variables, trigger stimuli, that could allow the UFO scientist to narrow the temporal increment of prediction even further. By adding these variables to the equations, finer resolution, perhaps to the nearest week, could be accomplished.

Probable trigger events appear to be the passage of an air mass or the occurrence of a geomagnetic storm. Interestingly, several unpublished accounts suggest that intense and well-documented luminosities (in the U.S.A.) are associated almost invariably with excessive perturbations in the ionosphere on the day of the observation. Usually these perturbations appeared to be correlated, often with lag times from hours to days, with geomagnetic storms triggered by solar flares.

When the UFORs from Fort's data or from contemporary sources are printed as daily data streams, which are extraordinarily difficult to perceive as a unit (especially over several decades), a general, geomagnetic connection is clear. UFOR flaps are associated predominantly with sudden increases in geomagnetic disturbances within the previous week or so. The converse does not hold. All geomagnetic disturbances are not associated with UFORs.

However, this is exactly the kind of relationship that one would expect from the tectonic strain model. UFORs could be triggered by a process associated with a recent geomagnetic perturbation, but only if the precondition—the tectonic strain—existed during the time. If the strain conditions were not optimal, then no amount of geomagnetic stimulation would precipitate the occurrence of the processes leading to the UFOR.

Consequently, the close temporal contiguity between an unusually large solar flare and geomagnetic storm (A_p indices greater than 50) or especially a sudden, large increase (e.g., A_p indices greater than 100 have been noted in the UFO literature). The 1967 and 1972 flaps followed unusually intense geomagnetic disturbances. During these years, the UFORs occurred in areas that later demonstrated an increase in seismic activity, thus indicating the existence of strain within the region at the time of the UFORs.

The pattern can be seen outside the U.S.A. as well. For example, the bout of UFORs reported in Great Britain (particularly the St. Brides Bay region) between 1974 and 1977 were most likely linked to the tremor swarm near Stoke-on-Trent during 1975 and the (infrequent) VII intensity quake near Chester, England on July 8, 1980. (Although higher-intensity quakes are unusual in Great Britain today, they were more frequent, as were major clusters of UFORs, during the collection period of Charles Fort.)

Since the land mass of Great Britain is relatively small compared to the areas in the U.S.A. that are required to elucidate the maximum relationship between numbers of UFORs and earthquakes, the tectonic strain model would predict that earthquake activity outside the major flap region should have contributed to the observations. Indeed, on December 26, 1979 an extraordinarily rare 4.5 R quake rocked Glasgow, Scotland. A quake of this intensity had not occurred in this area for about 200 years.

Slow tectonic strain accumulation and consequent low-level earthquake activity (such as the V or less Modified Mercalli quakes in the U.S.A. and the tremor swarm from Stoke-on-Trent) are associated with the classic 1- to 10-day bursts of flap reports superimposed upon an elevated baseline of UFORs that lasts for several months to years. If the strain continues and a large, rare quake is imminent, the more energetic and bizarre UFO-related reports should begin to proliferate. Interestingly, the Rob Taylor case occurred on November 9, 1979, less than two months before the Glasgow seismic event and within 50 kilometers of the epicenter.

In the Soviet Union, the recent UFOR flaps between February and early March, 1982 were clearly associated with intense geomagnetic storms on the day or days shortly before the displays. These UFORs have been particularly energetic episodes, suggesting that strain is still building within the area. This recent epoch of UFORs appears to have begun in May, 1981, during which time, allegedly, thousands of witnesses observed luminosities over major cities in the U.S.S.R. According to the tectonic strain model, this unusually bright event would have been the prodome to the VIII intensity (5.0 R) quake that vibrated the general area on November 13, 1981.

Certainly, a major breakthrough in the application of the tectonic strain model to the UFO problem would require the discovery of some simple measure that *directly* monitors strain within local and larger areas. Such a measurement may require a matrix of instruments strategically placed over a large region or perhaps a special adaptation of satellite reconnaissance. Tectonic strain-related shifts in *patterns* of spectral absorption lines from large composite areas are a possibility. The precise technology is not evident at this time.

The tectonic strain theory accommodates all of the major characteristics of UFO phenomena. There are, however, many other patterns hidden within the complex field of Fortean data. *UFOs or odd luminosities are only a more tractable segment of this continuum.* Precise elucidation of the controlling variables of UFO phenomena should not detract from the mystery of Fortean events. Indeed, it increases the appeal even more. For now we know there is an empirical handle by which we can open the door to even more profound discoveries.

Within the framework of the tectonic strain model, Dr. Brian Brady (personal communication) and his colleagues at the Department of the Interior (Bureau of Mines) have isolated a phenomenon that appears to be a fundamentally unknown physical condition. Just before fracture of rock samples, small luminosities are emitted that demonstrate spin, ejection of plasma-like material, and alterations in radio frequency emission. The calculated magnetic field strength of this neutron star-like condition achieves intensities that could influence automobile engines and electrical systems. Energy flux, if the luminosity were sufficiently large, could carbonize life forms or burn holes through the entire organism.

There are many other questions to be answered. What is the connection source for the time-lagged relationship between UFORs and poltergeist reports? Why should unusual weather conditions and meteorological extremes

Science Is What Science Does

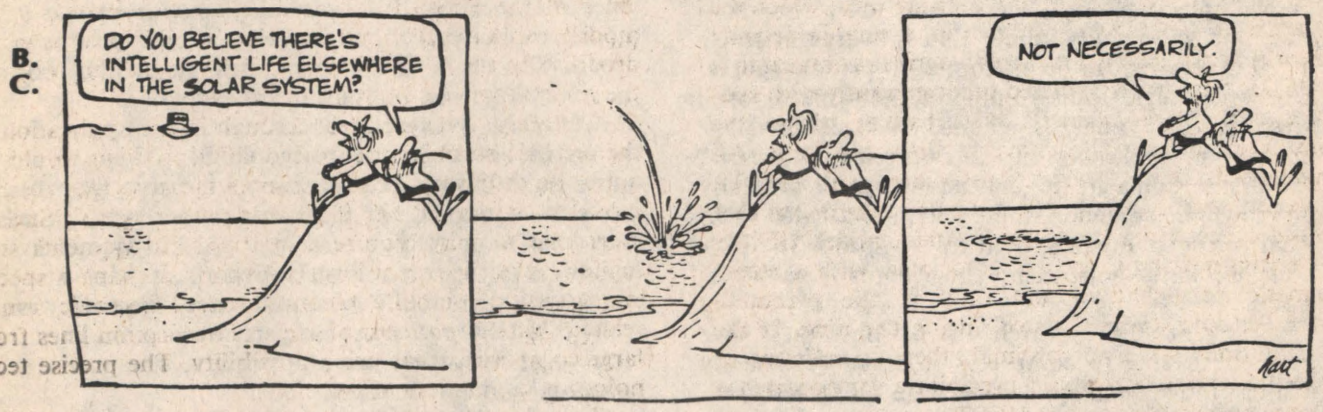
Why Critics Are Wrong About UFO Research

by Thomas B. Burch

ON June 24, 1947 a private pilot named Kenneth Arnold reported seeing nine disc-shaped objects flying in formation over the Cascade mountain range in Washington state. Arnold's reported description of these unusual aerial objects and their attendant flight characteristics gave birth to the term "flying saucer" and laid the foundation for a controversy that has continued to the present day.

Most of the established scientific community failed to take Arnold's sighting report seriously back in 1947. The 1940s became the 1950s. The 1950s became the 1960s. UFOs, often described by government officials as "the product of postwar nerves," continued to be seen and reported by people from all walks of life. Yet few members of the scientific establishment saw fit to conduct investigations into what had become a most persistent and obvious challenge to science.

Some scientists, like atmospheric physicist James McDonald, recognized that science had collectively shirked its responsibilities by failing to acknowledge and confront the reality of the UFO phenomenon. In March 1968, during a speech delivered to the American Institute of Aeronautics and Astronautics, Dr. McDonald stated: "Our collective failure to examine the scientific aspects of the UFO problem will, I fear,



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precede bursts in UFORs? Is the traditional sequence of climatic alterations, Fortean displays and large earthquake occurrences related to some central source? Do UFORs accommodate the variance in the political and religious paranoia that accompany flaps, or are both controlled by a third variable? Are rock falls or the continued stream of moisture within the same space, indices of some fundamental process hidden within their temporal infrequency?

Although the answers are unknown at this time, the methodology to find them is clear. Quantification of the data and the application of appropriate, contemporary, analytical methods are essential. These problems can only be answered by the competent usage of multivariate methods such as discriminative, multiple regression, and perhaps even canonical analyses. With these techniques, one can determine the variables that discriminate periods of rock falls, obtain the equations that predict UFORs on the basis of seismic-geomagnetic data, or isolate the functions upon which different Fortean variables and environmental events cluster.

The computer hardware is available; the software can be obtained. Any young Fortean scientist with a proficient understanding of numerical analyses and the capability to grasp the concept of changing temporal increments and spatial windows, could contribute immensely to the understanding of these phenomena. The recondite patterns are there, waiting.

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be held against the scientific community when the full dimensions of the UFO evidence comes to be recognized. The sooner we take a serious stance and confront the UFO question with adequate scientific talent and staffing, the less embarrassing will be the ultimate admission that we have been overlooking a problem of potentially enormous importance to all humanity."

What impact Dr. McDonald's statement had on his scientific peers cannot be accurately measured. Nevertheless, after 20 years of evasion and denial, the scientific fraternity slowly came to the conclusion that the UFO phenomenon was not going to go away. Some scientists were irritated by this conclusion. Others became just plain curious.

In the past decade an increasing number of physical and social scientists have entered the arena of UFO research, having taken the time to dispassionately study and evaluate the data associated with the UFO controversy. After analyzing the data they concluded that UFOs represent a vividly real, but as yet unknown, phenomenon. These same scientists recognize, and will readily admit, that the large majority of UFO reports can be attributed to prosaic causes; however, a significant volume of the same reports, after *qualified* analysis, cannot be accounted for through the application of standard scientific criteria. Wishing to gain a greater understanding of a currently unknown phenomenon, these scientists decided to do what scientists are supposed to do—probe the phenomenon in the hope that it can eventually be understood.

Critics of UFO research, for reasons that I have never been able to comprehend, argue vehemently against movements to legitimatize UFO research. These critics, many of them members of the scientific community, seem to be saying that *some* phenomena should be studied, but other phenomena should forever remain unknown. This unfortunate and misguided attitude does not align itself with the tenets of science. Science, as defined by Webster, is "the possession of knowledge as distinguished from ignorance or misunderstanding." The critics of UFO research therefore seem to be critics of science in general, as well as critics of UFO research in particular; thus their arguments should be of little value to the true scientist.

Those opposed to UFO research have managed to stereotype all UFO proponents as UFO "buffs," "enthusiasts," or "believers." They acknowledge little distinction between qualified research scientists and the non-critical consumers of sensationalized, tabloid-style journalism. The stereotyped "UFO buff" is generally depicted as a naive, undereducated and distinctly gullible individual who is willing to accept anything and everything written or spoken about "flying saucers" and the "space brothers." Regrettably, many people do accept these fanciful Hollywood movie themes all too willingly. But such individuals, often referred to as the "lunatic fringe," are not active participants in the field of inquiry now known as ufology.

A woefully uninformed media has assisted in the advancement of this inaccurate and undeserved stereotype through its tongue-in-cheek approach to UFO journalism. The discussion and presentation of UFO reports by the electronic media is invariably treated as the "funny news" and relegated to the end of scheduled radio and television broadcasts. The treatment of UFO phenomena by the print media fares no better. Responsible newspapers and newsmagazines shy away from the UFO mystery altogether and leave the coverage of UFO reports to tabloid journals. And these tabloids, as informed readers well know, are more concerned with their headlines than they are with their facts.

Another method used by critics to discourage legitimate UFO research is the over-simplification of the phenomenon's probable cause. Those that argue against the reality of the UFO phenomenon usually base their arguments on the assumption that extraterrestrial societies, if they do exist, could not possibly overcome the vast distances between our world and theirs. Therefore, the skeptics maintain, UFOs cannot be navigating within our atmosphere and hence do not exist. While this assumption may ultimately prove to be valid, science would be ill-advised to close its textbooks and consider our current laws of physics sacrosanct. More important, however, is the fact that most UFO researchers do not necessarily subscribe to the extraterrestrial hypothesis. My familiarity with current UFO research party lines indicates only that UFO research scientists consider the extraterrestrial hypothesis as *one* possible cause of the phenomenon.

Admittedly, the extraterrestrial hypothesis has been the most popular pro-UFO theory over the course of the past 35 years. However, it is not the only theory under consideration by UFO researchers. Other theories which attempt to account for the cause of the UFO effect include the manifestation of psychic or paranormal phenomena, as well as the serious consideration of UFOs as the product of an as yet *unknown* prosaic phenomenon. This "unknown" is significant and should be considered carefully by UFO critics populating the scientific community. For too long, UFOs have been dismissed and explained away as so-called natural causes when, in fact, these natural causes are only vaguely defined and exist as little more than scientific theory themselves. Embarrassingly little is actually known about the "plasma effects" and "ball lightning" so often used by skeptical scientists to explain away UFO reports. The critics' willingness to use these poorly understood natural phenomena as catch-all solutions of UFO problems demonstrates a rather cavalier application of the scientific method and does little more than obfuscate an already paradoxical issue.

Hallucination, mass hysteria, postwar nerves, temperature inversions and weather balloons are the

"golden oldies" in the critics' bag of conventional attributions. And the skeptics' selection and use of "natural cause" explanations is subject to periodic change. Like the width of a man's tie or the height of a woman's hemline, some natural-cause explanations are at times more fashionable than others.

A popular natural-cause explanation in vogue today is the "piezoelectrical discharge" theory offered by Dr. Michael Persinger of Canada's Laurentian University. This theory suggests a potential relationship between some forms of electrical discharge and some aspects of UFO phenomena. Based upon preliminary findings to date, there does seem to be some such relationship. Dr. Persinger should be congratulated for his identification of a viable point of departure for further in-depth examinations. Perhaps a detailed investigation of the properties of piezoelectric energy will provide science with a useful piece to the UFO puzzle. Further study certainly seems warranted. However, it would be premature to suggest that Dr. Persinger's preliminary effort constitutes the final answer to UFO sightings; yet this is precisely what is being suggested today.

In recent years there have been a number of substantially documented and thoroughly researched UFO sighting reports which have provided not just the standard anecdotal accounts, but physical-trace evidence as well. The witnesses' credibility has stood up to scrutiny; their stories have been corroborated by various forms of supportive evidence and testimony. UFO scientists and researchers, representing fields in both the physical and social sciences, have considered the facts related to these cases with great care. After considering numerous alternative explanations ranging from hoax, hallucination and misidentification to a plethora of candidate "natural cause" explanations, the UFO scientists were unable to isolate or identify any viable prosaic explanations for these UFO sightings. No statement was issued saying that the witnesses had actually seen vehicles from outer space. All that the UFO scientists said was that the UFOs appeared to be genuine *unknowns.* This is a pretty tame statement coming from individuals who have been stereotyped as "UFO buffs." Where is the sensational commentary representative of UFO "pseudo-science"? The answer to this question is simple: there wasn't any. But this did not deter the skeptics from offering their own simple explanation of the reports; these sightings were attributed to (you guessed it) piezoelectrical discharge!

Today, after 35 years of heated, protracted argument, UFO research remains imprisoned in a scientific limbo. While it is true that an ever-increasing number of scientists are joining the UFO research community, their participation is solely on an individual and voluntary basis. No organization or institution is yet willing to sanction or underwrite their scientific efforts because labels such as "UFO buff," "pseudo-science" and "lunatic fringe" are still regarded as synonyms for "UFO research." And without financial support, little can be done to advance scientific knowledge in this, or any other, field.

The tragic irony of this situation is that UFO scientists, regardless of their qualifications or expertise, have little control over the destiny of ufology. As long as the critics explain away UFO sightings with simple armchair pronouncements, as long as tabloids continue to churn out their unique brand of irresponsible, sensational journalism, and as long as UFO reports are treated as "funny news," the stigma of illegitimacy will continue to thwart objective UFO research. And science will be the poorer for it.

73% in TV Poll Believe Some UFOs Are Extraterrestrial

TV-Ontario produces a public-opinion show called "Speaking Out." In a format resembling a number of audience-participation shows on U.S. television, the program opens with a heavy question. The moderator then introduces two people who debate the matter, one in the affirmative and the other taking the negative position. Viewers are invited to phone in their opinions and comments and put questions to the debaters. At the conclusion a poll is taken and the results tallied.

The question asked on the February 3 program was:

Do you believe that some UFOs are extraterrestrial spaceships?

Taking the affirmative side was Stanton T. Friedman of Fredricton, New Brunswick, a well-known physicist and lecturer. [See his article in this issue, pages 17-20.—Ed.] His opponent was Dr. Robert F. Garrison, a University of Toronto astronomer.

Friedman, who spent 14 years as a nuclear physicist working on the development of various advanced nuclear and space systems, focused the viewers' attention on well-documented sightings from all over the world, including landings, abductions, multiple-witness events and radar-tracked cases. Dr. Garrison reaffirmed his personal belief that there is other intelligent life in the universe but said he did not consider the evidence of Earth visits adequate.

In the poll that followed the debate, 1244 viewers participated and the electronically tabulated score was: Yes, 908 (73%); No, 336 (27%). These results were consistent with a Gallup Poll taken in the U.S. in 1978 which showed that 74% of those with a college education accept UFO reality.

Carol Fripp, producer of "Speaking Out," said that the total vote was larger than is usually recorded on the show. "We were also pleased and surprised that more than 7800 people tried to call in . . . during the hour-long phone-in portion," she added. "Obviously, a lot of people are very much interested in a scientific discussion of this controversial question."

SITUations

In this section, mostly contemporary curious and unexplained events are reported. Members are urged to send in newsclippings and reports they deem responsible. Please be sure to include the source of reference (name of newspaper or periodical), city of publication, date of issue in which article appeared, and your first initial and last name (or membership number only, if you prefer to be credited in that way).

Do Mystery Messages Date Stones to 15,000 B.C.?

An unusual stone caught Dennis Moore's eye as he sorted rocks for a house he was building near Cedar Springs, Mich. It was oddly shaped and bore inscriptions of some sort. At first he tossed it aside. But when he discovered six more like it, he decided to find out if they had any significance.

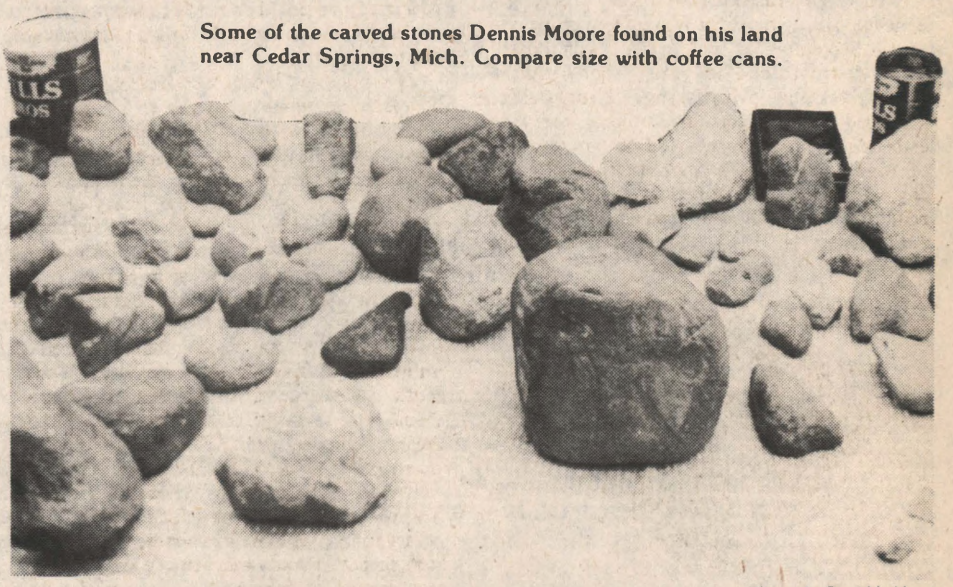
"It took me awhile to figure out that someone, long ago, had banged a pattern into them," said Moore, a self-employed plumber. With the help of his father, Edward, Dennis Moore scoured his 12-acre property and turned up, besides more inscribed stones, a number of well-defined prehistoric tools used for carving wood and bone, and a copper knife.

The absence of pottery and arrowheads indicated that the tools belonged to a very old tribe, one that may have hunted mastodons around 10,000 B.C., said the elder Moore. During the five years since the discovery of the first inscribed stone, the Moores have read extensively on geology, archeology and anthropology to help them understand their discovery. Casts and photographs of the stones have been examined by experts such as archeologist George F. Carter and Dr. Barry Fell, founder and director of the Epigraphic Society.

Dr. Carter, a professor at Texas A&M and the author of *Earlier Than You Think*, said comparable stones have been found in gravel under glacial deposits in the Great Lakes region. Cryptanalysts associated with the Epigraphic Society are still trying to translate the symbols on the Moore stones. Some of the carvings are in alphabetic shape and resemble our "A," "P" and "Y." Other inscriptions look like stick-figure birds with eyes, beaks and wings crudely but effectively delineated by arrangements of straight lines of varying lengths.

Dr. Fell has tentatively identified the writings as Tifinong, a pre-Bronze-Age script used by Scandinavians around 15,000 B.C. Although Tifinong is one of the 20 very ancient scripts catalogued by the Epigraphic Society, the decoding of the symbols may have to await the construction of a Tifinong glossary, and that may be years away, according to Dr. Fell.

SOURCE: *The Detroit News*, Mich., 1/13/83.
CREDIT: W. Kingsley.



Some of the carved stones Dennis Moore found on his land near Cedar Springs, Mich. Compare size with coffee cans.

Photos by David Lubbers

Closeup of a stone shows inscription.

TV Hit

In Santa Monica, Calif., Dominic Varady was in his living room, watching the movie "Meteor" on TV. The exciting part had just begun: A giant space rock was hurtling inexorably toward Earth. As he tensed to await the impact, Varady's concentration was shattered by an eerie c-r-u-n-c-h that shook his house, rattled dishes and set all the dogs in the neighborhood barking. Earthquake?

Varady made for the door, rushed out front and looked about. Foundation, walls and roof were intact. He ran to the rear and there it was: a hole big enough for a grown man to climb through—not in the roof of his home but atop the small, unoccupied guest cottage in his back yard. Inside, a pile of smashed ice lay sprawling on the floor.

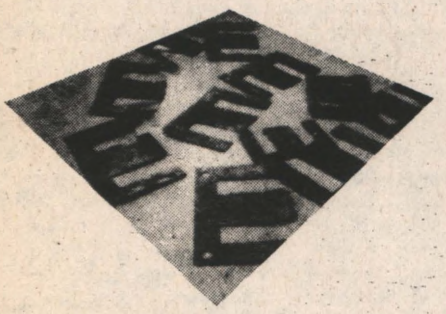
After looking at the hole and the icy meltdown, the police described the probable intruder as "a single frozen chunk of ice about three feet wide and weighing about 200 pounds." To complete their report, the officers checked with the FAA at Los Angeles International Airport, where everybody knows but does not like to admit what can happen to people like Dominic Varady when their property lies within an aircraft approach-path. Sure enough, several pilots who landed their transports about the time of the incident had reported ice accumulating on the wings as they flew through a severe storm-front nearby.

Varady was not reassured. He wanted compensation for the damage to his roof and said he would take the perpetrator to court, if necessary. But with so many airlines providing similar service to his area, how could he decide which one to take?

* * *

E.T.s?

Even more frustrated was Judy Reeves of Belleville, Ill., who came home from work one day in September to find some of her tomato plants destroyed and her garage roof damaged by mysterious 5-inch-long, 2-inch-wide, E-shaped metal objects. The objects were also embedded in roofs, yards and on window sills of four houses in the neighborhood. To this day, neither Mrs. Reeves nor any of her neighbors has the slightest idea what the objects are or where they came from, or whether more may be "on the way."



Fearing for the safety of her daughter and the 8-year-old's playmates who might be injured when handling any objects still undiscovered, Mrs. Reeves has spent hours and days at a time seeking a solution of the problem. First she called the local police, but "they thought I had been drinking," she said. She took a sample to Scott Air Force Base to see if the metal might have fallen from a plane, but no one had ever seen aircraft parts of that shape.

The FAA office in St. Louis sent a man to collect a sample for analysis. Troy Sims, an FAA safety inspector, speculated that it could be part of an "E.T."—nothing to do with Spielberg's movie, he hastened to add, just an abbreviation for "electrical transformer." Sims thought that some types of transformers contained E-shaped metal stabilizers, but workers at the local electric utility told Mrs. Reeves that her items were too small to have come from any of their transformers.

"Everything about this is unusual," said Sims. "The objects did not come from part of an aircraft, and we don't think they fell out of a plane."

SOURCE: UPI in *St. Louis Post-Dispatch*, 12/28/82; *St. Louis Globe-Democrat*, 9/2/82.
CREDIT: R. Nelke.

Golden Days in the USSR

Northern Eurasia was the favored habitat of the mammoth, the furry, long-tusked elephant ancestor that lived until the late Pliocene, about four million years ago. In recent years, Soviet scientists have recovered a number of fine specimens, almost full-fleshed though somewhat shrunken, and still covered with the reddish fur that characterized them in life. No one is quite sure why the mammoths died off, but specimens so far recovered do not show evidence of wounds or other external damage; present theory attributes the remarkable state of their preservation to the onset of a natural quick-freezing process, sustained by millenial storage in Yakutia's deep permafrost.

From their continuing study of Elephas primigenius the Russians are learning much about animal life in prehistoric times and finding important clues to its beginnings. They hope to recover many more specimens and have repeatedly voiced their need for support, not interference, from the government if their studies are to continue.

The scientists' hopes were badly jolted when they learned what happened to an apparently large number of specimens which might have been removed intact with proper tools and intelligent supervision; instead, the mammoth remains were ripped from their frosty abode by bulldozers, torn by the blades of power shovels and vandalized by the workers with the apparent acquiescence of those in charge.

The bulldozer crews were not out to get mammoth remains. They were digging for gold. The Soviet press would hardly have noticed the unintentional discovery of a new crop of mammoth specimens, or told what happened to them, if an unidentified engineer hadn't visited the gold-digging site when he did, and hadn't taken the trouble, at some risk of censure, to write a letter to the editor of *Pravda*, the official newspaper of the Communist Party. He wrote of his feeling of horror when he saw operators stop their machines and remove lengths of tusk and chunks of frozen flesh that could only be the same kind of mammoth remains he had found pictured and described in scientific reports of earlier discoveries. What's worse, he complained, "some of the guys were cutting up tusks and others were feeding pieces of flesh to their dogs."

"I reported the matter to the mining operations managers in town," the writer continued, "and they told me their project was 'not in the business' of preserving mammoths. 'Gold is what matters,' they said. 'There are plenty of other mammoths about the place. We haven't got a plan for mammoths that has to be fulfilled, but there is one for gold.'"

In an editorial, *Pravda* backed the engineer and quoted Prof. Nikolai Vereshchagin, chairman of the Soviet Committee for Mammoth Studies. He urged immediate action by the highest authorities to prevent further scientific and cultural vandalism of mammoth remains by persons whose only motivation was "greed and ignorance." The chairman of the study group noted that adult mammoth tusks found earlier measured up to 10 feet in length, weighed more than 200 pounds and could easily fetch (the equivalent of) $100,000. Mammoth ivory is marked up to fantastic values when worked into "genuinely antique" brooches, buckles, pendants and similar gadgetry, he declared.

SOURCE: *London Daily Telegraph*, England, via *The Sun*, Baltimore, Md., 3/20/83.
CREDIT: H. Hollander.

Dinosaur Connection?

More intriguing and perhaps even more important to science than the mammoth remains dug up in northern Russia was the recent unearthing of dinosaur bones in China which are said to be virtual look-alikes of bones discovered in Colorado, Utah and Wyoming, U.S.A. in the late 19th century and, during the early 1900s, in what was then German East Africa and is now Tanzania.

"I was amazed by the size of the bones and the enormous number of them," said Alan Charig, leader of a team from London's Natural History Museum which spent more than two months working on a hillside in Sichuan Province, about 1,000 miles southwest of Peking. Charig said the bones belonged to three types of dinosaurs that roamed a prehistoric river near Wangcang about 150 million years ago. They included 85-foot-long sauropeds with enormous necks and tiny heads; stegosaurs suited from head to tail in bony armor-plate; and carnosaurs, the flesh-eating bipeds. According to Charig, the bones were discovered "sticking out of a hillside" and first reported by a miner two years ago. "We found a thick layer of them, all mixed up, as were the similar bones found at the site of the Dinosaur National Monument in Utah," Charig said.

SOURCE: AP from London via *The Tennessean*, Nashville, 1/22/83.
CREDIT: H. Holland.

Cobweb Tree

The monstrous webs are not caterpillar "tents" and they do not house the larval gypsy moth so abhorrent to fruit growers and suburban householders.

This shilling tree was spotted by a British free-lance photographer near a village in the Kumaor Hills of India. His examination revealed nothing about or in the tree that might have caused the webs to form; no caterpillars, no spiders. Villagers said the webs "just came, only a little while ago." They added that no other trees they knew about had ever been similarly affected. So far, the strong webs have withstood the high winds and heavy rains that often rock the area, and the covering does not appear to have harmed the tree. Birds, however, stay away from it.

SOURCE: BIPS via *Outdoor Life*, 12/82.
CREDIT: W. Kingsley.

White Elephants for Real

However histrionically it may advertise its "white elephants," the next flea market, bazaar, auction or garage sale you attend will probably not include any live pachyderms among the merchandise offerings—much less

any trunk-equipped beasts that might be perceived as beige, "off-white" or otherwise deviant from the standard black or Oxford gray long preferred by elephants of respective African or Asian origin.

Perhaps you thought "white elephant" was a mere epithet or figure of speech? Usually it is, but not always, and not everywhere. In southeast Asia, for example, light-skinned or "white" elephants are for real, and the small herds are rare enough to receive special protection from the natives of Burma and Thailand who regard the quasi-albinos as sacred symbols.

Now comes a report of a mysterious herd of white elephants roaming the forests of Aceh, a northern province on the island of Sumatra in the Indonesian archipelago. Emil Selim, the country's minister of population and environment, issued a statement from his heaquarters in Jakarta, Java. Responding to the first-hand reports of several villagers, Selim said "I believe them. I have heard similar reports before, and a good indication of the white elephant's existence" is that he was adopted some years ago as "the emblem of our regional military command."

"It is a pity that nobody has been able to take a picture of the white elephants, but I am sure they exist. . . . This is a very rare species and we must arrange to put them in a wildlife park so the species will not disappear," Selim added.

If he finds them, Selim would like to relocate the elephants to Leuser National Park, about fifty miles away from their reported habitat.

SOURCE: UPI in *Schenectady* (N.Y.) *Gazette*, 3/24/83.
CREDIT: R. Girard.

Unblinded Love

In Hereford, England, the heartbreak of a breach with her boyfriend drove blind Yvonne Brown to bang her head against a wall in her college dormitory. Suddenly, she could see. The impact restored the sight she had lost to an eye disease at the age of 11.

Soon after her remarkable recovery, Miss Brown, who is 18, became the bride of 20-year-old Peter Rutherford. He admitted to breaking off their relationship four months earlier because he "could not cope with loving a blind woman."

SOURCE: *St. Louis Globe-Democrat*, 3/7/83.
CREDIT: R. Nelke.

It Wasn't the Raven

About 1:30 a.m. on January 19, lookouts hiding in church catacombs caught a glimpse of the mysterious stranger who each year on the birthday of Edgar Allan Poe places a gift of cognac and roses on the storyteller's grave in Westminster Church yard, Baltimore, Md.

"We saw a well-dressed man enter the graveyard carrying three roses and a bottle of cognac," said Jeff Jerome. "We made no attempt to talk to, photograph or otherwise hinder the man. Without saying a word, he told us what we wanted to know—that someone living is making this annual toast to Poe."

Jerome is curator of the Poe House museum. He was one of five volunteers who locked themselves in the catacombs of the 19th-century Westminster Church in an attempt to find out how the mementoes appear on Poe's tombstone. For the past 34 years, three roses and a half-empty bottle of cognac have been discovered on the grave of the American writer who was born Jan. 19, 1809. Poe died and was buried in Baltimore after being found semi-conscious in a downtown doorway.

SOURCE: UPI dispatch from Baltimore in Plattsburgh, N.Y. *Press Republican,* 1/20/83.
CREDIT: J. Zarzynski.

Too-Close Encounter

For Mrs. E. V. Sale of Te Ngaere, New Zealand, what happened in her living room during a thunderstorm was like a scene from a midnight horror movie.

Lightning struck nearby. Then a flow of light came in under the door. It settled in a blob beside metal tools on the floor. "Arms" flowed out of the blob, weaved between the tools, then contracted, only to be extended again. Suddenly, the blob drew in the "arms" and disappeared under the door. The episode lasted about 15 seconds. There was no sound or odor.

Such is the latest eyewitness account of a phenomenon that is rarely observed but continues to baffle scientists—ball lightning. In reporting their investigation of Mrs. Sale's experience, physicists P. W. Burbridge and D. J. Robertson of the University of Auckland emphasized their confidence in her description of the event. "She is an amateur astronomer," they noted, "and used to making careful observations." But believing in a phenomenon and having faith in the reporter is not the same as understanding and being able to explain it. The two physicists agreed that "no firm conclusions as to the nature of ball lightning seem at all possible at this time."

Burbridge and Robertson speculated that the event they investigated may have been an electromagnetic abberation involving a mass of air and perhaps other lightning-created gases in which small loops of electric current or some other effect behaved as tiny magnets. They view this combination of influences as consistent with the blob's motion; it seemed to be guided by the local geomagnetic field as well as by air drafts.

Martin A. Uman, an electrical engineer on the faculty of the University of Florida, calls this "far-fetched," yet concedes that the Australian scientists' observations are "of considerable interest." Uman notes that "reports of ball lightning can be found in both ancient and modern literature, and the similarity in described size, color, smell, duration, sound at demise, and physical damage lends overwhelming support to the view that ball lightning is a real phenomenon. . . ."

A typical lightning ball is round or oval. Mrs. Sale's flat blob was unusual in this respect. Sizes range from roughly that of a marble to that of a basketball. The ball glows, lasts a few seconds, then disappears, often in an explosion.

A British physicist, Paul Davies of the University of Newcastle-on-Tyne, sums up the present state of investigation of the ball lightning phenomenon: "It's all very scary, and one wishes the theorists would do a better job in getting to the bottom of it."

SOURCE: *Christian Science Monitor*, 1/3/83.
CREDIT: B. Greenwood.

Did You Know That ...

Benjamin Franklin, America's premier scientist of the 18th century, was *right* in his concept of the lightning rod, but *wrong* in advocating a sharp-tipped rod because blunt rods are better?

Dr. Charles B. Moore, a New Mexico physicist and science historian, credits Franklin's sworn enemy, King George III, for promoting the better path for electrical bolts to travel by having rods with knobbed tips placed around his palace.

SOURCE: *Printing News*, New York.
CREDIT: #2692.

British Bases at Power Points? *(Continued from page 11)*

used by the UFOs as entries to this dimension. Mr. Shuttlewood told me that he believes that the UFO occupants sometimes obtain power from unknown sources located within the two hills. My personal photographic and meditative explorations of the hills did not turn up any UFO sightings, but by this time I was sensitized to other factors in the British mysteries: there, atop Cradle Hill, was an armored-unit base of the British army!

A few days' observation do not constitute a survey of British military bases, and there must surely be other "power points" of mystery in England that do not have military units nearby. Or are there? Is it merely a coincidence that three such famous sites of esoteric lore should be located side by side with centers of the nation's power?

Perhaps the architects of Britain's military might were taking no chances when they decided to locate their bases around the focal points of psychic activity. Consciously or unconsciously, the spirit of the Isles might have led military planners to choose the holy places — enclaves wherein to gather spiritual force, sanctuaries that guard the soul of the British people.

Apparently Modern Man, though smug and cynical, is still coaxed by the Earth Mother. And this brings up another question: Are we also to be disciplined for abuse and neglect?

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Shuttlewood, Arthur *The Warminster Mystery* Neville Spearman, London, 1967.

Books Reviewed

THE ANDREASSON AFFAIR: PHASE II by Raymond E. Fowler (Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1982, 278 pp., illustrated, hard cover, $10.95)

Reviewed by Robert Barrow

This is a sequel to Fowler's *The Andreasson Affair* (Prentice-Hall, 1979), and describes the ongoing UFO and UFO-entity encounters claimed by witness Betty Andreasson Luca. The current title, however, takes the story considerably further and discusses UFO and paranormal activity supposedly experienced by her husband, Robert, and other witnesses, as well as by herself.

While Fowler's initial book on this series of events focused upon and reverberated with the religious and absolutely bizarre qualities of the Andreasson story, *Phase II* entertains a new context with the introduction of another "star" character, Connecticut hypnotist Fred Max. In 1980, Max (who possesses a bachelor's degree in behavioral psychology and routinely, so we are informed, uses his talents to assist local physicians in clinical practice) instituted hypnosis sessions with the Luca couple, and subsequently learned of their separate, early, *unrecalled* encounters with UFO entities. A total of seven incidents was brought to light between the two of them.

Readers familiar with the original book will find *Phase II* no less intriguing, and certainly no less difficult to comprehend in terms of the peculiarity of the chain of events described. Well-executed drawings, done by Betty Andreasson Luca herself, help to express her emotions and recollections about all of this, whatever its meaning. (She also illustrated Fowler's recent UFO-fictional offering, *The Melchizedek Connection.*) Especially prominent in *Phase II* are transcripts of Fred Max's hypnosis sessions with the couple, and I found these quite interesting.

LIVING WONDERS by John Michell and Robert J. M. Rickard (Thames and Hudson, Inc., New York, 1983, 176 pp., profusely illustrated, $9.95)

Reviewed by Sabina W. Sanderson

This is a splendid book for which Messrs. Michell and Rickard are to be congratulated. Certainly it should make a welcome addition to any Fortean library—or general library, for that matter. The subtitle, "Mysteries & Curiosities of the Animal World," is a bit misleading. Though the bulk of the book does deal with a wide variety of animal Forteana, the authors also include a judicious sampling of vegetable wonders as well.

The book has few faults, and my two major complaints have nothing to do with the content. There are some monocolor drawings, and the publisher has seen fit to print the text on top of some of them. Since the print is rather small, it is difficult to read when printed over a " mottled" color. Secondly, and I do not know whether this is general or whether I received a flawed copy, the gluing is very poor, and the book started to fall apart even before I finished reading it.

There is an index of names but no subject index, which would have been helpful, though the table of contents is fairly detailed, making this something less than a fatal flaw. Also, just for the record, Ivan did not spend "his childhood amid Scottish Highland lochs"; I can recall no other factual errors in the book.

The work is divided into four parts: "Cryptozoology," "Hints of Teleportation," "Wonderful Creatures," and "Controversies and Curiosities." The first two are probably self-explanatory, the first dealing with such things as neo-dinosaurs, out-of-place animals (here restricted primarily to Britain), with an excellent brief history of cryptobiology; and the second with both apparent and possible teleportation of animals and vegetables (termite and ant queens vs. animal and vegetable showers, for example). Part Three has to do with everything from talking dogs and cats and calculating horses to martyred animal baby-sitters. Part Four includes a miscellany ranging from the famous (or infamous) man-eating tree to odd eggs and rat kings (though here they did miss a modern case with a photograph, to be found in S.I.T.U.'s files—but nobody's perfect, and they make no claim to have produced an exhaustive work).

One of the greatest merits of the book is that it is not simply a "seed catalogue." The authors have sought explanations for various phenomena and devote two chapters specifically to theories, clearly labelled as such: "Life After Extinction; a Theory of Revivals" and "An Unknown Force Behind Animal Distribution." There are no exaggerated claims made for either, and both are worth considering. The authors draw on a wide range of sources, from mythology and folklore to the accounts of naturalists, and do not hesitate to point it out when a story, reputed to be factual, has a multitude of parallels in patent folklore, though here too they have an ingenious theory.

Their accounts are balanced, with no attempt to burke contradictory evidence, though they are justifiably hard on explanations that are worse than the phenomenon in question. They write well, with occasional humor (even the illustrations include a few well-chosen cartoons), and with a refreshing lack of pomposity. I think Charles Fort would have liked them and their book.

MONSTERS AMONG US by Brad Steiger (Para Research, Rockport, Mass., 1982, 166 pp., $9.95)

Reviewed by Sabina W. Sanderson

This book engenders an awful temptation simply to quote in its entirety a play review that appeared many years ago: "No."

I'm sure Brad Steiger is a nice person, but as a writer of Forteana he is a menace, giving equal credence to Boris "Porshenev" (*sic*) on ABSMs and Raymond Bernard on the "Hollow Earth," and failing to mention facts that don't suit his theories. This book is strictly for people like the young friend of mine who said, "I don't care whether it's fact or fiction, just so it's entertaining."

Letters to the Editors

In your Third Quarter 1982 issue, Dr. Joseph Intelisano casually refers to "Pyramids in the Tibetan mountains . . . yet to be rediscovered . . . even greater in mass than those of Egypt . . ."

If he knows as much about these pyramids as this offhand remark implies, why not write about *that?*

—Tom Oleson
Madrid, Spain

*Mr. Oleson's reference to Part I of "A Treatise on Anti-Gravity and Light" (*Pursuit *No. 59, Third Quarter 1982, pp. 119-121) was passed along to the author, Dr. Intelisano. Following is his reply:*

My sources are:

1. H. P. Blatvasky's *Isis Unveiled.* (I hope this identification is correct as the reference was read several years ago.) If I recall it correctly, the test detailed the evolution of the First through Fourth Root Races including maps. It was related that the Masters (possibly Etheric) built and/or were in charge of building this Pyramid system.

2. *Saga* magazine, October 1973, p. 40, "Mysterious Pyramids Around the World." James Gaussman, a World War II pilot from New Orleans, Louisiana, reported sighting this Pyramid system. Coordinates will not be given, but a little research will yield the results. Note the location of the Brahmaputra River in India and the Gobi Desert; the latter is believed to be the seat of the Third Root Race, according to Blatvasky.

Please print this letter in *Pursuit* as clarification for all the readers. By the way, if some of our readers have the time and financial means, possibly an expedition into this area to rediscover these Pyramids would be in order.

—Dr. Joseph Intelisano

I have been a member of S.I.T.U. for almost a year now and have recently done a bit of plugging for our organization.

It happened like this: I write a regular column for The Telegraph, a national Sunday newspaper published here, under the title (what else?) "Twilight Zone."

In last week's issue I decided to do a kind of retrospective on Charles Fort, and thereby talk about S.I.T.U. (See photocopy enclosed.) The response was fantastic—everybody wanted to join. I shortlisted a group of people I thought would benefit and sent them the address, P.O. Box 265, Little Silver, NJ 07339, U.S.A.

—Mukul Sharma
Calcutta, India

We feel sure that all our members will join us in a hearty thanks to Mr. Sharma for his article in the Calcutta Daily Telegraph, reprinted in adjacent columns. He has provided as succinct a presentation of Forteanism as any we have read. S.I.T.U. stretches its wings a bit whenever information like this is published. Membership applications received in the aftermath are never great in numbers, but those who respond seem every bit as pleased to have found us as we are to have them aboard. —Ed.

Twilight Zone
Cryptic Charlie

"Every science is a mutilated octopus—if its tentacles were not clipped to stumps, it would feel its way into disturbing contacts."
—Charles Fort

On July 28, 1860, fifteen years before the author of the anti-science lines above was born, a huge ice-covered meteorite crashed down to earth in Dhurmsalla, India. The event was not a fiction because no less an authority than the British deputy commissioner of the area himself noted and reported the incident. The very next evening the good commissioner also observed several moving lights sailing across the sky—some of them keeping fairly low, much like fire balloons. And around the same time, Colin Wilson says, Benares newspapers mentioned a shower of live fish in the city, a fall of some red substance at Farrukhabad, a dark spot on the sun, an earthquake, a lengthy period of darkness during daylight hours and a luminous effect in the sky like the aurora borealis.

The havoc this must have caused in the country was, according to Fort, not even superficially investigated by established science. It became thereafter, his lifelong tenet that scientists—particularly those with in-built myopia—were inept and incapable of examining most of their basic assumptions due to insecurity problems.

Charles Hoy Fort was born to resist stupidity or authority, especially when, as usual, they went hand in hand. Frequently horsewhipped in childhood by an idiotic, autocratic father, he began demonstrating a contempt for the Establishment early in his life. However, his lot was to remain labelled "eccentric" mainly because of what he did and because it made the labellers feel comfortable. After coming into a small fortune in 1916 at the age of 42 through an inheritance, Fort forsook a downhill writing career to devote the rest of his life in the libraries and archives of the world to searching, collecting and collating details of unexplained events which, he was quick to realize, were always reported but never researched further. These included ice blocks falling from the sky, fireballs, human teleportation, feral children, poltergeist phenomena, astronomical curiosities, invisible assassins, strange disappearances and rains of blood, stones, frogs, fishes and coal which had been rumored from all over the globe. In all, it is estimated, he managed to collect over 40,000 notes written on little slips of paper by the time he died in 1932. These were slated to comprise a mammoth bibliography for his first publication, appropriately titled *The Book of the Damned.* Three other books, all in the same erratic, irreverent genre, appeared later in quick succession.

Because his style of writing was atrocious and his subject matter discomforting, Fort was predictably ignored by most of his contemporaries. He repaid this neglect with utter contempt, espousing wilder and wilder theories in order to shake human lassitude into a long-forgotten sense of marvel. It was not that he had an alternative theory to offer; he was merely content instead to simply dump a whole mass of evidence into the unsuspecting reader's lap and let the reader reach a decision.

Apparently the readers did. After Fort's death, a Fortean cult began under the auspices of Tiffany Thayer who founded the Fortean Society and edited its journal *Doubt* until his death in 1959. After that, in 1965, Ivan T. Sanderson, F.R.G.S., in association with a number of other distinguished authors, established a foundation for the exposition and research of Fortean events—those disquieting mysteries of the natural world to which they had devoted much of their investigative lifetimes. This organization, called the Society for the Investigation of The Unexplained (S.I.T.U.) still exists and produces a quarterly magazine called *Pursuit*, available only to members.

So if you are the kind of person who has an open mind courageous enough to face the unknown, this is the organization for you. If you additionally think that much of our inexplicable phenomena has got short shrift from the Establishment and feel that the incidents at Benares, Dhurmsalla and Farrukhabad (or for that matter, in Sri Lanka where only a week back an incandescent, radioactive object crashed), it might be a good idea to join forces. Apply for membership in *The Society for the Investigation of The Unexplained* which is an eclectic, non-profit body.

You could write to me; I am a member. I have the address.

—Mukul Sharma

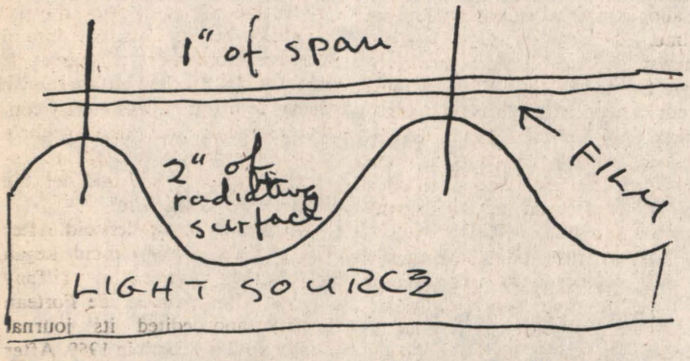
My current residence in Panama is the result of a request to change assignment from Arizona to this new duty station. I've seen quite a bit, heard much more, and read enough to know that many a queer thing exists or comes to pass in this scientific and ordered world we live in today.

I enjoyed *Pursuit* No. 59. The format and content of the articles is moving toward a much easier-to-read-and-digest magazine. I especially liked the article "How Much Do You Know About UFOs?" by T. B. Burch.

—(Sgt.) Terry W. Colvin

The review of the Stevenson-Habermas book* on the Shroud of Turin prompts this letter.

The hypothesis of the shroud is that a mysterious vital radiation, emitted at the instant of Christ's Resurrection, printed a negative image of his body on the fabric. However, if you wrap a fluorescent tube with photographic film, you will get an evenly exposed image, i.e., the tonal range is zero; and if you put a film over a corrugated source of radiation, bars of density will be produced in the exposed image. The bars will be light where the film is in contact with the radiating surface and dark over the depressions.



The above diagram shows that wherever the film is in contact with the radiating surface, the intensity of radiation received by the film is exactly the same as the intensity emitted by the source. The respective surface ratios are 1:1. But a depression in the light source *increases* the ratio of emitting surface over the receiving surface, so the intensity of radiation on the film is also increased.

Since the image on the shroud is darkest where the fabric is in contact with the body and lightest over the depressions of the body, the image on the shroud could not possibly have been made by radiation emitted from the body without violating all the laws of optics and mathematics. The "experts" who examined the shroud declared the image to be a negative, and they asserted the impossibility of any medieval artist having a concept of a photographic negative, much less the skill to portray it on fabric.

This is another flagrant example of book people pontificating on crafts without knowing what they are talking about. It is traditional in the study of graphic representation to "feel" the form of the model with the marking tool on the drafting surface. The image created by this exercise translates the surface-form of the model into light and dark areas corresponding to salience and depression. The resulting image is of exactly the same kind as the one on the Shroud of Turin. Not only is this student exercise traditional throughout the millenia of art; it is the subject of a modern classic, *The Natural Way to Draw* by Nikolaides. Thus, the image on the shroud is *not* a negative!

The image, moreover, conforms to all the characteristics produced by the diffusion transfer process: If a solid model is coated with a wet coloring agent and then covered with a soft, damp fabric, more or less pressed against the surface contours of the model, the coloring agent will offset onto the fabric and diffuse toward the parts of the fabric that did not make contact with the model's depressions. The result is a replica of the Shroud of Turin.

Reproducing the kind of image that characterizes the shroud by the use of traditional artists' methods, of course, blows away the "mystery." Naturally, the shroudists prefer to ignore the facts and continue to purvey their product to a gullible and eager market.

—T. B. Pawlicki

Verdict on the Shroud by Kenneth E. Stevenson and Gary R. Habermas, reviewed by Dennis W. Prater in *Pursuit* No. 60, Fourth Quarter 1982.

As a former astrologer and current novelist of horror and the unexplained, I greatly appreciated Allan Grisé's article "Astrology and Charles Hoy Fort" published in *Pursuit* No. 60 (Fourth Quarter 1982). It seemed to me, because of its bibliographic sources, an authentic and persuasive evaluation of Fort's horoscope.

While referring to the same sources as Grisé's, during my five-years-plus as an astrologer in the '60s, I particularly treasured the findings of an old Englishman whose name was Dr. W. T. Tucker. To substantiate the *Pursuit* piece and perhaps to "renovate" Tucker's invaluable life-work, I would like to interpret Charles Fort's horoscope in terms of the late Britisher's definitions:

Sun conjoin Uranus—Self-stimulating; excitable
Sun oppose Saturn—Gravity of manner
Mercury conjoin Mars—Incessant mental activity
Mars square Neptune—Rebelliousness

. . . adding thereto an extract from Grant Lewi's *Astrology for the Millions* which describes people with the Sun in Leo:

"(Will) take on infinite work and go to infinite trouble ... Leo is acutely aware of himself, always standing off and appraising the effect he is making. He will usually be found, if not conventional, at least discreet. Self-approval replaces conscience; he'll do anything if he thinks it is right, and will brave public opinion if his self-approval is sufficiently important to outweigh the loss of public approval."

—J. N. Williamson

Having just finished reading the Fourth Quarter 1982 issue, I would like to comment on several things. First, I hope you give author Daniel Eden full encouragement for his "Higher Dimensions and The Barrier." He is the kind of author who helps rather than hinders. Furthermore, his approach is right along the fine line of small steps by which true science grows. My own position is not to upset science but to find ways whereby our present science can grow into more remote areas, and I sense this attitude in Mr. Eden.

I was also glad for the article "New Evidence for Psychic Phenomena" from the Reader's Digest for May 1981. I hope you publish a follow-up on Schmidt's research. I would like to know whether anyone has ever taken seriously the idea that probability hits of the kind studied can come from an All-In-the-Head (AITH) theory

based on a presumed feedback in time from the mind's memory storage.

As a highly introspective person, I seem to recall instances where my subconscious mind had taken sensory experience (intruding) and represented it moments after channels were freed. I've also had an ESP dream that could be explained in this way.

Why doesn't Schmidt make an absolute replica of an otherwise random string of micro-determined events and then let his subjects perform the test? I predict they would also score positively under these circumstances, provided they "wanted to" and were aware that they would "learn" of the results. This would be a test of entirely subjective causality, independent of the "outer" world.

—Harold A. Youtz

I have recently noticed another error in Tom Bearden's concept of a scalar wave (*Pursuit* No. 55, Third Quarter 1981).

On page 108 he suggests that to generate the Tesla wave, you must cause variations in a given electrostatic potential (SEP). Presumably, to vary the SEP you must add or remove electrons (or Bearden's hypothetical massless charge, if you prefer). However, by adding or removing any amount of charge from a system, you will automatically change the electrical field surrounding the system; a changing electrical field is precisely the entity that generates normal electromagnetic waves.

Bearden has failed to notice that his original electro*static* situation has been converted into an electro*dynamic* one, merely by varying the original SEP. The waves so generated are not longitudinal scalar waves; they are normal, transverse E-M waves.

Despite his theoretical problems, Bearden is to be praised for the excellent literature searches he has instituted. As he has so clearly pointed out (*Pursuit* No. 58, Second Quarter 1982), creative maverick scientists simply do not have the time to pour through hundreds of technical journals to find the little oddities that lead to new breakthroughs.

The massive undertakings by William Corliss also help in this direction. Literature searches for anomalies *do* point the way to new vistas in science!

—Daniel Eden

The following notes should be helpful in keeping SITU members abreast of recent developments in our research program at The Bigfoot Project here in Seattle:

• In early 1983 the National Cryptozoological Society was formed in Seattle, on an informal basis, so that Forteans who wish to investigate non-biological as well as biological origins of anomalous animals (Bigfoot, Nessie, phantom kangaroos, panthers, Big Bird, etc.) may join with interested scientists who have shown a serious attitude toward this field of inquiry. The NCS feels that Bigfoot, Nessie, et al., may well not be in the same class as the coelecanths and okapi, and that research should not be *a priori* limited to only biological realms. The NCS also takes the stand that none of these creatures should be shot, shot at, or tranquilized simply to satisfy the demands of science. The NCS sponsors The Bigfoot Project and The Water Monster Project. Annual membership is $9.99 with publications or $2.00 without publications. For further information, write to NCS, Box 31990, Seattle, WA 98103.

• Grover Krantz, an anthropologist and board member of the International Society of Cryptozoology based in Tucson, Arizona, has released much information about the toe-prints with dermal ridges found in some of the Walla Walla tracks. Krantz feels that these markings virtually prove that Bigfoot exists as a hominid primate. We respectfully suggest that these markings mean only that something very heavy and two-legged walked through the woods in the Walla Walla watershed. The creature may or may not be a primate, or even an animal. Toe-prints, no matter how impressive, will not do, any more than hair and blood samples.

• We have found further evidence that Bigfoot may come in at least three models: (1) Ape-like but erect creatures, (2) Wild and large Indians, and (3) Hairy, smelly, red-eyed, indestructible aliens related to UFOs. Much has already been written about (1) and (3), so we would like to contribute our data on (2).

The "wild Indian" type of Bigfoot has long been known to Indian tribes as the "stick Indian," a large, even gigantic creature that lives as a Stone-Age hunter-gatherer once did. Now reputedly an outcast, it throws sticks in the night as a sign of willingness to trade game for Indian tobacco (or the white man's chewing tobacco). Our Project recently interviewed a part-Indian man who was kidnapped in 1968 while camping-out alone on Mt. Hood, Oregon. He claimed he spent four days in captivity, during which time he observed that his captors were between 6½ and 7 feet tall and had feet 17 inches in length; they used only stone knives, he said, and hunted deer, gathered roots and berries, fed him well, and were very harmless and friendly. We believe the "stick Indians" to be nomads who use little if any fire; they have large brow-ridges which may explain that they are surviving Neanderthals and therefore "outcasts" in our present age. They wear no clothes (not in the summer, anyway), yet are not hairy as are the type (1) and (3) Bigfoot creatures, but brown-skinned.

These findings have been confirmed by a builder who reported the best-ever sighting by a white man of a type (2) Bigfoot in the Everett-Lake Stevens area of Washington state. It has become clear that any person who fires a rifle at such a creature could be justly charged with murder or attempted murder of a human being, and a rare one, whether or not of Neanderthalic origin.

• Biologist Clyde M. Senger reported in The Skeptical Inquirer magazine that intensive searches by himself and his students begun 18 years ago have revealed nary a trace of Bigfoot in any caves in the Chuckanut Mountain and Mt. St. Helens areas. We are not surprised. Our own research and John Green's also, shows that Bigfoot doesn't use caves but sleeps under trees. According to our informant on the "Tuni-ka," as the Warm Springs tribe in Oregon call their Bigfoot, the creatures curl up close for warmth as a pack of dogs would. What they do in winter is unclear, but Warren Scott reports that they dig out dirt caves and don't use natural caves; and Muchlat Harry claims they sleep under ledges and confirms that they avoid natural caves. (Indians, when asked why Bigfoot doesn't use caves, have a sensible answer: "Would *you* sleep in a place with only one exit?")

—Jon Erik Beckjord

CHARLES H. HAPGOOD

I frequently receive communications from people who wish to consult me concerning their unpublished ideas. It goes without saying that these ideas are very seldom possessed of scientific validity. The very first communication, however, that I received from Mr. Hapgood electrified me. His idea is original, of great simplicity, and—if it continues to prove itself—of great importance to everything that is related to the history of the earth's surface. . . .

Albert Einstein wrote this and more in a foreword to Charles Hapgood's milestone book *Earth's Shifting Crust*, published in 1958.

Einstein predicted that Hapgood's theories would have an impact on the scientific community. They certainly did. For a long time, well into the '60s, the response was generally negative. Then, as a new generation of scientists came on the scene, bringing with them less prejudice, clearer insights and more tractable research methods, Charles Hapgood's ideas began to gain adherents. Over the course of twenty years, the voices of his supporters grew in number and strength until something of a clamor arose for him to update *Earth's Shifting Crust* (it had undergone a modest interim revision for reprinting and retitling as *Path of the Poles*). Hapgood completed the revised manuscript and mailed it off to the publisher only weeks before his death. We eagerly await its publication.

Summarizing Hapgood's theory, Einstein wrote:

A great deal of empirical data indicates that at each point on the earth's surface that has been carefully studied, many climatic changes have taken place, apparently quite suddenly. This, according to Hapgood, is explicable if the virtually rigid outer crust of the earth undergoes from time to time, extensive displacement over the viscous, plastic, possibly fluid inner layers. Such displacements may take place as the consequence of comparatively slight forces exerted on the crust, derived from the earth's momentum of rotation, which in turn will tend to alter the axis of rotation of the earth's crust.

As Einstein noted, Hapgood did not confine himself "to a simple presentation of this idea. He has also set forth, cautiously and comprehensively, the extraordinarily rich material that supports his displacement theory."

Maps of the Ancient Sea Kings was another of Hapgood's books that laid early claim to scientific immortality with the same cautious comprehensiveness which Einstein so warmly applauded. Charter S.I.T.U. member Dr. Neil M. Lorber wrote in 1968 that Hapgood's *Maps* seemed to fulfill all the expectations aroused by its subtitle, "Evidence of Advanced Civilization in the Ice Age." The reviewer added that "this highly technical and scholarly work is of particular interest to Forteans." Time has proven the accuracy of Dr. Lorber's assessment. *Pursuit* has published more than 60 issues since 1968 and in most of them, as in the issue you are now reading, one or more references have focused on the remarkable maps that Hapgood attributed to his "Ancient Sea Kings."

In his later years, Hapgood wrote several books based on the life of spiritualist Elwood Babbitt. The final work in the series, *The God Within*, has just been published.

Professor Hapgood's teaching career began with his graduation from the Harvard Graduate School of Arts and Sciences; it lasted 37 years (18 at New Hampshire State College in Keene) and ended with his retirement in 1969. Since July he had been living in Fitchburg, Massachusetts. He died there on December 21, at the age of 78.

New-Age Energy Technology

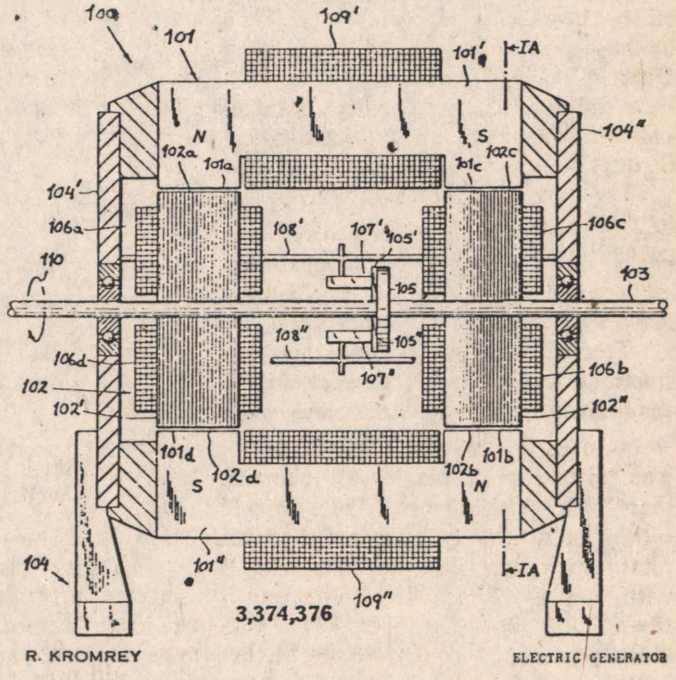
(Continued from page 23)

science magazines. It is interesting to note that Saudi Arabia has announced an investment of $100 million in Hitachi stock.

France: The "Kromrey" converter has completed tests at the Institute for Magnetostatics at the University of Strasbourg. One prototype delivered 700 watts at 600-1200 RPM, at a fairly uniform rate. France, however, is the No. 1 developer of nuclear energy in Europe and is reluctant to devote much attention to a revolutionary new technology which could result in drastic curtailment of her well-developed nuclear industry and the export business associated with it.

Denmark: A physicist at the University of Copenhagen named Jensen has reported test results of 300% efficiency with a specially designed 5-coil transformer in connection with a tachion field converter based on the principle of the "N" machine. First reports were presented at the International Conference on Energy Technology in Hannover in November, 1980.

England/U.S.A.: A "bullet train" based on British Prof. Eric Laithwaite's magnetic levitation system is being considered as a way to speed travel between Los Angeles and San Diego, California. Japan and West Germany are already operating high-speed experimental trains, suspended magnetically to reduce friction, that may soon attain speeds of more than 200 miles per hour. The Laithwaite-Eastham method would use electromagnetic forcefields induced over an aluminum-topped concrete track. If and when construction is undertaken, the project will probably be turned over to a Japanese firm as the prime contractor.



The Notes of Charles Fort

Deciphered by Carl J. Pabst

ABBREVIATIONS

★★	For some obscure reason, Fort cut a point on the left side of the note.
#	[?]
Ac to	According to
A. J. Sci	*American Journal of Science*
(A 1)	[? Almanac ?]
An de Chimie	*Annales de Chimie*
An Reg	*Annual Register*
Arcana of Sci	*Arcana of Science*
Arch. des Decouv.	*Archives des Decouvertes*
Archiv. Verein Freunde Natur of Mecklenburg	[?]
Ast. Reg	*Astronomical Register*
Astro	Astronomical
attrib	attributed
BA	*Report of the British Association for the Advancement of Science*
bet	between
Bib. Univ.	*Bibliographie Universelle*
BO	"It is clear from the arrangement of the notes that he [Fort] was searching his chronological arrangement and plucking out specific notes for a future book in which he would refer to these data as opprobrious to the Scientists for their *odor*, 'B O'." (*The Fortean*, #3, p. 14, c. 1)
B. R. Success	Succession of black rains
Br. V Assoc	[?]
b. snow.	black snow
Bull Soc. Belge D'Astro	*Bulletin de la Societe Belgium D'Astronomique* [?]
(C)	[?]
(Ch)	*Chaos* [Fort's working title for *New Lands*]
Cor.	Correspondent
C.R.	*Comptes Rendus*
(Cut)	illustrated
D-177	*The Book of the Damned*, page 177
dept.	department
det met	detonating meteor
dets of phe	details of phenomena
Disap / Extraord	Extraordinary disappearance
dist. thunder	distant thunder
E. limb	Eastern limb
Edin Jour Sci	*Edinburgh Journal of Science*
Eng	England
Eng. Mec.	*English Mechanic*
Ext. Discovery	Extraordinary Discovery
(F)	*Fletcher's List*
F. ball	Fireball
(Frgs)	(Frogs)
Ga	Georgia
Gent's Mag	*Gentleman's Magazine*
h.	hours
Hun	Hungary
Inf. conjunction	Inferior conjunction
(It)	Italy
Jour Amer. Museum Nat Hist	*Journal of the American Museum of Natural History*
Jour. Roy Inst Gt. Britain	*Journal of the Royal Institute of Great Britain*
K. Hauser	Kaspar Hauser
Kiesw.	"An enterprising new member has undertaken the task of checking the references in Charles Fort's NOTES as printed in the Magazine, especially and primarily those gathered from the Reports of the British Association for the Advancement of Science. This welcome refinement of details is forwarded by H. A. Kiesewetter, of Buffalo, who is assisted in the work by Mrs. Kiesewetter." (*The Fortean*, #10, p. 146, c. 1)
Ky.	Kentucky
La Belg. Horticole	La Belgique Horticole
La S. P. Tous	*La Science Pour Tous*
Lght	Light
Lin. Soc Trans.	*Linnaean Society Transactions* [?]
L'Institut	[?]
Liv Age	*Living Age*
L.T.	London *Times*
lum. of one	luminous [intensity ?] of one [candle power ?]
Mag Nat Hist	*Magazine of Natural History*
Mechanics' Mag	*Mechanics' Magazine*
Mem. R. A. S.	*Memoirs of the Royal Astronomical Society*
Mems Nat. Acad. of Sciences	*Memoirs of the National Academy of Sciences*
metite	meteorite
M Notices	*Monthly Notices*
Monroe Co.	Monroe County
mt.	mountain
"mut"	mutilation
N.J.	New Jersey
N.M.	No More
(N) op	[?]
N. S. Wales	New South Wales
Obj	Object
Op. Mars	Opposition of Mars
p.	page
(P)	[?]
Penny Mag	*Penny Magazine*
phe	phenomena
Phil Mag	*Philosophical Magazine*
P.P.	[?]
q and geolog	earthquake and geological phenomena
Q. Jour. Roy Inst	*Quarterly Journal of the Royal Institute*
S. Car.	South Carolina
Smithsonian Inst Rept.	*Annual Report of the Smithsonian Institution*
Somnamb.	Somnambulism
stat.	stationary
S to N	South to North
S.W. to N.E.	Southwest to Northeast
Symons Met	*Symons' Meteorological Magazine*
Tenn.	Tennessee

th. storm	thunderstorm
Trans Bombay Geog Soc	*Transactions of the Bombay Geographical Society*
Trans. Perthshire Soc Met. Sci	*Transactions of the Perthshire Society of Meteorological Science* [?]
Tr. Roy Soc Edin	*Transactions of the Royal Society of Edinburgh*
Va.	Virginia
vol.	volume
Volc	Volcano
zod light	zodiacal light

Notes continued from *Pursuit* No. 60, Vol. 15, No. 4, Fourth Quarter 1982, page 191.

1828

June 4 / (F) 9 a.m. / 7 miles S.W. of Richmond, Va. / metite / A. J. Sci 15/195 / 16/191 /
[Reverse side] Looked very much like volcanic rock.

June 6 / Great q / Kashmir / 1000 killed / BA '11.

June 8 / Volc / Goentoes, Java / N.M. / C.R. 70-878.

June 8 or 10 / Canton de Vaud, Switzerland / Painted Ladies / from S to N / column 10 or 15 feet [Reverse side] broad / for 2 hours / Athenaeum 1828/891.

June 15 / Smyrna / I / [Light quake / BA 1911].

June 16 / [London *Times*], 5-b / Sunspots.

summer / BO / Teleport / In Amer Jour. Sci, 16-41, Joseph E. Muse tells of a ditch that had been dug upon his farm near Cambridge, Maryland, in land ten feet above a river that was a mile away. The work was interrupted by rain that continued 10 or 12 days. The rain water
[Reverse side] filling the ditch contained hundreds of fish, two kinds of perch. They could not have developed from fish spawn in so short a time: they were from four to seven inches long. There had been a similar occurrence several years before. In a ditch unconnected with any body of water had appeared many perch, some of them a foot in length.

June 30 / 15 h. / Op. Mars / (A-1).

July 27 / — 20 h / Venus / Inf. conjunction / (A 1).

summer / Fish / Cambridge, Maryland / Am. J Sci 16/41.

Aug 9 / Caucasia / III / [Heavy quake / BA 1911].

Sept. 7 / Horton, Ribblesdale / Met size moon / brilliance = sunlight / BA 54.

Sept 14 / Tarragone, Spain / Storm / lightning / terrific concussions in the sky /
[Reverse side] fall of hailstones of 4 or 5 ounces and more each / Arch. des Decouv. 1829-187.

Sept 14 / Catalonia, Spain / "Extraordinary storm, accompanied by hail of most unusual size. / BA '54-196 / Q on 15.

Sept 14-15 / nigh[t] / Murcia, Spain / disastrous q / Arch. des Decouv. 1829-198.

Sept 29 / Norwich, Eng / shaft of light in sky / Mechanics' Mag 22/192.

Sept 29 / Great beam / Phil Mag 2/4 / index / lum. of one.

Oct 1 / Canary Islands / I / [Light Quake / BA 1911].

Oct 3 / Beam / [Lond. *Times*], 3-e / 4-4-b / 1-3-a / Rainbow phe / See Sept 29, 1829.

Oct 5-8 / Emilia, Italy / I / [Light quake / BA 1911].

Oct 9 / Italy, north of Genoa / II / [Medium quake / BA 1911].

Oct 9 / (±) (It) / q and geolog / See next. / Piedmont / flames from a crevice? / See 1805 and q.

Oct. 10 / Turin / Fireball / BA 60.

Oct 9 / Oct 10 // Turin — Genoa, etc. / qs / a met on 9th / BA '54.

Oct 10 / (It) / det met / Piedmont / and q / See 1805.

Oct. 10 / Violent q in Italy — many villages ruined. "Several persons said they had seen a luminous meteor shortly
[Reverse side] before the shock. / B. Assoc, '54-197.

Oct 13 / St Lawrenc[e] / Dark day / smoke / rain bitter with effects / smoke fell / Arcana of Science 1830/237.

Oct 17 / (It) / The concussions of the 10th repeated at Voghera till the 17th. / See 1805.

Oct 20 / astro / [Lond. *Times*], 3-c / Nov. 12-3-c / Comet of 1835.

Oct 9 // Oct 24 [London *Times*]. 2-d / q — Genoa / See Oct. 9, 10.

Oct. 29 / India / II / [Medium quake / BA 1911].

Nov. 5 / Mars in quadrature.

Nov. 6 / Cape Town / Meteor / BA 54.

Nov. 9 / Philippines / II / [Medium quake / BA 1911].

Nov 11-12 / In Isere, France, large meteor and others smaller. / C.R., 3-50.

Nov. 21 / 1 p.m. / Mysterious explosive sound heard by the naturalist Roth,
[Reverse side] in Switzerland. / Bull Soc. Belge D'Astro, 4-196.

Dec 3 / [London *Times*], 3-d / 10-2-c / 19-3-a / Somnamb.

Dec 16 / [London *Times*], 3-f / Storm — frightful at Portsmouth.

Dec 18 / q. / Sea waves / Japan / III / [Heavy / BA 1911].

Dec 29 / 10 a.m. / Great q. Celebes, and sea rose tremendously. / BA 54.

1829

(unless otherwise indicated)

/ (P) / Bushmills, Ireland / frogs / "half-formed" / Arcana of Sci., 1830/217.

/ Persia / Manna / D-53.

[BCF, pp. 53-54:

In 1829 (Timb's *Year Book*, 1848-235) in Persia fell a substance that the people said they had never seen before. As to what it was, they had not a notion, but they saw that the sheep ate it. They ground it into flour and made bread, said to have been passable enough, though insipid.

That was a chance that science did not neglect. Manna was placed upon a reasonable basis, or was assimilated and reconciled with the system that had ousted the older—and less nearly real—system. It was said that, likely enough, manna had fallen in ancient times—because it was still falling—but that there was no tutelary influence behind it—that it was a lichen from the steppes of Asia Minor—"up from one place in a whirlwind and down in another place." In the *American Almanac*, 1833-71, it is said that this substance—"unknown to the inhabitants of the region"—was "immediately recognized" by scientists who examined it; and that "the chemical analysis also identified it as a lichen."

This was back in the days when Chemical Analysis was a god. Since then his devotees have been shocked and disillusioned. Just how a chemical analysis could so botanize, I don't know—but it was Chemical Analysis who spoke, and spoke dogmatically. It seems to me that the ignorance of inhabitants, contrasting with the local knowledge of foreign scientists, is overdone; it there's anything good to eat, within any distance conveniently covered by a whirlwind—inhabitants know it. I have data of other falls, in Persia and Asiatic Turkey, of edible substances. They are all dogmatically said to be "manna"; and "manna" is dogmatically said to be a species of lichens from the steppes of Asia Minor. The position that I take is that this explanation was evolved in ignorance of the fall of vegetable substances, or edible substances, in other parts of the world; that it is the familiar attempt to explain the general in terms of the local; that, if we shall have data of falls of vegetable substance, in, say, Canada or India, they were not of lichens from the steppes of Asia Minor; that, though all falls in Asiatic Turkey and Persia are sweepingly and conveniently called "manna" showers, they have not been even of the same substance. In one instance the particles are said to have been "seeds." Though, in *Comptes Rendus*, the substance that fell in 1841 and 1846 is said to have been gelatinous, in the *Bull. Sci. Nat. de Neuchatel*, it is said to have been of something, in lumps the size of a filbert, that had been ground into flour; that of this flour had been made bread, very attractive-looking, but flavorless.]

/ Volc reported in N.S. Wales / Gent's Mag /1829/1/636.

Jan / Unusual fall of rain in Lakes District / Tr. Roy Soc Edin 22-41.

month of Jan / q and aerial and stationary / (Cut) / Shocks almost daily at Patras, Greece, always accompanied [by] atmospheric [d]isturbance.
[Reverse side] B Assoc—54-201.

Jan 1 / [London *Times*], 3-f / Aurora / Hull.

Jan 10 / [London *Times*], 2-f / 24-2-c / 31-4-a / Feb 9-5-f / Trance.

Jan-April / # /Series of fires / (+) / Rheims / An Reg 1829/138.

Jan 31—Ap 9 / Fires / An. Reg. 1829-138 / Boy Lambert Canizot, who lived with father, at Sommerville, (Hermouville) France. Jan 31, house took fire on thatched roof, whic[h] sloped down to a few feet of the ground. Feb 9, at 9 in morning, another fire in an out house. Boy was first to see it, and spread the alarm.
[Reverse side] Same day, another fire on another thatched roof. The boy gave the alarm. On 15th, in afternoon, a shoe full of dead embers found near a pile of straw. Shoe belonged to the boy's small brother. "It was evident" that the cinders had been so carried. 3 days later, at 9 in the morning,
[Second page] in the home of one Latuc, fire on lower part of thatched roof—heated cinders found near it. The boy gave the alarm. Feb 24, house of one Deen afire on thatch a few feet from ground. March 14—another house—thatch, near
[Reverse side] ground—boy gave the alarm. Other fires—then Canizot was seen thrusting his hand into a thatched roof—he saw he was watched and crept away on hands and knees. A little later fire burst out here.
[Third page] The boy was arrested, found guilty and sentenced to 20 years imprisonment in the House of Correction.

1820 / Flammarion, "The Atmosphere," p. 472 / "Xavier de Maistre declares that a young girl was carried off by a [w]hirlwind
[Reverse side] but it is not said to what height." ///

6 - 16 - 6
2 12 6 [probably not related]
29
9

[note cut off].

1821 ab first of Aug. / BO / A Boa constrictor / unknown on Island of St Vincent / shot / was bet 14 and 15 feet long /
[Reverse side] Q. Jour. Roy Inst 12-428.

[1824 July] / Singular disease in Italy / LT, 1824, July 24-2-b.

Feb. 7 / ab 3 p.m. / Capt Sturt, exploring Southern Australia, camped on the bank of the Darling
[Reverse side] River. Heard what seemed to be the report of a gun 5 or 6 miles away—"heavy piece of ordnance." Great mystery to him, and he could in no way account for it. / Nature—81-127.

Feb 21 / Disastrous q throughout south of Iceland / BA 54.

Feb 21 and 22 / south of Iceland / Shocks—q / farms destroyed /
[Reverse side] Smithsonian Inst Rept. 1885-510.

Feb 24 to March 10 / Several qs a day around Lake Baikal / Mag Nat Hist 6-301.

March / Spain / qs / also meteors and halos around sun and moon / BA 54—p. 211 / [Kiesw. "should be Oct 24, Granada"].

March / Slight shocks in Murcia. Went on at least to Ap., 1833. / See BA 54.

March 5 / [London *Times*], 7-a / Ext. Discovery.

Mar 8 / Irkutsk, Siberia / Said severe q felt several hundred miles—but no damage recorded.
/ A clattering noise heard—It was Dr. Erman's conclusion noise was overhead and not
[Reverse side] subterranean. The noise "seemed to recur according to a certain rule." Vibrations were felt up to the 22nd. / B Assoc 54/201.

[BCF, p. 403:

We have had records of quakes that occurred at Irkutsk, Siberia, and of stones that fell from the sky to Irkutsk. Upon March 8, 1829, a severe quake, preceded by clattering sounds, was felt at Irkutsk. There was something in the sky. Dr. Erman, the geologist, was in Irkutsk, at the time. In the *Report of the British Association*, 1854-20, it is said that, in Dr. Erman's opinion, the sounds that preceded the quake were in the sky.]

Mar 19 / 12:30 a.m. / Maling, Dalecarlia, Sweden / q and met sound / BA '54.

March 21 / q. / Murcia, Spain / Fearful nois[e] and a column of fire to the east-
[Reverse side] ward of Murcia. / L.T., Ap. 14-4-a //

[Front side] At Benejuzar, four craters opened, 2 of which threw out lava. /
[Reverse side] L.T. 16-3-c.

March 21 / 5:20 a.m. / Violent shocks in Jamaica / BA 54.

March 21 / Q in province of Murcia—severe. 2 salt lakes, water disappeared. At Benejuzar, 250 perished. / A. Reg., p. 63 /
[Reverse side] Here, at B., 4 craters opened and threw out lava. Out of all towns by Ap. 3, more than 3,000 bodies dug out. A column of fire was seen toward the eastward of Murcia.

March 21 / 6:30 p.m., in Murcia. Premonitory sounds like thunder heard 3/4 hour. It was like
[Reverse side] cannon fire. / BA 54.

March 22 / Sound like cannon firing and shocks / Ancona, Italy / BA 54.

March 22, 23, 24, 30 / Shocks / Jamaica / BA 54 / [Kiesw. "27 great severity"].

Ap 1, 6, 16, 24— / qs and rain / Q's in Spain. "Heavy rain fell almost the whole
[Reverse side] month through, in Spain, producing great inundations." / BA '54 /
[Front side] See June 1.

April / Heavy rains and floods almost whole month in Spain. / BA 54.

April / "Heavy rain fell almost the whole month through in Spain, producing great inundations. / BA 54-204.

Ap. 2 / BO / Volc eruption near Hudson's River, N. S. Wales, reported. / Mag Nat Hist 6-301.

Ap. 2 / Leon, Spain / q., preceded by violent storm of rain and snow / BA 54 / [Kiesw. "should be 10th"].

Ap. 18 / q. / Murcia, Spain / LT, May 20-5-e.

Ap. 18 / Smaller q's on 16th and 17th. On 18th, almost equal to 21st March. / BA 54.

Ap. 23 / In Baden / severe q / 9:30 p.m. / sound like thunder / severe
[Reverse side] snowstorm.

[18]29 [Ap 30] / Lght / [London *Times*], Ap 30/4/d.

May 5 / Q in Salonica and a mt. poured out reddish water. / BA 54.

[18]29 [May 7] / Light / [London *Times*], May 7/6/d.

May 8 / Forsyth, Ga / (F) / Farrington / Mems Nat. Acad. of Sciences, vol. 13 /
[Reverse side] 13—.

May 8 / Stone of Forsyth, Ga. / bet. 3 and 4 p.m. / A. J. Sci 18-388 /
[Reverse side] Greatly resembles stone of May 9, 1827.

May 21 to early in Dec / It, Sounds / (+) / See 1816. / at Albano Laziale / 41 detonations not accompanied by quake.

May 22 / [London *Times*], 4-c / Storm/ Isle of Bourbon.

May 22 / Graz, Austria / q preceded by uninterrupted rain for 8 days / BA 54-206.

(To be continued)

Traditions of Submen in Arctic and Subarctic North America

(Continued from page 7)

trip and borrowed money to take a ship out of Alaska for good. Before leaving, however, he told Colp his story.

Shorn of irrelevant details, this is to the effect that, having climbed a tree on a hill to get his bearings after some days of prospecting, he saw a band of humanoid creatures, covered in thick hair, rushing towards him up a slope. He described them as "the most hideous creatures. I couldn't call them anything but devils, as they were neither men nor monkeys, yet looked like both. They were entirely sexless (no visible genitalia or mammary glands, presumably: *Author*), their bodies covered with long coarse hair, except where scabs and running sores replaced it." "Charlie" recounted that he had slid down the tree, thrown his already damaged gun at the first, then run for his canoe, apparently most closely pursued by the creatures. He was unable to give a clear account of what followed, but he finally found himself in the bottom of his canoe, adrift after dark, and managed to paddle back to Wrangell.

The next five chapters of the book relate the experiences of first "John" and "Fred"; then "John" and the author on two trips, three years apart; then the author and a Norwegian identified only as "Ole." These trips took place respectively in July of 1900 (immediately after "Charlie's" return and departure); September of that year; 1906; 1908; and 1911. In 1914, Mr. Colp says that he sent in two men to investigate—a half-Russian and a Japanese; in 1919 he sent in three men but they came out in two weeks with three completely different stories—one that they had never been to Thomas Bay; one that they had gone to another part of it; and the third that they had gone to the area designated, up the Patterson River, and had found everything as Mr. Colp had previously stated, including two odd-shaped lakes—but no gold. This was the final enigma that apparently caused Mr. Colp to give up what had been almost a quarter-century of investigation.

The complete contradictions in the stories of these three men were not by any means the oddest events alleged to have occurred in this district; and not only to them, but to Mr. Colp, himself, though *he* seems to have been less affected psychologically than any of the others. These events need not concern us except to remark that they sound not just improbable but altogether inexplicable. Through all these stories there runs, nonetheless, a thread of reference to hairy, stinking humanoids.

(Ivan Sanderson's article will be concluded in the next issue.)

THE SOCIETY FOR THE INVESTIGATION OF THE UNEXPLAINED

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ORIGINS OF SITU/PURSUIT

Zoologist, biologist, botanist and geologist Ivan T. Sanderson, F.L.S., F.R.G.S., F.Z.S., in association with a number of other distinguished authors, established in 1965 a "foundation" for the exposition and research of the paranormal—those "disquieting mysteries of the natural world" to which they had devoted much of their investigative lifetimes.

As a means of persuading other professionals, and non-professionals having interests similar to their own, to enlist in an uncommon cause, the steering group decided to publish a newsletter. The first issue came out in May 1967. The response, though not overwhelming, was sufficient to reassure the founding fathers that public interest in the what, why and where of their work would indeed survive them.

Newsletter No. 2, dated March 1968, announced new plans for the Sanderson foundation: a structure larger than its architects had first envisioned was to be built upon it, the whole to be called the Society for the Investigation of The Unexplained, as set forth in documents filed with the New Jersey Secretary of State. The choice of name was prophetic, for Dr. Sanderson titled one of the last of his two-dozen books "Investigating the Unexplained," published in 1972 and dedicated to the Society.

Another publication was issued in June 1968, but "newsletter" was now a subtitle; above it the name *Pursuit* was displayed for the first time. Vol. 1, No. 4 in September 1968 ("incorporating the fourth Society newsletter") noted that "the abbreviation SITU has now been formally adopted as the designation of our Society." Issue number 4 moreover introduced the Scientific Advisory Board, listing the names and affiliations of the advisors. Administrative matters no longer dominated the contents; these were relegated to the last four of the twenty pages. Most of the issue was given over to investigative reporting on phenomena such as "a great armadillo (6 feet long, 3 feet high) said to have been captured in Argentina"—the instant transportation of solid objects "from one place to another and even through solids"—the attack on the famed University of Colorado UFO Project headed by Dr. Edward U. Condon—and some updated information about "ringing rocks" and "stone spheres."

Thus SITU was born, and thus *Pursuit* began to chronicle our Investigation of The Unexplained.

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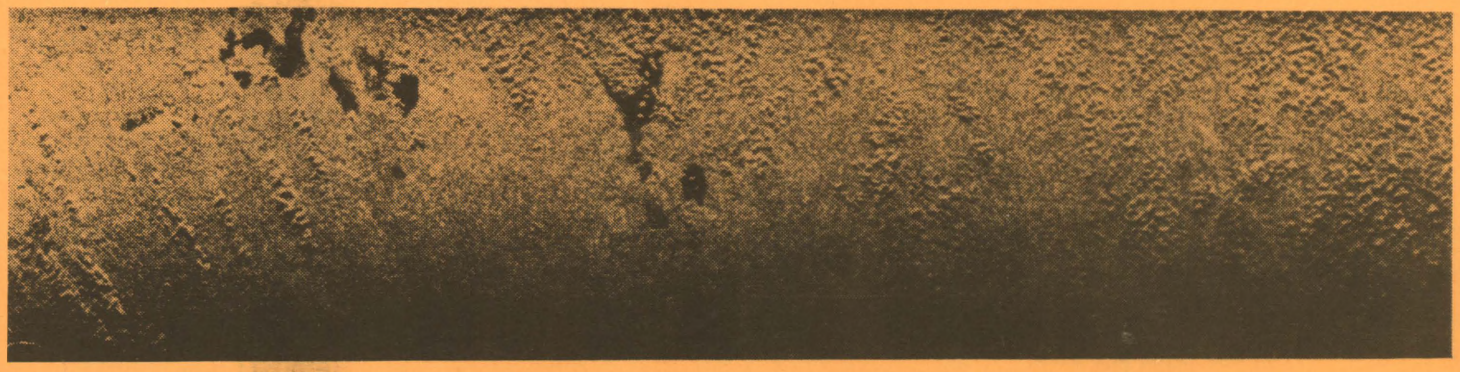

Maya Canals in Guatemala Revealed by Radar

Radar imagery as an archeological tool came of age in 1978 when grid-like patterns were found in Guatemala's central lowlands. Upper photograph shows the raw image of the rain-forest canopy. Lower photograph shows patterns found in the radar imagery. Ground exploration later confirmed that the lattice-like lines are probably remnants of irrigation canals dug by the Maya between 250 B.C. and A.D. 900. The dark formations in both photographs are lakes and rivers.

NASA