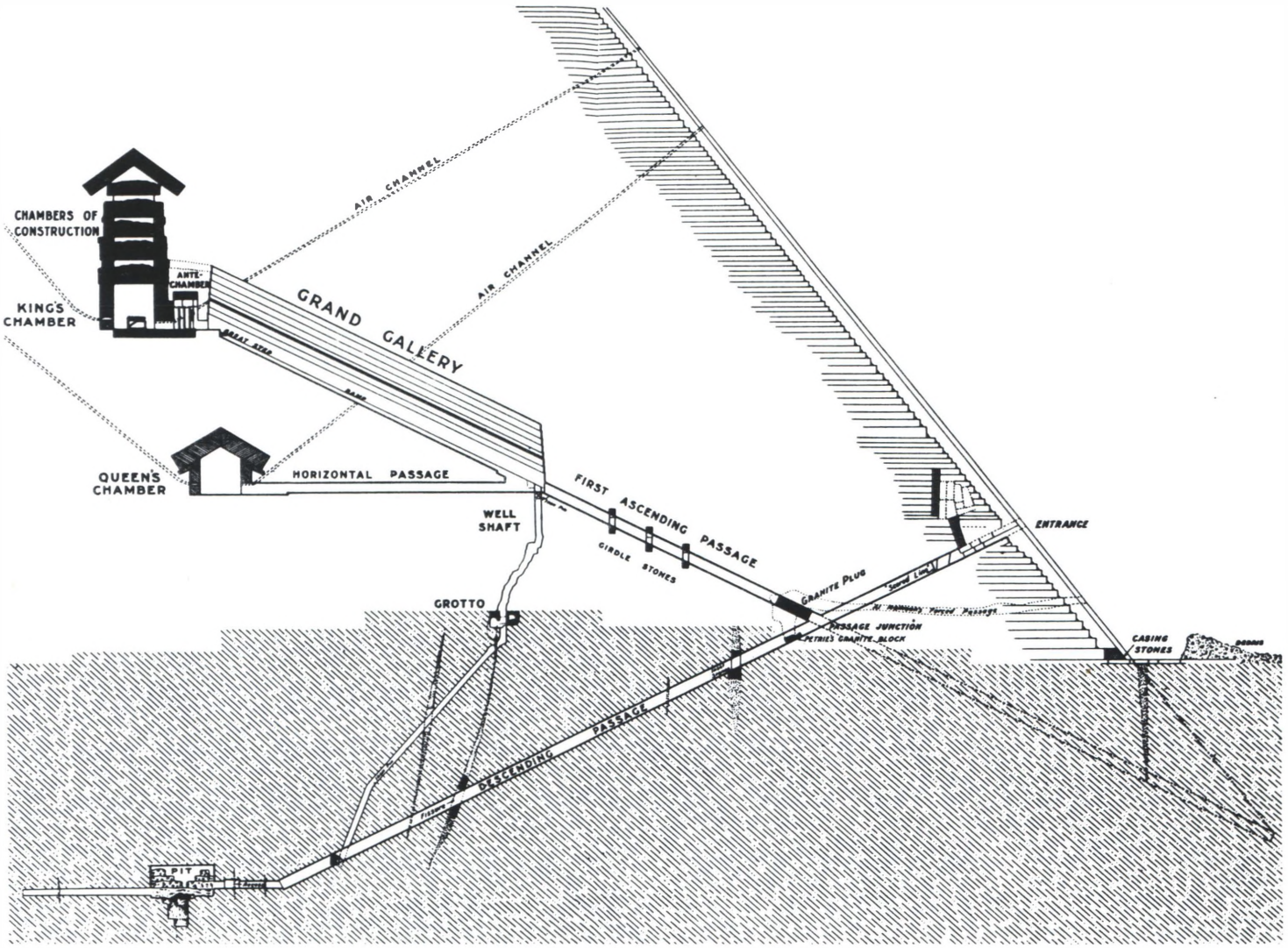
Pursuit

'Science is the Pursuit of the Unexplained'

Section of the Passages of the Great Pyramid



SCALE: One inch equals (approx.) 67 ft.

Drawn by H. Lawson.

See "The Water-Powered Pyramid" page 2

Journal of SITU
The
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Investigation of
The Unexplained

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THE SOCIETY FOR THE INVESTIGATION OF THE UNEXPLAINED

Mail: SITU/PURSUIT, P.O. Box 265, Little Silver, NJ 07739 USA Telephone: (201) 842-5229

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The Society's journal *Pursuit* is published quarterly. In each year the issues are numbered respectively from 1 through 4 and constitute a volume, Volume 1 being for 1968 and before, Volume 2 for 1969, and so on. Reduced-rate subscriptions to *Pursuit*, without membership benefits, are available to public libraries and libraries of colleges, universities and high schools at $10 for the calendar year.

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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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Why Tesla?

Shortly before his death in 1973, SITU's founder, Ivan T. Sanderson, wrote an editorial for *Pursuit* titled "A Fifth Force." In it he stated, "This fifth force is certainly involved in various aspects of SSP (meaning Super-Sensory Proclivities) and it would now seem to be the major force operative in the true psychic field and possibly the only one acting therein."

John White further expanded on this so-called fifth force in his book *Future Sciences* as having been variously labeled and described by many investigators over the centuries.

Now, there is a steadily growing interest in the work done by Nikola Tesla in this regard for there are those who do believe that a greater knowledge of his experiments and discoveries in the late 1900s may give us an important clue and possibly an answer to the origin of 'supernatural' phenomena - those unexplaineds - that we investigate and report on to our readers.

After you have read the articles in this issue of *Pursuit* by Thompson, Nelli, Bearden and Callahan you, perhaps, can better understand why Tesla's work is becoming increasingly significant.

Tesla came to this "land of opportunity" from Yugoslavia. Ironically, the deliberate neglect of Tesla's genius by a few financial magnates to protect their personal profits then may have caused the present threatening predicament, as Bearden describes it, from an alien, non-capitalistic nation that has possibly investigated, developed and already used Tesla's discoveries to our disadvantage.

R.C.W.

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THE WATER-POWERED PYRAMID

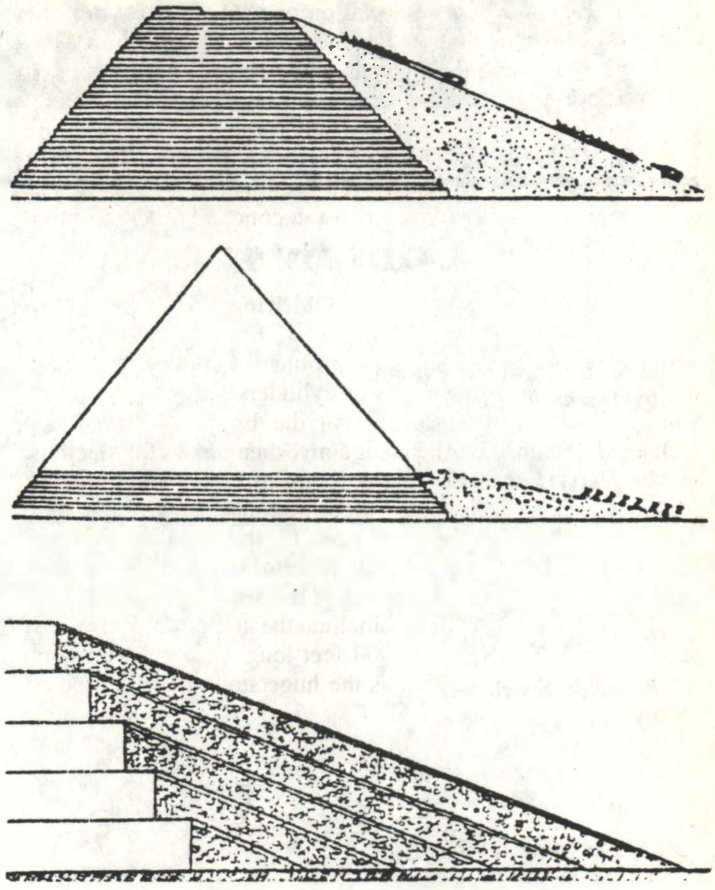
An Amateur Egyptologist Discovers The Secret of Pyramid Construction

by David A. DeWitt

If it is possible to laugh from one's grave, the Pharaoh Khufu must be hysterical after all these centuries in his undiscovered tomb. Up to now, the most renowned historians, archaeologists, engineers and architects have failed to definitively determine the method of constructing the Great Pyramid at Giza, which was completed before the end of the 23-year reign of Khufu, or Cheops, as the Greeks called him. There is no lack of theories; from the time of Herodotus until now, dozens of proposals have been advanced but not one has been universally accepted as a proof. It seems that "pyramid power" is actually the mysterious ability of that great structure to withhold the secrets of its construction for nearly five thousand years.

It is no minor mystery. The Great Pyramid of Khufu, one of three at the Giza site, is among the grandest construction projects ever undertaken by man. With respect to the human energy expended and the amount of building material used, the Khufu pyramid was the largest single structure built until the mid-1930s when Hoover Dam was completed. About *two and a half million* hand-cut stone blocks were used in the construction, some of which weigh as much as seventy tons. These blocks were transported over twenty miles from the quarry to the building site, probably by barge. The area of the base of the pyramid is thirteen acres, the height is 481 feet, and the precision of construction is almost beyond understanding.

The base was leveled with such accuracy that the southeast corner is less than an inch lower than the northwest corner. The casing stones were cut and fitted with precision to one-fiftieth of an inch. So given all this data and the fact that the Great Pyramid weighs over *six and a half million tons*, how was it built?



Ramps, Rockers, and Concrete

There is archaeological evidence that the smaller and less sophisticated pyramids were constructed with the use of ramps. Loads of small stones and rubble were hauled up ramps, dumped, and fashioned into a core of roughly pyramidal shape. Later, smooth casing stones were fitted over the core, completing a structure of geometric perfection. Egyptologists have been so enamored of the ramp theory that they presume the three Giza pyramids must have been built the same way, despite the many difficulties such a theory encounters. The later pyramids were not built of rubble but from carefully quarried stone blocks. Tradition, from time to time enlivened by writers and film-producers, depicts teams of slaves by the hundreds, manhandling the blocks up a ramp or series of ramps, using ropes to pull them and cross-cut tree trunks as rollers. Yet hauling three-ton blocks up an incline with ropes and log-rollers is both clumsy and inefficient.

The major objection to the ramp theory is that building a large pyramid in such a way would involve two to three times as much work as needed: First, the ramp would have to be constructed; only then could the pyramid be built; and finally, the ramp material would be removed. According to some estimates, the amount of material in the ramp would exceed that of the Khufu Pyramid! Of course, such an objection can be overcome if we accept as fact calculations that as many as 360,000 slave laborers were involved at some time in the project. To build just the Khufu Pyramid with a ramp would have required a standing work force of 25,000 laborers working every day for 25 to 30 years. The support-manpower to provide food, clothing, shelter, and construction tools and materials could easily have doubled the manpower requirement; and, at the head of the operation there would have had to be a separate, semi-skilled work force to man the quarries and transport barges.

Given the huge manpower needs for ramp construction, how did a small country like Egypt, with an estimated population of two million, feed all those workers? Who grew the crops while the laborers were building a tomb for Khufu? Where did all the log-rollers come from? Since Egypt has no forests, what distant woodlands were denuded, what methods of rough-finishing and transport were used to provide the estimated requirement of 26 million log-rollers cut from trees? How was the rope — over five million lengths — manufactured?

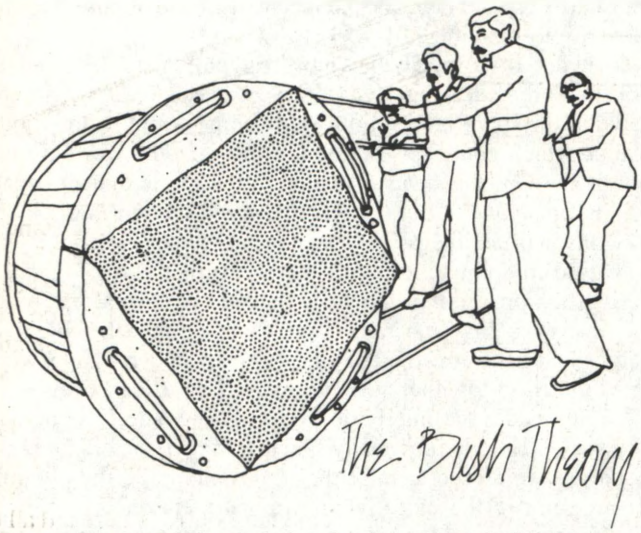
Considering these unanswered questions, it seems odd that experts still insist that ramps were used. Also, they conveniently forget that there is not one shred of historical evidence to support the use of ramps at Giza. The oldest surviving account of the Khufu construction comes from the Greek historian Herodotus, who visited Egypt about 500 B.C. and received information from Egyptian priests. They never mentioned ramps, telling him instead that "machines" made from short wooden

planks were used to raise the stones into position. Most historians have concluded that the priests were lying to Herodotus because the concept of machine-built pyramids seems absurd. But as we shall soon see, there is another, more logical interpretation of Herodotus' report.

To overcome the log-roller objection to the ramp theory, Boston engineer John Bush has theorized that the Egyptians fashioned "rockers" to move the stone blocks up the ramp. Rockers are wooden devices flat on one side, rounded on the other, which, when attached to the four flat sides of a block, convert it into a cylinder which can be rolled. Rocker-shaped wooden artifacts of the kind described by Bush have been found, which he feels confirms his theory that the stone blocks were rolled up the ramp quite easily, thus dispensing with most of the manpower need. Bush has even fashioned full-sized models of the rockers and has moved two-ton concrete block up small inclines.

No Wheels in the Old Kingdom

But the Bush theory has many problems. The most telling is the fact that converting cubes to cylinders requires use of the wheel. There is no evidence that the Egyptians had wheel technology during the Old Kingdom when the Giza structures were built. The rocker artifacts found in Egypt date from the Middle Kingdom, when the wheel was introduced into Egypt in the form of chariot wheels used by the invading Hyksos. Bush's theory also must deal with the same objection to the ramp theory in general — the trebling of the work load. Other difficulties with the Bush theory include the amount of rope needed — in some cases ropes 3000 feet long — and the problem of the ropes getting tangled as the huge stones were rolled up inclines.



A more reasonable explanation for the rockers is that they were used in the holds of Egyptian ships to support large, heavy objects without piercing the thin hulls. The rounded part of the rocker would fit the bottom curve of the hull and the flat would support the weight of the cargo. Thus the true purpose of rockers would be to distribute cargo weight evenly in the hold of a ship rather that to move objects on land.

A new pyramid construction theory with neither ramps nor rockers has been advanced by a French chemist, Joseph Davidovits. An article by Douglas Starr in Omni magazine for January 1983 offers the following explication of the Davidovits hypothesis: the stone blocks used to build the Great Pyramid were not quarried and hauled; rather, they were *cast* on the spot. The article uses terms like "plastic megaliths," "molecular glue," "artificial stones" and other catch-phrases in an apparent allusion to some mysterious, alchemic process developed by the Egyptians to bond together loose rocks in cubic molds. However, when the Davodivits theory is analyzed, it is nothing more than a proposition that the Egyptians invented *Portland cement.* Amateur Egyptologist Tom Crowder has examined the ingredients of Davidovits' proposition and compared them to cement (see box). His conclusion: that Davidovits "is convincing some people he has discovered something new by disguising it through scientific-sounding names like 'geopolymers.' "

Portland Cement		*Davidovits Formula*
Lime (Ca0)	60-67%	Limestone rubble
Silica ($Si0_2$)	17-25%	
Alumina (Al_20_3)	3-8%	Nile River salts
Magnesia (Mg0)	.5-6%	
Alkali Oxides (Na_20+K_20)	.5-1.3%	Locally obtained salts
Sulphuric Anhydride ($S0_3$)	1.3%	Acidic plant saps

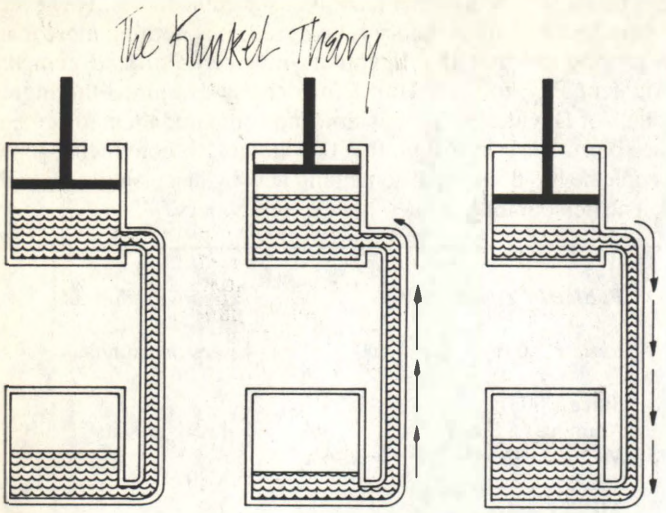
There are many objections to a theory that the Egyptians built the pyramids by using concrete. First, archaeological evidence proves beyond a doubt that *stones* were quarried and transported to the Giza site; quarry tool artifacts have been found and bas-relief illustrations clearly show workers cutting and transporting stones. In order for the Davidovits materials to bond chemically, they simply cannot be stirred together. For example, the limestone first must be burned to produce calcium carbonate in a form suitable for cement. And even if the Egyptians did invent cement in order to cast concrete, why was the mortar used to join the casing stones a primitive plaster composed of impure gypsum? Despite the hyperbole about "moldable rock," the Davidovits theory is best dismissed as wishful thinking.

Hydraulic Hypotheses

The latest rage in pyramid construction theories is the conjecture that the gigantic stone blocks were moved into place by flotation. At least three pyramid enthusiasts have postulated various hydraulic systems, and apparently their theories were conceived independently. All three men are outside the academic school of Egyptology and thus have encountered great resistance to their ideas. Like most scientists, Egyptologists and archaeologists take a dim view of amateurs dabbling in their fields, regardless of the quality of the interlopers' theories.

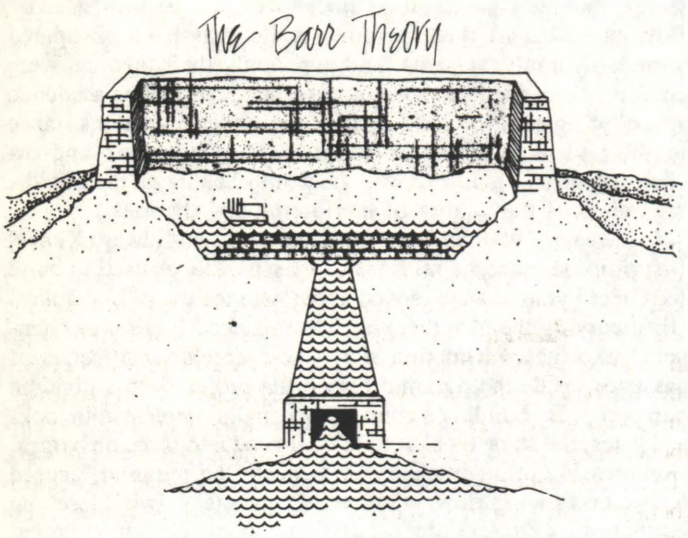
In the early 1960s an Ohio shopkeeper named Edward Kunkel first proposed that the millions of massive stones used to build the Great Pyramid were moved about with the use of hydraulics. His theory on the idea that water from Lake Moeris was channeled into the construction site, where an elaborate series of passages inside the pyramid turned the project into a gigantic ram pump. By building a connecting canal, complete with locks and gates, the stone blocks could be floated into place on barges. Compression of air in chambers beneath the pyramid, caused by water flowing down descending passages, would set up oscillations These fluid oscillations, controlled by internal

valves, moved the water upward in the structure in a series of "squirts." Water flowing back out of the pyramid was discharged into the Nile.



"A hypothesis such as this is a lonely journey into the realm of the unknown," wrote Kunkel in the introduction to his privately printed book, *The Pharaoh's Pump.* "Lonely" was an apt adjective, for this theory was thoroughly debunked by Egyptologists and engineers. Although his generalized concept of an hydraulic theory was prophetic, as we shall see, his system simply would not function. First, his idea that the water to run the system was channeled from Lake Moeris (now Birket Quarun), is not practical. That lake is 37 miles southwest of the Giza site and lies 148 feet below sea level. Any water transported to Giza would have to be raised 328 vertical feet. It would have been more practical to use water from the nearby Nile and raise it only 130 feet. Second, despite the fact he built a scale model of the ram pump which worked in tests, Kunkel never explained how the Egyptians could make a gigantic ram pump operable *while it was under construction*, which would be a necessity for moving the huge stones.

The key to all the hydraulic theories is the source of the water supplied to the pyramid. Another theorist, California insurance agent James Barr, has proposed in his unpublished book, *The Floating Stones*, that the Egyptians diverted vast quantities of water from the Nile into a reservoir large enough to contain the pyramid. The pyramid was then built *under water*, with the stones dropped from barges and positioned by workers in the water. Yet Barr never adequately explains how the workers raised the water at least 130 feet into the reservoir. Since there is no evidence of a natural reservoir on the Giza plateau, the Egyptians would have been forced to build one. Thus Barr is back to the same problem the ramp theory encounters — at least a trebling of the scope of the construction project.



"It's only a theory," Barr told the Southern California newspaper Sun-Telegram in 1977, "but it's the only logical one. All the others are illogical." Unfortunately for amateur Egyptologists, Barr's "logic" is not a good example of scholarship. Of all the pyramid construction theories reviewed here, his is the weakest, being poorly reasoned and totally without any supporting archaeological, historical or geological evidence.

The third proponent of the hydraulic hypothesis is far more rigorously scientific. On November 14, 1980, Thomas J. Crowder, a manpower-planning specialist for the Xerox Corporation, introduced his water power theory to a joint meeting of the Los Angeles chapter of the Organization of Egyptian-American Scholars and the UCLA Egyptian Club. In presenting his hypothesis, Crowder called for a re-evaluation of the findings and statements of Herodotus, based upon a more precise translation of his references to the pyramids.

"My method of building the Great Pyramid exactly matches the description that the priests gave to Herodotus," he said. "It is an extremely practical and efficient way to build a pyramid. Herodotus tells us quite clearly that the burial vaults of Cheops (Khufu) were made into a 'sort-of' island with water from the Nile and that the stone blocks were transported across the Nile. He also says that the water for the Nile came through both a canal and an artificial duct. We call that canal the 'causeway' today, but the artificial duct has not been previously identified. The real problem comes from the word 'machine,' which translators used to describe the mechanism which raise the stone blocks into position."

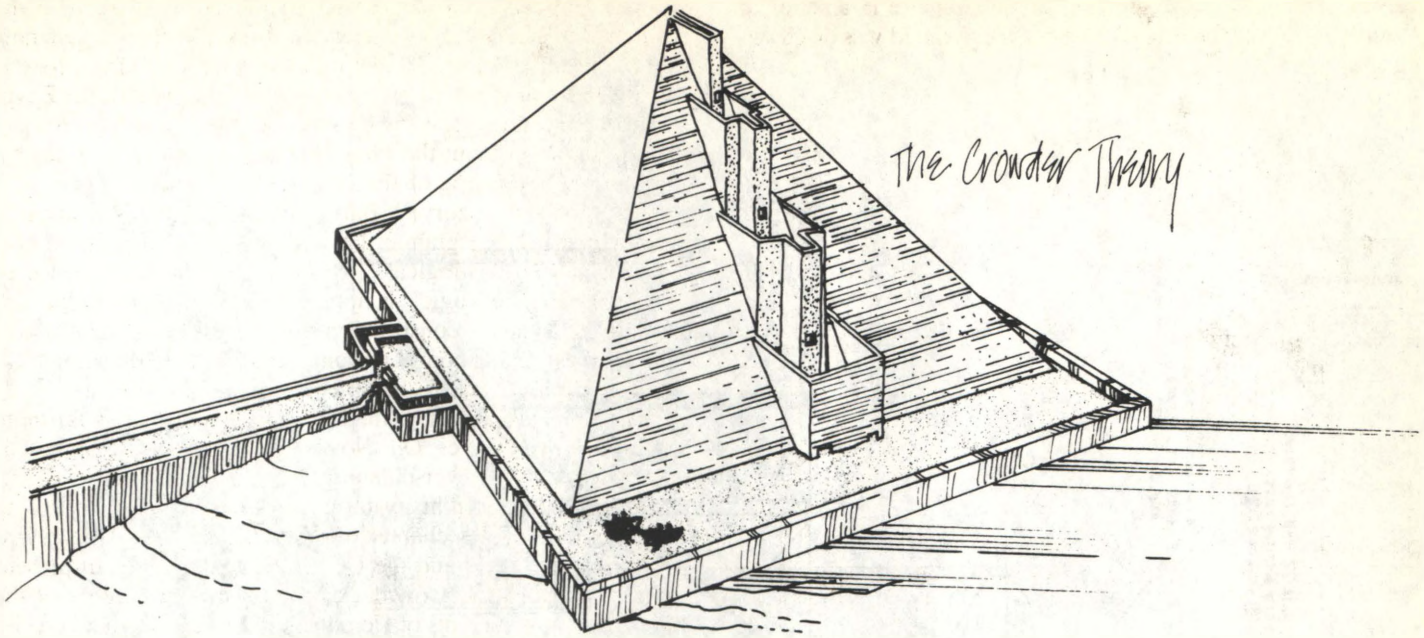
Crowder discovered that most Egyptologists assumed the priests were deceiving Herodotus because no one could conceive of the Egyptians building a machine out of short wooden planks which could raise three-ton blocks. The word at question is the Greek *machana*, which in the Doric dialect usually means "machine." But Crowder noticed that translator George Rawlinson often interpreted *machana* as "boat" when the word was used in conjunction with water. Further etymological investigation proved that *machana* indeed had several meanings, the first two being "machine" and "boat." Since the Nile river-barges had been constructed out of short wooden planks which were mortised together, the pieces of the puzzle began to fit.

"With water definitely at the building site," concluded Crowder, "Herodotus actually said that the priests told him boats or barges were used to raise the stones and build the pyramid. At no point in the narrative are ramps mentioned."

After answering the question of the *machana* translation, Crowder attacked the next problem, which has been the downfall of other hydraulic theories: the source of water to construct a system of locks so that the barges could be lifted as the pyramid was being built.

"It's just not practical to divert the water from the Nile or Lake Moeris — it would have to be raised too high," he theorized. "The water had to originate at the construction site and flow down to the Nile."

Crowder's subsequent search for the source of the water led him back in time through geology and mythology, and he eventually concluded that during the time the pyramids were built, *two* Nile Rivers flowed through Egypt.



"While no water may be present today in the limestone beneath the Giza plateau, the tunnels carved by the earlier periods of high flooding probably still exist," Crowder speculates. "And these tunnels carried water during the Nile floods of Khufu's time when the climate was wetter. I concluded that the source of water needed to make the building method described by Herodotus completely viable was an underground river somewhere in the limestone strata beneath the Great Pyramid. I also concluded that this river, or at least the tunnel carved by the flow, still exists and that it is the mythological underground Nile mentioned in the Old Kingdom religious texts found in the 'books of the dead.' "

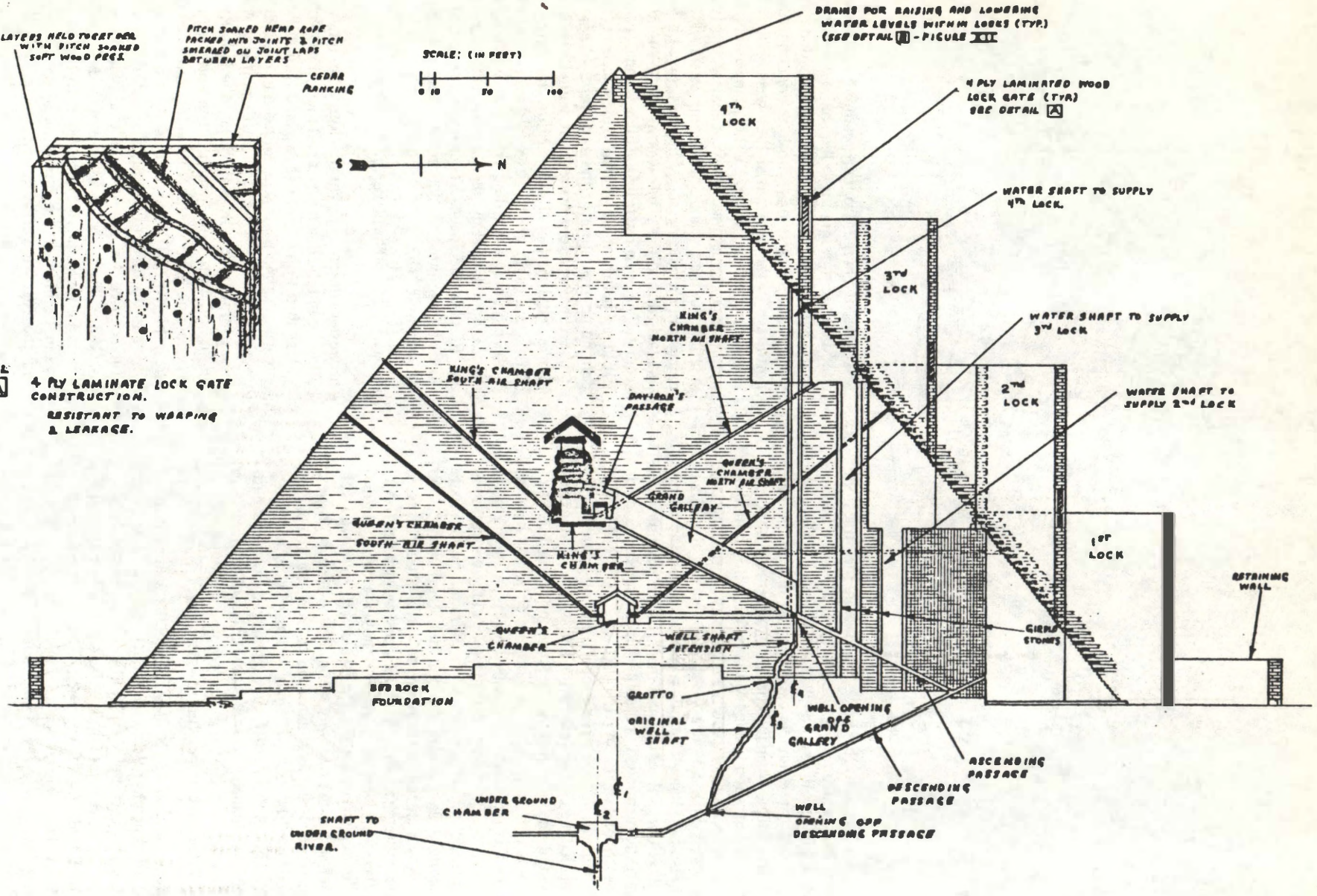
Crowder believes that the underground river originated in the Sudan, paralleled the course of the Nile, and is closely connected with Old Kingdom burial rituals. Because tunneling for water was so common in such desert regions, even as far back as prehistory, he theorizes that while searching for an underground location for tombs, Egyptian priests discovered the underground river and diverted its flow upward to the pyramid building-site by constructing a dam across the channel. During the flood season, the flow created head pressure powerful enough to form a hydraulic system as the pyramid was constructed. And Crowder's theory answers the question of how the pyramid foundation was leveled so accurately, since water seeks its own level.

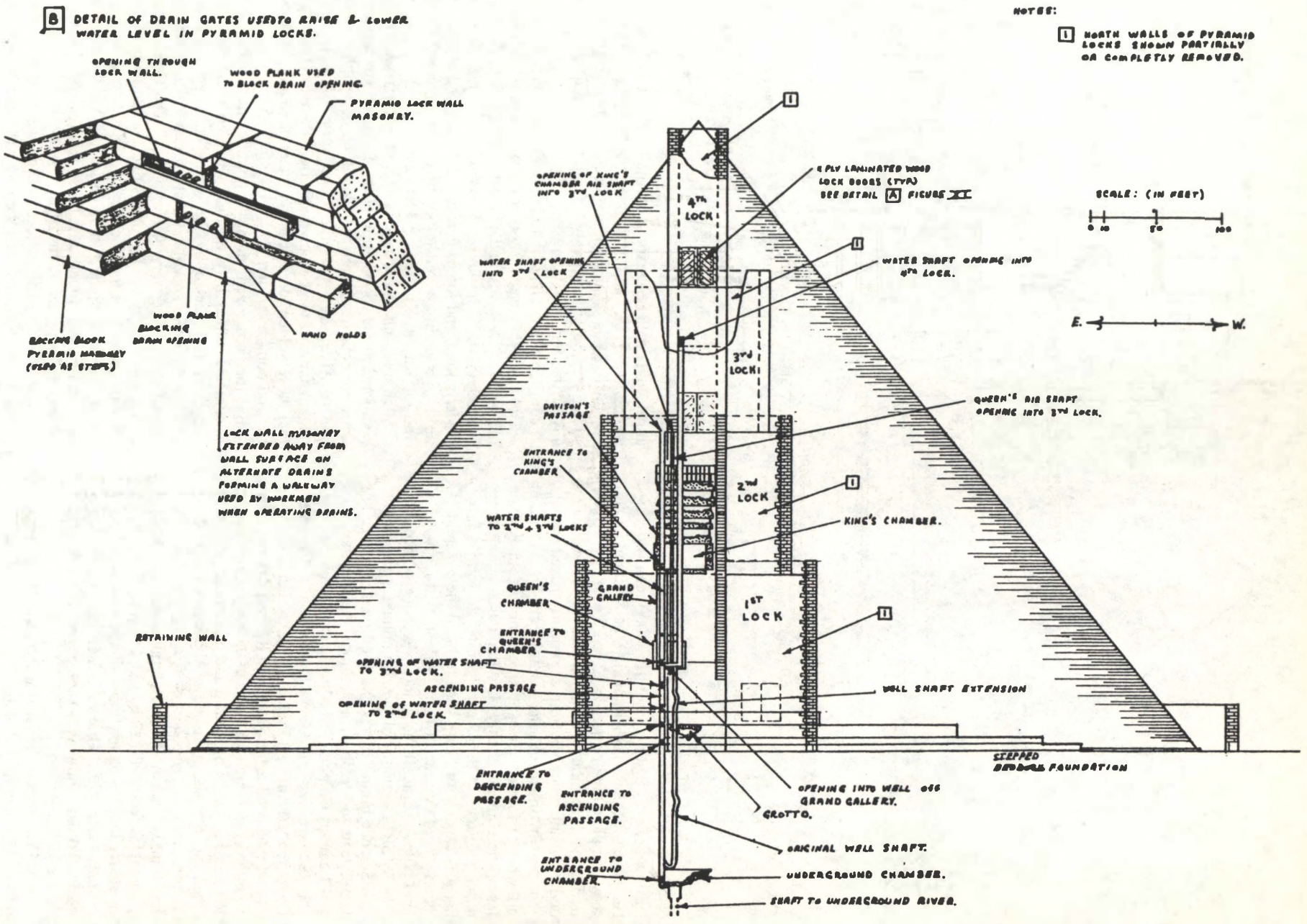
With water at the site, retaining walls about 40 feet high were built to contain the water as construction began, and the excess water spilled over the east wall into a canal which ran down to the Nile. This is the "causeway," where locks were built so that the barges loaded with stone blocks could be floated up to the construction site. Crowder explains how the pyramid was actually built (see accompanying illustrations):

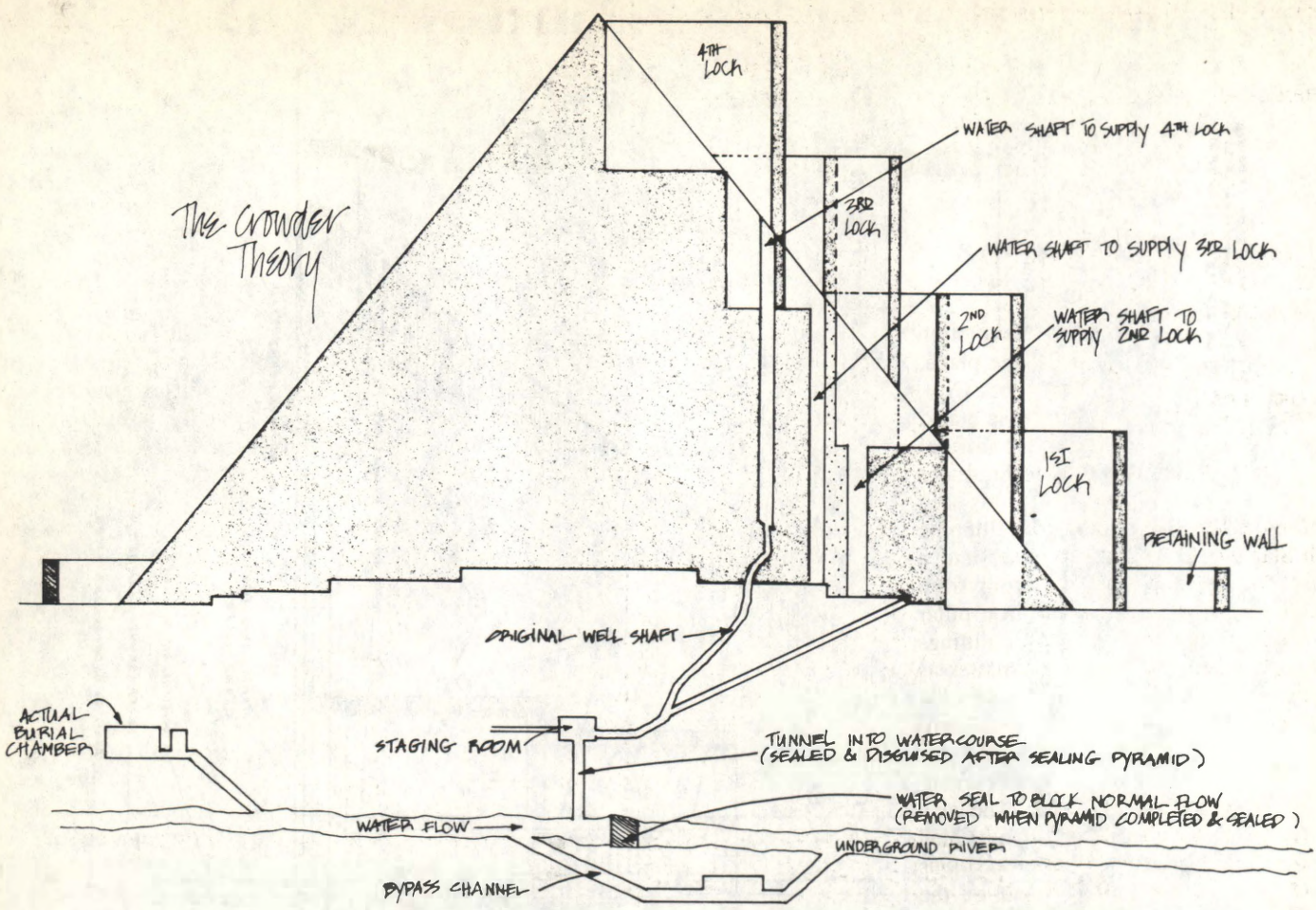
> The pyramid itself was built to contain the water within its walls as its height rose above the retaining wall reservoir. This was accomplished by routing the water from the tunnel in the plateau through the internal passages of the pyramid to the top of the structure as it was increased in height. A shallow reservoir used by the barges to float the stones into position was maintained on top of the pyramid structure. The method and sequence of laying the stones pushed this reservoir even higher during the building process.
>
> To raise the barges from the retaining wall reservoir surrounding the pyramid up to the shallow reservoir on top of the pyramid where the work was being done, the Egyptians built canal sections with lock doors into and up the north face of the pyramid as they went. Four canal sections were needed to reach the planned height of the pyramid, and each successive canal section was made smaller. As the pyramid was completed to the top of a canal section, the passage supplying it with water was blocked off and the water was routed to the next higher section. The overflow from the highest canal section would fill those below and eventually the causeway, allowing continuous operation of the system.
>
> The canal sections were built with locks of wooden planks and drains to allow the filling and emptying of the canal sections so the barges could be floated to the top of the pyramid. After the pyramidion was placed on top of the pyramid, the Egyptians removed the four canal locks and filled in the spaces. Then they dismantled the dam on the underground river so that it would never again enter the pyramid.

The River of the Dead

The western desert of Egypt was formed of limestone beneath a shallow sea in the distant past and then, through geologic activity, was thrust up to become dry land. For millions of years this great limestone mass was folded and eroded by geologic activity and the rains which fell across northern Africa. These processes formed the Nile Valley, and the Nile River still carries the runoff from rains which fall in northeast Africa. During its geologic history, the Nile Valley has been subjected to countless high flood levels caused by alternating periods of cold/dry and warm/wet climate. The last of the warm/wet cycle which caused the highest flood levels was just ending at the time of Khufu. The high flood stages of the Nile probably caused the limestone under the western desert to erode slowly away, in a manner similar to the formation of the Carlsbad Caverns beneath the Pecos River Valley in southeastern New Mexico. There are many examples of eroded limestone formations beneath the Earth's surface; those with sinkholes and underground rivers are called *karst* formations.


LAYERS HELD TOGETHER BOL WITH PITCH SOAKED SOFT WOOD PEGS.
PITCH SOAKED HEMP ROPE PACKED INTO JOINTS & PITCH SMEARED ON JOINT LAPS BETWEEN LAYERS
CEDAR PLANKING
DETAIL A
4 PLY LAMINATE LOCK GATE CONSTRUCTION.
RESISTANT TO WARPING & LEAKAGE.
SCALE: (IN FEET)
0 10 50 100
S
N
DRAINS FOR RAISING AND LOWERING WATER LEVELS WITHIN LOCKS (TYP.) (SEE DETAIL B - FIGURE XII
4 PLY LAMINATED WOOD LOCK GATE (TYP.) SEE DETAIL A
4TH LOCK
WATER SHAFT TO SUPPLY 4TH LOCK.
3RD LOCK
WATER SHAFT TO SUPPLY 3RD LOCK
2ND LOCK
WATER SHAFT TO SUPPLY 2ND LOCK
1ST LOCK
RETAINING WALL
KING'S CHAMBER NORTH AIR SHAFT
KING'S CHAMBER SOUTH AIR SHAFT
DAVISON'S PASSAGE
QUEEN'S CHAMBER NORTH AIR SHAFT
GRAND GALLERY
QUEEN'S CHAMBER SOUTH AIR SHAFT
KING'S CHAMBER
QUEEN'S CHAMBER
WELL SHAFT EXTENSION
GIRDLE STONES
BED ROCK FOUNDATION
GROTTO
ORIGINAL WELL SHAFT
WELL OPENING OFF GRAND GALLERY
ASCENDING PASSAGE
DESCENDING PASSAGE
UNDER GROUND CHAMBER
SHAFT TO UNDER GROUND RIVER.
WELL OPENING OFF DESCENDING PASSAGE


B DETAIL OF DRAIN GATES USED TO RAISE & LOWER WATER LEVEL IN PYRAMID LOCKS.
OPENING THROUGH LOCK WALL.
WOOD PLANK USED TO BLOCK DRAIN OPENING.
PYRAMID LOCK WALL MASONRY.
HAND HOLDS
WOOD PLANK BLOCKING DRAIN OPENING
BACKING BLOCK PYRAMID MASONRY (USED AS STEPS)
LOCK WALL MASONRY EXTENDED AWAY FROM WALL SURFACE ON ALTERNATE DRAINS FORMING A WALKWAY USED BY WORKMEN WHEN OPERATING DRAINS.
NOTES:
1 NORTH WALLS OF PYRAMID LOCKS SHOWN PARTIALLY OR COMPLETELY REMOVED.
6 PLY LAMINATED WOOD LOCK DOORS (TYP.) SEE DETAIL A FIGURE XI
SCALE: (IN FEET)
0 50 100
E.
W.
OPENING OF KING'S CHAMBER AIR SHAFT INTO 3RD LOCK
WATER SHAFT OPENING INTO 3RD LOCK
WATER SHAFT OPENING INTO 4TH LOCK.
4TH LOCK
3RD LOCK
2ND LOCK
1ST LOCK
DAVISON'S PASSAGE
ENTRANCE TO KING'S CHAMBER
QUEEN'S AIR SHAFT OPENING INTO 3RD LOCK.
KING'S CHAMBER.
WATER SHAFTS TO 2ND + 3RD LOCKS
QUEEN'S CHAMBER
GRAND GALLERY
ENTRANCE TO QUEEN'S CHAMBER
OPENING OF WATER SHAFT TO 3RD LOCK.
ASCENDING PASSAGE
OPENING OF WATER SHAFT TO 2ND LOCK.
WELL SHAFT EXTENSION
RETAINING WALL
STEPPED BEDROCK FOUNDATION
ENTRANCE TO DESCENDING PASSAGE.
ENTRANCE TO ASCENDING PASSAGE.
OPENING INTO WELL AT GRAND GALLERY.
GROTTO.
ORIGINAL WELL SHAFT.
ENTRANCE TO UNDERGROUND CHAMBER.
UNDERGROUND CHAMBER.
SHAFT TO UNDERGROUND RIVER.



Crowder now believes that no more than 4000 men were involved at any one time in the construction of the Khufa pyramid and that they completed the project in 13 to 20 years by working only during the three-month Nile flood season. This estimate is supported by results obtained from a computer-based model constructed by hydro-mechanical engineer Dr. Daniel Radulescu, who performed an extensive series of analytical evaluations of the Crowder theory. Dr. Radulescu concluded: "The internal passages of the Great Pyramid do form a flow system that was capable of being used to build the pyramid."

There is now hard evidence which suggests that Crowder's underground Nile, or at least the tunnel where it ran, actually exists. In 1977, SRI International, working under a grant from the National Science Foundation, conducted field experiments on the Giza Plateau with sophisticated remote-sensing devices. The team of Lambert Dolphin, Ali Moussa and Gamal Moktar entered the subterranean pit known as Belzoni's Chamber beneath Chephren's (Kahfre's) Pyramid. They set up sounding equipment and measured echo patterns in the bedrock beneath the plateau in order to search for voids in the rock which might indicate the missing tombs of Khafre and other pharaohs. The results of their experiments, published as *Applications of Modern Sensing Techniques to Egyptology*, were quite dramatic. Two voids were found beneath the burial pit under the Khafre Pyramid, one at 92 feet and the other at 131 feet. The researchers suggested in their report that test drillings with a borescope camera be done to determine if the voids were geologic in origin or man-made. To date, however, such experiments have not been performed.

"The two voids beneath the Khafre Pyramid are strikingly similar to those I have proposed in my theory," says Crowder. "The lower void could be the underground river cavern and the upper void could be the tomb of Khafre. But it will take further testing to prove it and I don't think the SRI proposal of drilling into those voids is the right approach. If the underground Nile still carries water, drilling holes into those voids could destroy any artifacts inside them."

Tom Crowder, amateur Egyptologist who may have solved one of history's greatest mysteries, next wants to tackle the missing tombs. "Deep within the limestone of the Giza Plateau there is another Nile," he says. "It is called the River Through the Underground, and somewhere along its dark and twisting course lie the yet-undiscovered tombs of Egypt's greatest pharaohs: Snofru, Khufu, Khafre and Menkaure."

Such a search would necessitate an elaborate scientific expedition and the cooperation of the Egyptian government, but Crowder believes the rewards would far outweigh the expense and difficulties. "If the discovery of the boy-king Tutankhamen's tomb is any indication, there can be little doubt that those hidden tombs contain material wealth that is almost beyond comprehension."

But perhaps even more important than riches are the documents which may be discovered in those underground chambers constructed by the priests to safeguard important records. Crowder speculates that even more mysteries may be solved by the discovery of the tombs. "The Greek statesman Solon was told by the Egyptians that the survivors of Atlantis gave the records of their destroyed civilization to the Egyptian priests for safekeeping," he points out. "Yet these documents have never been found. Are these records also hidden in the chambers along the River of the Dead?"

To answer Crowder's question, all we must do is find that underground Nile. Perhaps then we will have the last laugh on Pharaoh Khufu.

Defense Against Earthquakes? or Earthquakes for 'Defense'?

by Harry Lebelson

The search for a Telsa Earthquake Weapon

It had the scenario of a science fiction thriller. The year was 1898. The place, 46 East Houston Street, New York City. A gaunt, tall, thin figure dressed in black, attaches a tiny electromechanical oscillator to an iron pillar which protrudes down through the center of his loft building to the basement below. Flipping a switch, the dark figure settles into a straight-backed chair as vibrations from the oscillator travel down the iron pillar with escalating force. Nearby buildings begin to shake and windows shatter as panic stricken citizens pour into the streets. The man responsible for this unprecedented incident and creator of the first man-made earthquake is noted scientist and inventor Nikola Tesla. The idea of producing and setting off a controlled earthquake of catastrophic proportions was not foremost in the mind of the talented inventor as he delved into research on very high-voltage, high frequency, electrical phenomena near the end of the 19th century.

What he produced was a mechanical vibrator mechanism which could be adjusted or tuned over a wide range of frequencies, including the ultrasonic range. What resulted from that device was a number of remarkable experiments with earth-shattering results, from which evolved the concept of "telegeodynamics." This new science dealt with the transmission of powerful impulses through the earth to distant points to produce destructive effects of large magnitude. In other words, if properly designed, a large vibrator device could presumably be used as an earthquake weapon with a predetermined range of effectiveness or modified to reach any area of the globe.

Today, echoes of those rumblings still exist in the sanctity of experimental laboratories in both the United States and the Soviet Union where research is now being conducted in a race to find an earthquake weapon based on Nikola Tesla's original research. However, official United States Government response to the development of a Tesla earthquake weapon has been to feign disinterest. In responding to a letter from a Battelle Columbus Laboratories official in Columbus, Ohio, requesting that the government get involved in earthquake weapon research, a high official in the United States Defense Department called the theory "hogwash."

The small fractional horsepower mechanical vibrators built by Tesla in 1894 now seem like child's play and hardly more than toys compared with the technologies which were developed in the field of ultrasonics by many modern countries including in particular the USSR after World War II. These advances constitute a great step forward in this area. The most recent ultrasonic generating devices are regarded as highly secret due to their obvious military applications. It is worth taking note however, of what was available in terms of ultrasonic power output as early as 1958.

It should be noted that Tesla's experimental vibrator, with only fractional horsepower, was successful in creating a local earthquake. In 1958 a "super-high-power ultrasonic focusing" device was developed by L.D. Rosenberg and M.G. Sirotyuk at the Acoustics Institute of the USSR Academy of Sciences. Since that time one can suspect that the Soviet 28 hp device has been perfected to achieve still higher intensities.

By geophysical definition "an earthquake is a sudden, transient motion or series of motions of the ground originating in a limited region and spreading from there in all directions." The earth experiences periodic motions of a few inches similar to the daily tides, including very fine tremors which are caused by the same forces. A real earthquake, however, must be transient; it begins, lasts for a while, and ends. Quakes originate in a limited region which is called the focus or hypocenter. The majority of all earthquakes originate at points less than 50 km deep, which is the "crust" layer of the earth. The term "epicenter" is the point on the surface of the earth directly above the focus, where the shaking is most pronounced. Energy that is released by an earthquake travels in the form of shock waves or seismic waves through the earth. As for major causes of earthquakes, they seem to start along fault-lines in the earth's crust, the San Andreas fault in California being a classic example. Faulting itself is believed to be the result of a sustained accumulation of shearing stresses in the rock layers of the earth's crust until such times as the breaking point is reached. The stress energy in the rock, upon rupture, is released as shock or seismic waves resulting in fore shocks, main shocks, and after shocks.

It is to the area of geophysics that the Soviets over the past 10 to 15 years have applied ultrasonics (the use of frequencies above the range of human hearing). The United States, Japan, and India have also achieved some success in this area, but the Soviets appear to be far ahead of other countries in this research. This is mostly due to the fact that the Soviets are highly organized, well-staffed and make a continuous effort toward new breakthroughs. This involves entire institutions or several institutions working together. Their collective efforts are continuously monitored and pushed ahead by a so-called Problem Council under the aegis of the Academy of Sciences or the State Committee for Science and Technology. Among those entities involved in geophysical ultrasonics are: The Institute of the Physics of the Earth, a facility under the supervision of the Academy of Sciences, in Moscow, The Council on Geophysical Methods of Research, and The Interdepartmental Geophysical Committee (spearheads studies on the earth's internal structure). The key personalities in applied ultrasonics research appear to be:

- Yu. V. Riznichenko, a Corresponding Member of the Academy of Sciences, who is in charge of the program.
- Ye. V. Karus, whose specialty is the application of geoacoustical methods to the study of the physicomechanical properties of rocks.
- B. N. Ivakin, who specializes in the

modeling of seismic waves by ultrasonic waves.

Geophysics or "geoacoustics" is aimed at better understanding, warning against, and prevention of, catastrophic earthquakes, mine collapses and similar disasters. There is no definitive statement that ultrasound is being used to precipitate a deliberately planned localized earthquake by means of high-power ultrasonic apparatus. However, studies published by members of the Institute of the Physics of the Earth since 1966 give the impression that the deliberate triggering of an earthquake could become a reality. A process has been suggested whereby powerful fluxes of ultrasonic waves, in either single beams or in phased arrays of beams could be made to impinge on a geological fault and loose enough of their energy fracturing and pulverizing the rocks contained in the seams of the fault to cause a "premature" earthquake. The earthquake would have eventually taken place naturally, due to the usual shear stress increase along the fault, but in this case it was speeded up by *very rapidly* weakening the fault by focused ultrasonic energy. If this could be done by concentrating ultrasonic beams over a reasonably short period of time, it would constitute an earthquake weapon.

During the fall of 1967, Soviet high voltage specialists from several major research institutes in the USSR held a restricted attendance conference on high-power electronics and similar subjects. One of the articles obtained from the conference papers which were published in Soviet technical journals was authored by Professor A. A. Vorob'yev, president of the Tomsk Polytechnic Institute. The professor, who was editor of the entire proceedings of the conference, presented a paper titled "On the Problem of Initiation of Earthquakes by Underground Electrical Storm Discharges." The theory that Vorob'yev proposes is that there is a kind of compound mechanism to earthquake initiation, in which the initial energy is due to gradual development of shear stresses, accompanied by cracking, and resulting in the storage of electrical energy. Eventually sparking occurs with the resulting formation of plasma and catastrophic energy release through shock waves. Vorob'yev points out that earthquakes are often "preceded by anomalous electrical and optical phenomena in the atmosphere such as sky luminosity, often referred to as St. Elmo's lights." As a result of Vorob'yev's paper, many Soviet scientists began pondering how the electrostatic mechanism of earthquake initiation could be implemented technologically by existing electrical engineering means or even developed from scratch. Vorob'yev himself stated: "The phenomenon of electrical discharge in the earth's crust can be realized artificially, with the aid of technical means."

It now appears that Soviet scientists may have achieved that end. According to Michael Golovin of the Defense Systems and Technology Section of Battelle Columbus Laboratories in Columbus, Ohio, "From about mid 1975 it was revealed by high-ranking Soviet scientists at various international conferences that a high power MHD (Magnetohydrodynamic) generator was about to be tested. The location of the tests was on the Pamir plateau test range of the Schmidt Institute of the Academy of Sciences, USSR, also known as the Institute of the Physics of the Earth, only recently renamed." The pulse obtainable from this device according to scientists "surpasses by 30 times the capabilities of an ordinary geophysical station," whereas before, the deepest depth scientists were able to look into was 1 or 2 km; however, with a MHD device, the earth could be probed to depths of 30-40 km. The actual news about the Pamir MHD generator came out on March 13, 1977, a day or two after a disastrous earthquake had leveled part of the city of Bucharest, the capital of Rumania. The news surfaced in "Krasnaya Zvezda" newspaper, the organ of the Soviet Defense Ministry. Strangely enough it did not appear in Pravda, Izvestiya and other civilian Soviet papers or any known Academy of Sciences publication. The question that arises from all this is: What does the Soviet Military have to do with this item, unless perhaps they're behind the program? Could the Bucharest earthquake have been the result of a demonstration of a prototype earthquake weapon? And while we're on the subject, could the disastrous earthquake that struck Peking around noon-time in 1976, one year before the Rumanian disaster, have been the result of that same weapons testing? The world knows quite well that both the Peking and Bucharest Communist regimes are hostile to the USSR's brand of Communism. It might well be that they were being "taught a lesson of devastating proportions." Another piece of interesting information turned up by Battelle Laboratories research scientists is that the Pamir plateau, where the tests took place, is equally distant from both Peking and Bucharest.

In fact, according to a 1980 letter to Dr. Edward Teller, the father of the H bomb, from J.E. Backofen, an associate at that time with the Defense Systems and Technology Section at Battelle labs, "interest was expressed as early as 1978, in United States building codes and regions of earthquake susceptibility by a Soviet exchange team of about 25 scientists who worked at the United States Army Cold Regions Laboratory in New Hampshire."

Michael Golovin of Battelle Columbus Laboratories feels that whatever the case, with these and similar questions for guidance, a schedule of priorities should be drawn up by the United States and a logical research program instituted along with a systematic monitoring of pertinent Soviet writings in this area.

BEST WISHES, FRED!

We are sorry to report that our former editor, Fred Wilson, who has been largely responsible for the improved format and appearance of *PURSUIT* for the last few years is leaving us for a well-deserved, out-of-state retirement.

Though he has indicated he may be available for special editing tasks, we realize that we will sorely miss his experience and sound judgement. We all wish him Godspeed and good health.

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If the Well Runs Dry

by Sarah Fitzjarrald

In the vast realm of the unexplained there is probably no more mystifying phenomenon than that of water dowsing. It defies explanation. Is it something psychic? Does it have something to do with a force field? Is there perhaps something in the dowser's body which has an affinity to underground water streams? And what about the instrument used — why would a forked branch from a tree work as well as a metal rod, or two metal rods? Nobody knows — yet.

Dowsing is not as widely practiced as it once was for the obvious reason the shift in population to metropolitan areas with reliable water supply systems made it unnecessary. But in the area where we live (Western Arkansas-Eastern Oklahoma) dowsing is alive and well. Except here it is more often referred to as water *witching*.

* * *

It was a cold, cloudy day in January, 1946, when my Uncle Herman discovered that I was a dowser. My husband, Mac, our four-year-old son, and I were visiting him and my Aunt Maggie, and if he hadn't been one of my favorite people, I wouldn't have gone out in weather like that.

In the small Arkansas town where they lived, Herman was considered by some to be stubborn, cantankerous and eccentric. He was, too. But when I was a child growing up and we used to visit his family, Herman rescued me from more than one rowdy game of tag (or a squabble) with the rest of the youngsters. I was the smallest of the lot and even though I probably deserved all I was getting, Herman stepped in and kept me from getting too many injuries. So it was only natural that I felt a special affection for him.

He was a dowser and Herman had witched many wells in his time. He refused to accept recompense of any kind for the service and worked for several years for a water drilling crew without extra pay.

On that cold winter day he took me outside, cut a small forked branch from a tree, trimmed it, and showed me how to hold it. To say that I was astonished when the small branch dipped suddenly downward is putting it mildly! Only another dowser can appreciate the sensation of holding in one's hands an uncontrollable force!

Herman walked me all around the house and laughed delightedly when he told me to pace the path directly over the stream of water leading to his well. I would no sooner turn the stick upright when it dipped again, and then again.

And then he did something else. He cut a small slit in the end of the fork, inserted a silver dime and handed it back to me. He took a silver dollar from his pocket and tossed it into a large patch of dry grass and told me to go find it. I felt certain that he was going to be a dollar poorer and wished for just a small gleam of sunlight to reflect the coin's whereabouts. But again to my surprise, the stick dipped and I picked up the coin.

We finally went into the house and I realized that my hands were cold. I went over to hug the wood stove and Herman proudly announced that I was a water witch. Mac's eyes twinkled and he remarked that he had known for quite some time that I was a "witch."

* * *

Six years and another child later, Mac and I bought a farm about forty miles from where Herman and Aunt Maggie lived. One of the first things I did was to witch the water well. I had some doubts about its location, and since I have never considered myself more than an amateur, we couldn't wait to invite them to Sunday dinner so that Herman could check it out. He confirmed my misgivings.

About ten feet from the well was a spot where two underground streams intersected, the ideal place for a good producing water well. We had installed plumbing in the old farm house and we knew for sure that we would have to conserve every drop of water we could.

We lived on the farm eight years and we were still not prepared for one dry summer when the well gave out completely. We were forced to carry drinking water from a neighbor's well, haul water from the farm pond in ten-gallon milk cans to do cleaning chores and flush the commode, take the dirty clothes to a laundromat, and take our daily baths every afternoon when we went for a swim in a nearby creek.

But we took it in stride and accepted the problems with that pioneering spirit often found in the young and vigorous. Mac and I had started a small business and we were putting every spare dollar back into it that we could afford, so we made do with what we had.

* * *

Our friends and relatives who lived out-of-state enjoyed visiting us at the farm in spite of the water shortage. Our way of life was to them a matter of inconvenience for a few days at most, and there was a certain attraction about "roughing it" in Arkansas.

We had two guests who remain in my memory because of water witching. The first was a brilliant young man who had married one of our nieces. They had two children and lived in Los Angeles, where he taught school. He was Jewish and enjoyed nothing more than getting me involved in long and tedious discussions about philosophy and religion, discussions which got us exactly nowhere.

Once, during one of the sessions, I remarked with some exasperation, "I bet you don't believe in water witching!"

His response was a rather derisive incredulity that I would depart that far from common sense. With that, we had him promptly outside with a witching stick in his hands. Of course, I knew where to tell him to walk.

By that time the whole family were just about fed-up with our head-butting harangues, and all rushed out to get in on the fun. It would have been difficult to decide who among us was more surprised when the small branch started turning downward. He couldn't believe it himself and kept walking, trying to keep the stick from moving.

Once he stopped, and with his brown eyes snapping with excitement, he asked me if I was somehow getting into his mind. I assured him that I was not.

Everybody in the group had to try his hand at witching but the little forked stick responded to none of the others. Mac and our youngsters had already learned that they were not dowsers.

Needless to say, during the rest of their visit witching was "in" and philosophy suffered, but we had a lot of fun. When they returned to Los Angeles our niece wrote back that he was determined to

witch their whole section of town.

Our niece and her husband were killed in a car wreck several years later and the world was diminished by the loss of two beautiful young people.

* * *

At another time one of our guests was a man who has a degree in electrical engineering from Purdue University. When we brought up the subject of dowsing to add a little spice to the usual swimming, fishing, and tramping through the woods, he could not believe that in an enlightened age like ours there were people who believed in that "nonsense."

He maintained that it was a complete fraud and that if a stick moved in one's hands it was because of the way it was held. When we got him outside to try, I was not sure which of us was the more surprised when the branch began its steady motion downward. But he kept his composure, vowing to everyone present that it was in the way he was holding the stick.

There remained a few questions however. He could not explain why he could not stop the stick from dipping in his hands and the rest of the group couldn't even get it to budge when they held it the same way. Neither could he say why the branch responded to the same places for both of us (and two other dowsers).

To this day he has not changed his mind. The experience proved conclusively to him that since he did not believe in dowsing and the stick moved in his hands anyway, it must be a bunch of malarkey. What it proved to me was that dowsing is not necessarily reserved for believers only!

* * *

Our small business began booming and we were forced to move into town. The twenty-mile drive to the farm was a luxury Mac could no longer afford, especially after working long hours everyday at our small plant.

We rented out the farm and did not expect tenants to put up with lack of water so we proceeded to have a new well drilled. The drilling company was not the same one Herman had worked for but they, too, had a dowser. He was unaware that the well had been witched and we were pleased to see that he chose the same place Herman and I had found.

The first stream of water was about seventy-five feet deep and the second one was reached at a hundred and twenty feet. Both streams were disappointingly small and the driller, an honest man, drilled fifty feet deeper at his own expense to give us a reservoir.

The day after the drilling was finished we went to the farm and found that the water level had risen only to about thirty-five feet below the surface. I decided I wasn't such a great witch after all.

Six months later we received a frantic telephone call from the tenants because the water was very muddy. We told them to turn on the faucet in the kitchen sink and let the water run until it cleared up.

Soft shale had caved in below the casing but fortunately did not damage the submerged pump.

In time those tenants were replaced by a young family who owned some horses. One evening they told one of their youngsters to turn on the water hose leading to the watering trough. Then they went to a movie and forgot to turn off the water.

The next morning they discovered that they had the wettest hillside in the county but the water was still flowing and the pump was still running in good shape.

After we sold the farm in 1977 the old farmhouse caught fire and burned to the ground. It has been replaced by a modern home, and, as far as we know, the well is still supplying plenty of water.

By 1971 our son was grown, married and had two children. He and his wife bought ten acres in the Fort Chaffee area and built a new house. I was asked to witch the spot for a well and they hired the same driller we had used for our farm. The same dowser again confirmed my finding.

Unfortunately, the marriage fell on hard times, a divorce ensued, and the well gave out.

Our ex-daughter-in-law kept the house and acreage and has just recently married. The first thing her new husband did was to have another well drilled. It was like a re-run on television. It was the same drilling company except that the owner, the original dowser, had died. He was replaced by another dowser. I was invited to witch another well and it was confirmed by the dowser.

It is his belief and mine that the blasting and heavy artillery practice at the nearby fort could have caused a shift in the underground water flow. The new well has three streams of water running into it and promises plenty of water.

* * *

My Uncle Herman and Aunt Maggie are both gone now and I remember them with great affection. Herman was definitely different from other people. Some of his ideas were what is now known as "far out," and knowing him gave me some interesting mental gymnastics.

He was never a church-going man but he listened to every radio preacher on the air waves and read his Bible every day. Once he took a pair of scissors to a large world map, cut out the continents and then fitted them together. "What do you think of that?" he asked.

I wasn't yet a teenager and it impressed me. I had never heard of Wegener and his theory of continental drift, or plate tectonics, and I wondered if Herman might have gotten the idea from a favorite preacher. He saw that I was rather stumped and he tapped the Bible and told me to read the story of creation in the first chapter of Genesis.

Herman also leaned heavily toward Bible prophecy and talked a lot about living in the "last days." "Armageddon," he used to say, "is going to start in the Middle East."

He could spot an injustice as easily as he could witch a water well, and he minded not in the least tackling the town council or the local school board when he thought something was unfair to a citizen or a school child. And there were times when I thought that Armageddon was about to start in his home town.

Most of his fellow citizens never knew, or had forgotten, about the flu epidemic of 1918. It was before my time, and after he died one of the older members of the family told me that when most people were terrified even to enter a house where there was illness, Herman and a few others nursed the sick, and when necessary, prepared the dead for burial.

What I remember most about Herman is that he was one of the few people in my life who dared me to open my mind to possibilities not found in text books.

Neither he nor I ever stuck a dime in the fork of a stick and went looking for money on the ground. While Arkansas can boast a diamond mine near the small town of Murfreesboro there never seemed to be much money lying around. Herman's legacy was greater than money.

But sometimes I wonder what might happen if I were to attach a diamond to the end of a forked stick (if I had a diamond) and go to Murfreesboro? The "mine" is about a five-acre plot of ground which is plowed up frequently to bring the diamonds to the surface.

It is just about right for witching.

Dinosaurs in Pre-Columbian Art

by Diane E. Wirth

Five unrelated sites in the Americas have yielded artifacts inscribed with clear depictions of the dinosaur in terra cotta, stone and metal. All of the objects have survived the skepticism of scientists and historians during the 25 to 60 years since discovery; so far, none has been proved fraudulent.

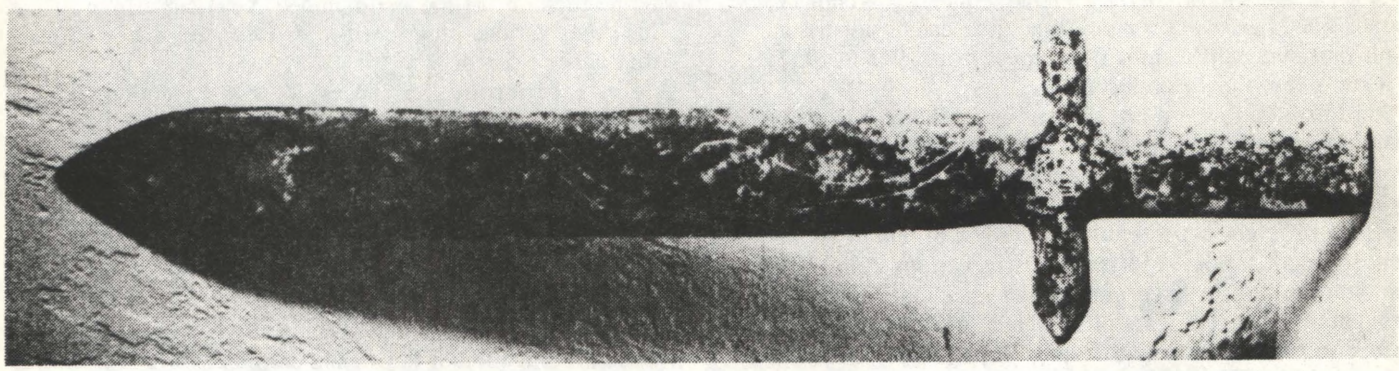
The peculiar nature of the illustrations is fascinating, but they should not be viewed as making claim that dinosaurs existed up to immediate pre-Columbian times. However, if these are authentic works of art, they do provide evidence that the ancient peoples who made them had knowledge of the dinosaur's existence in times prior to their own.

Courtesy of Cyclone Covey

Experts who have studied these photographs of the Granby Stone say that it portrays a stylized man or god with an ancient Chinese inscription on his breast, ca. 1000 B.C.[1] Of equal interest are the animal figures drooping over the back and sides — a dinosaur and a mammoth clearly visible in photo at right.

THE GRANBY STONE, a 14''-high, 66-pound granite statuette, was discovered by accident in 1920. The object was encountered at a depth of six feet by ranch hands digging on the William M. Chalmers property near Granby, Colorado. Neither the diggers nor their boss seemed aware that what they found might be an artifact of great antiquity and importance. Had it not been for a stir of curiosity that prompted other residents at the ranch to record a few details and take photographs, we would have no knowledge of the object or the circumstances of its discovery.

The stone has long since disappeared and, as one investigator wrote to the author in October 1982, "...the many of us who have been trying for endless years to track it down have so far failed to located it.'' Searchers have been equally frustrated in their efforts to trace the vanished negatives from which a few prints (reproduced above) were made at the time of discovery. If descendants of Chalmers or his neighbors, or any of the witnesses' children could be found still living, they would scarcely remember any useful addenda to a childhood experience of more than 60 years ago. Even the site is gone, for the Chalmers ranch now lies submerged beneath the waters of the Granby reservoir.



Courtesy of Cyclone Covey

The classic dinosaur profile scratched on the blade only adds to the mystery of a leaden sword discovered in the Arizona desert almost 50 years ago. Still under investigation is whether it provides artifactual evidence of incursions to America by transoceanic peoples, centuries before the time of Columbus.

THE ARIZONA SWORD bears only one inscription — the outline of a dinosaur occupying more than half the length of the blade. The representation, like that of the Granby Stone, is of a brontosaurus, a large, herbivorous and supposedly rather amiable type of dinosaur.

The sword was found in 1925 in a limekiln near Tucson, a site where diggers unearthed a variety of unusual artifacts in the years between 1924 and 1930. Many of the objects were made of lead, including the sword shown above and a cross that weighed over 60 pounds. Later excavations were sponsored by the University of Arizona. The scientists were as fortunate as their amateur predecessors in respect to the quantity and quality of apparently ancient objects extracted from the crusty soil. Some of the objects were adorned with pictographs; others bore language inscriptions. UA's Professor Frank H. Fowler translated the Latin script and said that it matched a style prevalent from A.D. 560 to 900. Hebrew lettering was also found, and the experts generally agreed that the creators of the objects were of Roman-Judaic origin.[2]

Even though the Tucson artifacts were found beneath an undisturbed layer of caliche (crusted calcium carbonate), and many were scrutinized early-on by some of the Southwest's leading scholars, the problem of credibility persists. Future investigators will have to explain whether — and how and when — a hoard of relics so representative of early Roman-Judaic civilization could possibly arrive in a remote desert of the American Southwest.

The following three sites depicting dinosaurs have fueled a whole series of no-win controversies, and much has been written in scientific journals and books concerning them. The genuineness of the sites has not been established. Several pieces at each site are bizarre. Their enigmatic character has led many scholars to discredit them altogether. Other academicians, though more tolerant, feel that additional research needs to be done before anything definitive may be claimed.

Unmistakably, it's a brontosaurus that seems to be entering from the right to join a strange tableau. This is a graphic sampling of some 32,000 ceramic figurines inventoried by investigators at the site of the Julsrud Collection, Acambaro, Mexico.

THE JULSRUD COLLECTION. The late Waldemar Julsrud, a German national, excavated, collected and housed some 32,000 pieces of ceramic, stone, jade and obsidian during his residence in Acambaro, Mexico, from 1945 to 1952. It is an extraordinary collection.

Did Julsrud uncover a lost civilization? Mexico has many intriguing sites of great antiquity, and for each one that has been excavated, another ten are untouched. The variety of styles among these pieces is most remarkable. Were they made by different peoples, or were they exhibits in an ancient museum, selected to memorialize various cultures?[3]

Julsrud is said to have enjoyed an excellent reputation throughout his seven years of residence in Acambaro. His interest in pre-Columbian artifacts seemed entirely scientific and he never attempted to commercialize his find. However, his efforts to bring professional archaeologists to the site were unavailing. Generally it was believed to be a fantasy that he had found authentic sculptures of dinosaurs along with representations of the one-humped American camel of the Ice Age, various other extinct species, and a few animals that never existed.

Tests performed on pieces in this collection include radiocarbon analysis and the newer technique called thermoluminescent dating. Because clay contains radiocarbon as a result of vegetable matter or carbon absorbed in the process of baking, the radiocarbon method is popular for dating ceramics. However, such dating gives the approximate age of the clay, which is not always a reliable indication of the date when an object was sculpted.

The late Professor Charles Hapgood actively participated in an investigation of the Acambaro pieces. He sent several samples to a New Jersey laboratory in 1968 for radiocarbon dating. The laboratory report suggested dates from as early as 5430 B.C. to as late as 1640 B.C.

A more precise methods of dating, by thermoluminescence, was performed on several pieces in a testing laboratory at the University of Pennsylvania. In order to date a ceramic object by this process, one must be able to infer the rate at which that particular object converts radiation into stored thermoluminescence.

The laboratory technicians at first suggested dates of ca. 2500 B.C. but changed their opinion several years later, contending that "no constant relationship between natural and artificial TL could be determined; thus they [the pieces] could not be dated by the usual method."[4] Currently these technicians are of the opinion that the objects they tested from the Julsrud Collection are not authentic. Many respected proponents, however, continue their quest to establish authenticity, and the debate goes on with no end in sight.

Photo Robert Charroux

If this image on a baked-clay tablet in the Crespi Collection is a genuine artifact, it offers solid evidence that at least one ancient human had a good idea of what a live brontosaurus looked like.

THE CRESPI COLLECTION. In Cuenca, Ecuador, 8,100 feet above sea level, is another sizeable collection of purported artifacts — literally hundreds of them — kept under lock and key at the Church of Maria Auxiliadora.[5] Jivaro Indians in the area share the devotion of the priest in charge, Fr. Carlo Crespi, and have for years brought him pieces from caves within the jungle. The items are incredulous in nature, ranging from gold plaques, valuable for their weight alone, to illustrations of Egyptian and Assyrian motifs, and once again, portrayal of a dinosaur.

There seem to be two possible explanations as to how this collection came into being. Either the gathered objects are an extravagant and expensive fraud committed by unknown persons for an unknown purpose, or the collection is in part authentic. The latter appears to be the more reasonable choice. Some pieces are clearly fakes, a few having been obviously fashioned from olive oil cans, but earlier pieces that were brought to Fr. Crespi are examples of fine craftsmanship. They are in the style of Old World artifacts that only artisans who had a thorough knowledge of Egyptian, Assyrian, African and Chinese techniques would be able to imitate. Moreover, linguistic specialists have identified inscriptions on some of the plaques as classically pure Egyptian, Libyan, Celti-Iberian, and Punic (the latter a form of Phoenician).

And...

One of several Ica Stones that portray the dinosaur, this ornamental rendering might well have been the "art nouveau" of its time.

THE ICA STONES provide the most numerous and varied representations of the dinosaur in pre-Columbian art. Dr. Javier Cabrera of Ica, Peru, is in possession of a vast collection of inscribed stones now nearing 20,000 in number.[6] Dr. Cabrera is no less of an anthropologist for being a surgeon and holding a professorship at the University of Ica as well. He is of the opinion that these stone archives were either incised by the first civilized people on our planet or made by a more recent people who inherited great knowledge from their ancestors.

Like the Cuenca artifacts, the designs on these stones are of a complex nature and quality that would baffle any attempt by modern natives to imitate. Extinct animals, for example, are drawn in precise detail, including several varieties of dinosaurs.

The first stones brought to the Ica museum were found in 1955 by two brothers by the name of Soldi. Until 1973, the curator of the Callao Naval Museum also brought pieces which he procured from the Ocucaje Indians. In addition, excavations were carried on by a former rector of the National University of Engineering, Santiago Calvo, and by Alejandro Pezzia, a university professor. Stones similarly incised were found deep within pre-Columbian graves.

In Peru, as in most historic sites throughout the world, counterfeit "stones" are produced by natives and sold to unwary tourists. The Ica Collection may possess some fraudulent pieces, unwittingly added to the genuine artifacts obtained in Ocucaje. However mild or harsh one's judgment may be, it should always support the barrier that separates "possible" from "improbable" while allowing "evidence" to proceed toward "proof."

The uniqueness of these and thousands of other New World artifacts lies in their apparent response to Old World cultural influences. Many scholars now support the concept of pre-Columbian transoceanic voyages from both the East and the West. If these artifacts are authentic, they must lend further credence to the transoceanic hypothesis.

The Granby, Tucson, Acambaro and Cuenca artifacts portray the brontosaurus; however, the Ica Collection includes other varieties of the dinosaur — tylosaurs, tyrannosaurs, and stegosaurs in addition to the brontosaurus. Although bones of these creatures have been found from pole to pole, the influence of sea-floor spreading should not be discounted; dinosaur remains found close to the present pole may have been transported there by natural forces along with burial sites that once were in more southerly locations.

No dinosaur bones have been found in sedimentary rocks less than 70 million years old. Except for the folding, warping and erosion of the Earth's crust, they would all be buried under approximately two miles of rock. Since there are no remains of homo sapiens buried that deep, we may reasonably assume that skeletons of many animals now long extinct were found nearly intact by ancient peoples who were wise enough, or advanced enough in mind's-eye perception, to know how the live creatures looked. Perhaps also they learned as much from the storied legends of their past as we have learned from the records we call history.

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General view of a portion of Julsrud Collection. Courtesy of Charles Hapgood

The Magic Spark

Human Bioelectricity and Psi

by Paul B. Thompson

Bioelectricity is the rather vague term used to describe the ability of living organisms to generate electricity and electromagnetic fields by chemical processes associated with life functions. Despite the Frankensteinian connotations of the word, bioelectricity has for centuries been observed in nature, and indirectly led to the modern discovery and understanding of electrophysics.

In 1774 John Walsh, F.R.S., wrote to Benjamin Franklin to tell him of his (Walsh's) proof that the shocks of the torpedo ray (Torpedo malopterurus) were in fact the same electricity that Mr. Franklin had drawn down out of the atmosphere in his famous kite experiments.[1] Franklin's work had made him the world's leading figure in the field of electrophysics, so Walsh was eager to turn Franklin's attention toward his own experiments with electrical animals.

Of all living things, certain marine animals make the most noticeable use of electricity. Some predators, such as the electric eel (gymnotus electricus) and the torpedo ray (two types — Torpedo marmorata and Walsh's T. malopterurus) use strong currents to stun other fish as prey.[2] Other fish, like the glass knifefish, star-gazer, mormyrid, and certain catfish, use electric fields as navigational aids, like radar.[3]

How do eels and rays generate their power? Eels can develop currents up to 600 volts by contractions of special muscle cells which constitute nearly half of the body. The muscle cells are arranged in three strips and each cell can produce about one-tenth of a volt. Because the cells are linked in series, the aggregate force is usually several hundred volts. The current is of low amperage, but the eel is able to pulse out toward its victim 400 or more shocks per second.[4] The eel's electric cells are modified muscle laterals. They are considerably larger than the animal's motion muscles and contain more electrolytic saline solution. The head of the eel acts as the positive pole and the tail serves as the negative pole.[5]

The modern study of bioelectricity actually dates back to 1786 when an Italian scientist, Luigi Galvani, noticed that the muscle cells of a dissected frog's leg contracted when contact was made with certain metal instruments on the lab table.[6] Galvani believed the effect was due to some special power in the muscle tissue. Later, Alessandro Volta demonstrated that the weak currents were produced by the contact of metals with acidic or saline solutions.[7] Galvani and Volta were both partly right. The same ingredients that make up the so-called "wet battery" are present in the form of muscle cells in vertebrate animals; the brain controls the contraction and expansion of the muscles by means of tiny impulses of electricity.

Until the 1930s it was not proven that human bodies could generate real amounts of electricity biologically. Several Yale University scientists then began to investigate the possibility that human bodies carried bioelectric energy apart from the minute neurological impulses long known. Dr. H.S. Burr, professor of anatomy, along with Dr. C.T. Lane and L.F. Nims, developed a fine microvoltometer. With it they discovered that plants exhibited electrical fields which varied in intensity with lunar and seasonal changes.[8] Burr and Dr. L.J. Ravitz, also of Yale, tested humans and found similar patterns. More than 430 people were tested at Yale, Duke University and the University of Pennsylvania, and 30,000 profiles of bioelectrical activity were obtained.[9] The identity of bioelectricity was established and new tools were fashioned to make use of it. Among these were two physiological monitoring devices that today's medical practitioners would not know how to get along without: the electroencephalograph (EEG) and the electrocardiograph (EKG), both based on bioelectric activity.

Dr. Burr was also interested in the rhythms of change to which the bioelectric fields responded, especially in relation to lunar phases.[10] Contemporary research and claims made for "biorhythms" seem to continue this line of thought. But what of possible links between bioelectricity and various manifestations of psi? Parapsychologists have constructed many tests to find out whether bioelectric energy has a relationship to psi phenomena. Notable among these efforts were the experiments done in the USSR by Leonid Vasiliev. (Soviet investigators have always leaned toward a "material" theory for psi, one that is both scientifically acceptable and Marxist.)

Vasiliev's subjects were placed in Faraday cages to screen out the electromagnetic spectrum.[11] Apparently the cages did not interfere with the operation of ESP. Later work along these lines was done by Inyushin, Targ and Puthoff, and others. Bioelectric EM theories have been advanced by Wheeler and Feynman, Ruderfer, Pauli, and others.[12]

Psi force penetrates a Faraday cage, but EM radiation cannot. Does this kill bioelectricity as a viable answer to psi phenomena? Theoretically yes, but it seems to me that many features of spontaneous psi have a strong relationship to bioelectricity, and that the best explanations for some phenomena on the fringe of parapsychology may be bioelectric ones.

A Bioelectric Theory of Psi

A large portion of the human body consists of muscle. Muscle cells are generally larger than other cells. Muscle cells contain solutions of potassium or sodium chloride, electrolytic salts, and proteins of either acid or alkaline composition.[13] Such materials can act as a tiny battery, with the proteins serving as "poles" for the discharge of current. Assuming a potential of one-tenth of one volt per cell (like the eel's), one cubic inch of cells could produce 400,000 volts![14] Most people would say this was impossible; after all, how could a body stand such high voltage? But voltage by itself does not harm tissue; it is amperage that causes the buildup of heat that damages and destroys.[15] It is quite possible for a human to be "charged" with an impressive amount of voltage, yet suffer no ill effects whatsoever.

The process of Kirlian photography involves charging an object with electricity, then discharging the energy onto a photo negative. The resulting corona image is widely believed to represent the "aura" or life-force field of the object photographed. The occult significance aside, the corona image depicts the bioelectric field magnified by the current of the Kirlian device.

When we consider psychokinesis (PK) — the force believed able to move or influence objects at a distance without direct physical contact — there is immediately suggested a similarity

to static electricity. Static electricity is an imbalance of electrons, either in excess or absence, on the surface of an object. Thus a comb run briskly through the hair will acquire additional capabilities, such as to pick up bits of paper, disturb ping-pong balls, even bend a stream of water coming out of a tap. As soon as the electron-imbalance is corrected, the charge dissipates.

Many PK effects are like that. The agent, through concentration or some exertion of the subconscious, manages to influence falling dice or move a matchbox across a table. PK testing has shown a U-shaped curve of falling-off of performance as the test progresses, but recovery at the end of the test.[16]

Russian researcher Victor Adamenko has made a considerable study of "static electrical PK." He and his wife Alla found that objects could be moved on a plastic cube by PK, apparently by using the same techniques as the famous Madame Kulagina. However, Mme. Kulagina's performance is more refined as she chooses her targets among a group and moves only specific ones.[17] At the 1972 Moscow Parapsychology Conference Victor and Alla Adamenko demonstrated their findings. Some observers objected that what they were seeing was controlled static electricity at work, not PK. Mme. Adamenko then showed that she could transfer her ability to Dr. Stanley Krippner by touch, then remove it so that neither could move the target objects again. Thus it became clear that the borderline between PK and static electricity had been crossed.[18]

As far back as 1959 the relationship between PK and bioelectricity had been explored by Mayne R. Coe. Dr. Coe found by experimenting that he could move small objects (matches, pins, etc.) with motions of his hands and static electricity. Like Adamenko, Coe shielded his targets with clear layers of cellophane and noted that the action of the quasi-PK force was only delayed, not stopped.[19] The best conditions for static electricity were identical with the most effective PK test-conditions: cool temperature and dry, still air.[20]

On a small scale, PK can act like refined static electricity. But what about so-called "macro-PK" or the violent periodic disturbances of poltergeists (RSPK)? Can bioelectric fields be held responsible for such events?

In studies of RSPK by Fodor, Carrington, and Roll* descriptions have been compiled of the persons thought to be the source of the disturbances. They are often young people with some kind of mental or physical distress. Persons with neurological dysfunctions like epilepsy and chorea also figure as RSPK sources.[21] The mental anguish of adolescence is well known to all; conditions of chorea and epilepsy are "short circuits" in the brain's attempt to send its electrical impulses to the rest of the body. During puberty the stress of rapid physical growth is coupled with the beginning of sexual maturity and awareness thereof. Hormones are pumped into the body, and the chemico-physical changes are great. Manifestations of the poltergeist are the occasional result of all these pressures.

A well-known fact of physics is that EM fields tend to force objects within their influence to conform to the lines of force present in the field. Using the bioelectric theory, the effects of RSPK can be seen as the result of a biologically generated EM field asserting its force on physical objects. The process of the selection of the objects is unknown — but is probably indicative of where subconscious stress wants to be expressed. ("I wish that Mother's favorite vase would smash on the floor!")

Is there evidence that bioelectricity may be responsible for PK or RSPK? To Coe's and Adamenko's research we may add pertinent clues gleaned from case-reports such as this example:

*Fodor & Carrington, *Haunted People;* Roll, *The Poltergeist.*

In 1846 a 14-year-old French girl, Angelique Cottin, became widely studied because of the peculiar things that happened around her. For weeks she exhibited strong PK, RSPK and electrical powers. Heavy furniture moved when she came near; light objects clung to her skin; compasses rotated when placed close to her body; her bed moved and rocked while she slept in it.[22] Mlle. Cottin was greatly distressed by these events and often became "hysterical" (epileptic?) when they occurred. The girl was investigated by the Academie des Sciences. After awhile the "power" faded away, as from a drained battery. No explanation was offered by the academicians.[23]

Human magnets are known for their ability to attract and affect metallic objects, and the magnetism can last for years.[24] The lamas of Tibet and certain yogis are reputed to have talents which allow them to perform PK and even levitation. Dr. Coe, curious as to their methods, studied Kundalini yoga and after following the prescribed regimen of fasting, exercise and strict diet, claimed he could accumulate bioelectricity and discharge it as readily as an electric eel.[25] Coe described the current as both high in voltage and low in amperage. He theorized that a lama or yogi who gave off sufficiently strong impulses of negative electricity could "levitate" by repelling the Earth's natural negative charge. Somewhat similar abilities are attributed to the saints and "holy men" of the Middle Ages who, in their asceticism, followed yoga-like regimens and went forth to perform miraculous deeds. In the more recent past, some of the noted physical mediums may have had innate bioelectric abilities which produced seemingly genuine seance-effects. D.D. Home, in particular, had talents which (unless they were fraudulent) may have owed something to bioelectricity.[26]

As healing is accelerated by low-voltage direct current (10v) applied externally, so may "psychic" healing have bioelectrical aspects. An important exception to the bioelectric theory, however, is ESP, specifically telepathy and precognition. The concept of "mental radio" has been discarded by most major researchers; repeated tests with Faraday cages have yielded significant results where EM radiation could not have been involved. Nevertheless, the bioelectric potential of the human body may account for much PK phenomena, and it seems likely that such energies are directed by as-yet-unknown centers in the brain. Future research along the lines of Adamenko and Coe could be most valuable in establishing the true role of bioelectricity in human behavior.

Fringe Phenomena—Bioelectric Theories

Fire-walking. The strange practice of fire-walking is known throughout the world and has been practiced by almost every culture at some point in history. The most regular practitioners today are the Polynesian Islanders. Their brief "walks" are mostly for the entertainment of tourists. The short traverse of the shallow trench filled with hot coals poses no problem for those who move briskly and are accustomed to heat.[27] Far more impressive are the walks done with much ceremony by Shinto and Buddhist believers in Japan, by Hawaiian Kahunas, and by Moslem mystics in India and Pakistan.[28] These fiery ordeals involve traverses 90 to 150 feet in length, over glowing coals, lava or hot stones. How is it done without hideous burns being inflicted?

A common armchair opinion is that "ecstacy" felt by the participants induces a kind of self-hypnosis that protects the celebrants. However, hypnosis and autohypnosis, while certainly capable of blocking-out pain sensations, can scarcely protect the skin from being incinerated. The mental state of the fire-

walkers is indeed important, but for a different reason.

It was discovered by Inter-Probe Laboratories of Chicago, in 1969, that an electrostatic probe could reduce the temperature of an object exposed to high heat. A piece of tissue-paper was held on an electrostatic probe within the flame of a torch; the tissue did not burn, it didn't even scorch.[29] Further tests showed that an electrical heating coil was cooled at a point where the probe and its ES field touched.[30] It was a major discovery, and as usual in the case of large breakthroughs, new questions arose in the wake of old questions answered. Speculation began to focus on bioelectricity and possible conjunctions with a variety of unexplained phenomena. Not the least of these is the fire-walking phenomenon; it poses an intriguing question within the context of this study: If artificial ES fields can insulate or disrupt a heat-source, could not a biological ES field protect a fire-walker?

During the past twenty years occasional visitors from Western nations have been allowed to participate in ceremonial fire-walks. Neither reports of injuries nor complaints of pain have come out of any of these events.*

When Prof. Edward G. Stephenson of the Imperial Naval College in Japan took part in a Shinto fire-walk in Tokyo, his bare feet received only a slight sprinkling of salt before he made his walk. Prof. Stephenson stepped gently along the 90-foot-long trench of glowing embers and said he felt "no heat but only a tingling sensation resembling light electrical currents playing around his feet."[31] Other Caucasians have reported similar feelings while fire-walking. A Honolulu botanist, Dr. William Brigham, walked with three Kahunas over molten lava near Kilauea. Brigham observed all ritual aspects, but insisted on wearing his boots on the 150-foot walk. His boots were ruined, but neither he nor the Kahunas were injured.[32] Theoretically, an ES field could protect shoes as well as flesh. Although Dr. Brigham lost his boots, other Westerners have made walks that not only didn't burn feet but didn't burn their shoes, either.[33]

My concept of fire-walking is that the practitioners, in their fervor, self-hypnotize themselves and thus activate a brain-center that puts a bioelectrostatic field around the body. It would be a fascinating project to do a series of detailed voltometer (or Kirlian-photo) readings on fire-walkers before and after a ceremony. In some such way a possible relationship between ES fields, bioelectricity and fire-immunity might be established.

Radiesthesia. An aspect of dowsing, radiesthesia is the art of finding hidden things through a sensitive person, the dowser. Dowsers claim that "vibrations" from certain things like underground water, gold and other minerals can be detected by passing in close proximity a divining rod or pendulum which acts as an indicator of location.

A Dutch geologist, S.W. Tromp, studied dowsing for many years. He gathered data on all manner of bioelectric phenomena, the natural radiations of the Earth and atmosphere, and came to the conclusion that human beings could be sensitive to variations in the magnetic and bioelectric fields found in nature.[34] He also decided that the divining rod was in fact an antenna for the reception of natural radiations, the effects transmitted through the body's neurological circuitry, thus making the dowser an organic radiation detector.

It is significant, if Tromp is correct, that in recent times dowsers have been among the most vociferous complainers about EM pollution from radio, TV, microwave and other broadcasts which they claim disrupt dowsing sensitivity. Nowadays many practitioners of dowsing use metallic rods instead of the traditional forked twig or branch, metal being a superior conductor of electricity. Yet to be understood, however, is why some dowsers can work on *maps* of an area and find their targets as unerringly as at a site of which they have no foreknowledge.

Spontaneous human combustion. This grim subject has never received the attention it deserves. SHC is the consumption of a human body by fire of apparently internal origin. It ridicules reason to believe that a mass of human flesh, blood and bones weighing 100-200 pounds could *reduce itself* to an almost weightless pile of fine ashes within a few minutes, or even hours. Yet the pages of history are replete with reports by first-on-the-scene "witnesses" in the aftermath of fatalities which are describable in no other way. Statistical studies of these reports place a high preponderance of the victims in four categories: 1) the aged, 2) women, 3) obese, and 4) alcoholic.[35] Usually the combustion of the body is complete; in a few cases one or more extremities — a hand or leg — have escaped total destruction.[36] The most peculiar detail of SHC is that notwithstanding the tremendous heat required to completely consume a body (upwards of 3000° F. for human bone), the surroundings of the burning are never burned, nor do structures catch fire.[37] Highly flammable material, like paper, has been found unscorched within a few feet of SHC victims.[38]

What kind of fire can originate within a living body that is 90% water, yet reduce it to ashes? Commercial crematoria have to resort to grinding up large bones which are resistant to calcination. Various theories of external application of flammable or caustic materials to SHC victims do not bear up; attempts to duplicate SHC-like effects with cadavers have not approximated SHC.[39]

In the 19th century several European scientists read papers on SHC to meetings of their learned societies.[40] Certain older medical textbooks describe cases of SHC: *Forensic Medicine* (1922 edition) by Dixon Mann, M.D.; Gould and Pyle's *Anomalies and Curiosities of Medicine* (current), and others. Novelist Eric Frank Russell, an Englishman, recorded 19 victims of SHC in 1938 alone, just by checking newspaper accounts. Oddly, the most famous case of all is a fictional one: Charles Dickens has one of the characters in his novel *Bleak House* die in this grisly manner.[41]

Under certain conditions, humans produce bodily by-products that are flammable. Most common is hydrogen sulphide gas, given off by the digestive tract. The muscles contain amounts of an energy-storing (endothermic) chemical called phosphagen. Phosphagen is made of phosphoric acid and methyl-guanidine-acetic acid; the compound is flammable, even explosive. Normally it is metabolized by the muscles during exercise. If we recall that sedentary, obese people are the most common victims of SHC, it is assumable that such types have large, unused deposits of phosphagen in their bodies.[42] That resistance to current causes heat is a basic fact of physics; it is also the operating principle of the incandescent light-bulb, hot plate, toaster and electric iron. If by now the concept of human bioelectric energy is acceptable to the reader, the following is posited as an explanation of SHC:

—the victim is elderly, inactive, overweight, and mildly alcoholic;

—alcohol tends to linger in fatty tissues;

—when a physical crisis occurs, such as a heart attack, it triggers a discharge of bioelectrical power strong enough to ignite

*A recent participant was James McClenon of the University of Maryland's University College (Asian Division). He witnessed and photographed a ritual ceremony and himself fire-walked at Mt. Takao, Japan, on March 13, 1983. His report of the experience appeared in Pursuit No. 61, First Quarter 1983, pp. 12-14. (A subsequent article by Dr. McClenon, "The Sociology of Haunting Investigation," can be found in *Pursuit* No. 64, Fourth Quarter 1983, pp. 158-160.)—Ed.

the phosphagen and the alcohol-laden tissue;

—the fire is fed by the combustible compounds rather than by air; when these are consumed, the fire dies out.

As Vincent Gaddis says, "Now you have an excellent excuse for playing golf or otherwise leading an active life."[43]

Poltergeist fires. Poltergeists most often manifest themselves as disturbances of household items, queer sounds or lights, or showers of stones. These are disquieting enough, but when unexplained fires break out all over a residence, the cause may be an RSPK incendiary.

Sometimes such fires occur along with other RSPK phenomena, or they may be the only manifestation of the poltergeist syndrome. Investigators have often blamed children for setting fires they call "suspicious in origin" but without suspicion of arson.

Also to be considered are the possible effects of bioelectrical energy subconsciously directed through walls of buildings; might not the result be similar to the effects of electrical wiring that is overloaded — i.e., heat, and combustion of surrounding materials?

For whatever reasons, the number of poltergeist fires has been on the rise since the 1940's.[44]

* * *

The bioelectric theory has intriguing possibilities for parapsychology. Already physicians are learning to accelerate the healing process by using electricity, a technique which may be a late imitation of a natural process. The relationship between PK and electricity has been disclosed and more evidence will advance our understanding. It seems to me that bioelectricity has been neglected by parapsychologists because it is obivously not THE answer to the hows-and-whys of psi. Yet a general explanation for psi may not exist, and only when all aspects are thoroughly examined will truth become known.

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Calico: A Progress Report

by Sabina Warren Sanderson

In the Second Quarter 1983 issue of *Pursuit* I reported on the behavior patterns of my cat Calico, who became totally blind at the beginning of August 1982, presumably as the result of an apparent viral infection during the spring of 1982. I am happy to report that as of the time of writing (Spring 1984) she is alive and well and more independent than ever.

Before reporting on her progress and activities, I should like to clear up a question raised by D. A. Neiburg in the letters department of the Third Quarter 1983 issue of *Pursuit*. I had noted in my original article that after the infection ran its course, Calico became apparently mute, never purring or mewing. Neiburg notes that "although — strangely — no one really knows *how* cats purr ... *I'm surprised that an infection could affect two unrelated types of sound production simultaneously." In fact, I have always thought and am now convinced that this muteness is psychological and not physiological. On both occasions when she has been noticeably pregnant, she has again become 'mute' until after the kittens were born, at which she started 'talking' again. I believe it is part of her defense system. Since she cannot see what is on the horizon, as it were, she does nothing to advertise her presence.

On the other hand, she has a fiendishly simple method of dealing with dogs. I don't know whether it would work with a confirmed cat-killer (and I hope never to find out) but it works beautifully with all the others. She simply sits there or, if really alarmed, stands up, arching her back and puffing herself up, but she *doesn't run*. Dogs are first nonplussed by this 'abnormal' behavior and gradually become completely unnerved and retreat, looking back apprehensively from time to time.

The major question left unanswered in my previous article was whether or not Calico can hunt successfully. The answer is yes. Rarely I have seen her with a bird, but I suspect that these she finds already dead — they do occasionally fly into things and break their necks. On the other hand, she actively searches for the nests of mice and voles — heaven help any babies nestling therein — and I have seen her pounce on unwary adults. And about three weeks ago she turned up carrying a garter snake about 18 inches long; it was definitely alive on arrival but didn't stay that way very long.

Calico still has a small bowl of milk inside in the morning, and unless I am unusually early or late in rising, I find her waiting at the front door. I no longer give her extra cat food *(per se)* with this meal; she eats from the community dish in the areaway, but it is my impression that throughout the day she tends to eat less than the other cats do, suggesting that she is getting a fair amount of food elsewhere. (The amount of milk she gets is certainly not enough to keep her going all day.) Obviously it is very difficult to be sure about this, though I can say with certainty that she is quite casual about it when I put food out, unlike the now year-old kittens who carry on in a fashion reminiscent of feeding time at the zoo, leaping about in a near frenzy on occasion and behaving as if they hadn't been fed in a week; this even when there is still some food in the dish and in spite of the fact that they all hunt.

Calico also proved to be an excellent mother. In April 1983, when it became obvious that she was due to kitten at any time, I began letting her in at night and provided her with a nice box which she investigated, along with all other possible places in which to have kittens. At about 3 a.m. on the 14th I was wakened by the cries of kitten #1. They didn't seem to be coming from the 'right' direction, i.e. the box, but I decided to ignore this and go back to sleep, planning to cope, if necessary, in the morning. About twenty minutes later kitten #2 arrived, and it dawned on me that the kittens were producing stereophonic sound and Calico was mewing an SOS. On investigation I discovered that kitten #1 had been born under the stairs and had crawled under the bottom step, which is only about 1½ inches off the floor. I extracted it with some difficulty and took it to join its sibling in the box. It was not until the (proper) morning that I noticed that Calico, clever puss, had cut the umbilical cords at the *placental* end, leaving about six inches of cord. (I cut off the excess when they had dried thoroughly.)

Calico didn't leave her kittens except to eat or visit the litter pan until the 20th when she announced that she was ready to take a short walk outside.

On the 21st Mope had two kittens, which she insisted on having in Calico's box. Calico took it all very calmly and helped to clean the newborns. Thereafter both nursed all four kittens indiscriminately — standard behavior with my cats.†With Mope on hand to help, I moved the box outside. On the 10th of May I heard frightful yowls and dashed to the door, to find that Mope *and Calico* were driving off an opossum that had come down into the areaway. I don't think it was after the kittens — just the cats' food, as usual — but Mope and Calico weren't taking any chances. Alas, Mope was found dead beside the road on the 8th of June. On the 10th, Calico routed an opossum on her own. I stood by just in case, though this time the kittens really were in no danger, having retreated into the woodpile.

Calico's instinct to teach them to hunt was strong but suffered from practical handicaps.She brought the kittens worms — not normally a major item in a cat's diet though one species of Badger practically lives on them — and an occasional baby mouse or field vole. Fairly early on she led the kittens out into a somewhat overgrown field, all the while uttering a cry that I have heard used *only* by mother cats to their kittens and which apparently translates as "Follow me, children." About an hour

*Back in 1963 the the columnist Cassandra noted that "With immense solemnity a German zoologist, Dr. Paul Leyhausen of the Max Planck Institute for the Physiology of Behavior at Wuppertal (there's a fine address for you), has been trying to find out *what makes cats purr*." (Italics mine) Cassandra went to his cat Bulgy "who purrs most of the day and half of the night and can purr while his mouth is full of boiled fish" and asked him. Bulgy's answer was that "The world and all its wonders are built for the enjoyment and happiness of myself alone so that I may make a joyful contented purring noise unto the Lord." I just thought you'd like to know.

†Several years ago one of the cats had stillborn kittens about six weeks after the other cats had kittened. She promptly took to nursing the six-week-old kittens, but the episode was more than a bit trying because she insisted on treating the kittens as if they were the age hers would have been had they survived. She spent most of her time hauling the kittens back into the box, and they spent most of their time climbing out. She didn't relent until her calendar said it was time to allow this.

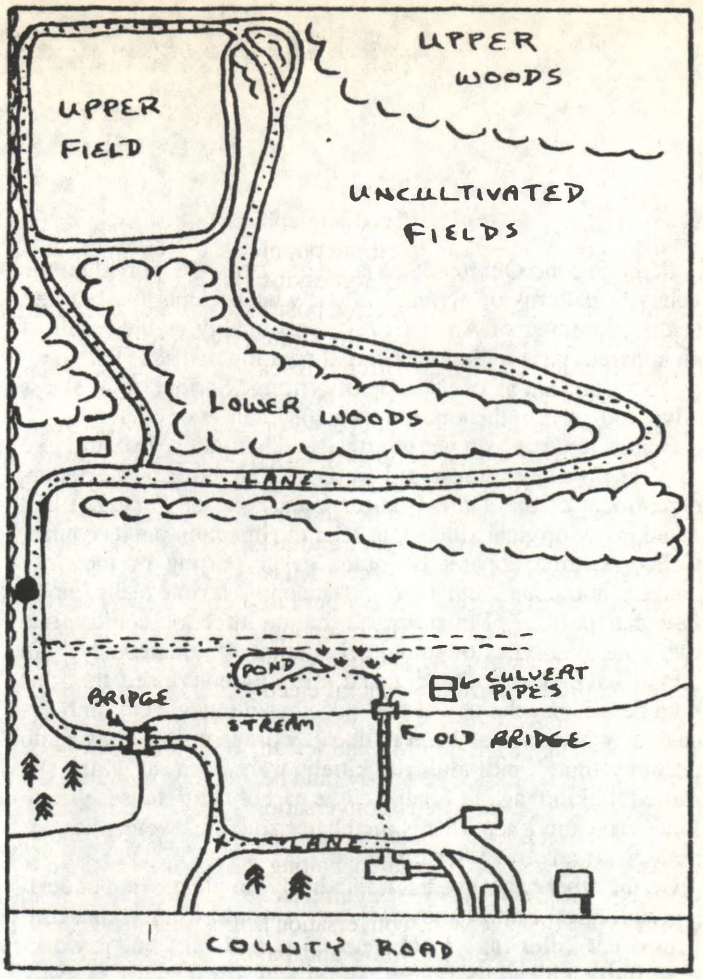
later Calico returned alone, uttering distress cries, and it occurred to me that she might have 'mislaid' the kittens. I went out to meet her, speaking quietly to encourage her, and she immediately turned about and made several abortive forays in a particular direction. I called the kittens (Calico's voice has always been very quiet) and in very short order they emerged from the weeds almost directly ahead where, presumably, they had decided to take a nap. Calico at once resumed her 'maternal' cry and led the kittens back to the house. I don't believe she tried this again for several weeks, at which time the kittens could be counted on to find their own way back. (By now they also knew how to get up on the house roof by climbing a ladder intended for chimney cleaning exercises; they sounded like a herd of smallish elephants galumphing about.)

Calico's litter this year was not stillborn but none of the kittens lived more than a few minutes. Two were very tiny, and Calico treated all three with what I can only call contempt, though again she cut the cords at the placental end. (Little Mope, without ever looking particularly pregnant, presented me with four kittens, all with their umbilical cords cut neatly about one inch from the kitten, which is normal for a cat who can see what she's doing.)

Calico still goes for walks with me on occasions of her choice. By which I mean that if she has decided to join me on my walk, there seems to be no way that I can sneak out of the house and get past or around her. It's not that she lies in wait for me. She is, so far as I can make out, using some sort of ESP or built-in radar. Cunningly I leave the house as quietly as possible, nip round the back of the house and across a stand of Christmas trees down to the lane, only to find that Calico is intercepting me at the bend of the road or even as far down as the bridge (see map) . The only thing that really works is bribery: I feed her a bit of cheese or some other special treat and scurry off while she is busy eating.

I realize that this last is perfidious behavior on my part, but it really is a bit of a trial to have her along. If the other cats accompany me and decide on a separate excursion, I desert them without compunction, knowing that they can find their way home. I dare not do this with Calico beyond a certain geographical point, and have therefore to spend quite a lot of time exhorting her to get back on the path and follow me. Also, in hot weather, she tends to pick a nice shady spot along the road, lying down there and announcing clearly that she will wait for me there. This means that I have to retrace my steps rather than make a circular tour, which I don't like to do. Fortunately for me, she doesn't care to go along every day and in fact rarely goes more than once a week, and in hot weather even less often.

There was one rather memorable walk with all five cats. A bit of 'history' is necessary here. The two boys, Caligula (so called because of his little white 'boots') and Gabby, about whom more anon, often go with me at least part of the way. Caligula almost never opens his mouth, but Gabby almost never shuts up, carrying on a nearly non-stop 'conversation' embodying a quite remarkable variety of sounds. The lane is currently blocked at intervals by recently downed cedar trees, which are extremely dense and prickly and present a formidable barrier to Calico, though not, of course, to the other cats. On the occasion in question, we had not gone far beyond the bridge when Gabby's behavior changed. He switched to an unvarying little cry which he kept up continuously throughout our walk of about two miles; Calico immediately fell in right behind him and stayed there, and he led her around all the obstacles. It was quite uncanny. Normally Calico copes with barricades and such by



STYLIZED SKETCH MAP OF THE PROPERTY. (Not to scale)
X - Interception Point
• - Apparent limit of Calico's solo journeys.
... - Our usual route

a process of trial and error. (My attempts to teach her 'right' and 'left' have not been particularly successful; I think she is more impressed by my tone of voice than by the actual words.) She is quick to learn and in short order memorizes the various barriers and the way around them.

Calico spends a fair amount of time in the barn, presumably a good hunting ground, but she also does a lot of traveling on her own. She knows the pond and bridge areas quite well and often leaves me when I turn off the lane toward the pond on our return journey, making her own way home from there. Also, I have encountered her well up the lane from the bridge, investigating the hedgerow that marks the property line. I don't believe she crosses the boundary, though I am not sure of this. She does not, as far as I know, cross the county road unless she is with me, and (happily) the sound of a car far down the road sends her scurrying back down the lane or into the barn.

For reasons unknown to me, walking down the driveway from the country road to my house often brings on kittenish 'attacks'. Calico scrunches down and waggles her behind, giving a good imitation of a lioness about to spring, and then playfully 'attacks' my foot. She is also largely responsible for the collection of large pebbles that accumulate on the back steps. She bats them around for minutes at a time, presumably as practice for

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An "Electronic Poltergeist"

by Raymond Bayless

In early July, 1978, I received a telephone call from a Miss Gladys Gordon. She described telephonic and paging system disturbances plaguing a very large industrial plant where she occupies an excellent and respected position. She described the history of the disturbances and the strange phenomena which had taken place and kindly offered to call me when the next episode occurred so that it could be witnessed.

A few days passed and at about 2:45 pm, July 21, Miss Gordon called and said that the disturbance had been very active for several days and at the moment was in full flower. She suggested that I immediately join her at her place of employment. I called Scott Rogo, a colleague, and asked him to join me at the plant; I then drove on to meet Miss Gordon.

The traffic was extremely heavy but I managed to arrive about 3:30 pm. I gave my name to the receptionist and was thoroughly interested to hear her and another young lady spontaneously remark that the sounds and general electronic interference had been very intense that day.

I was told that Miss Gordon had left the building for a short time, about ten minutes previously, and her departure interrupted the disturbance. During this conversation Miss Gordon came to the reception area and then led me back to her office; while walking I heard several comments along the hallway to the effect that "Gladys" was at it again, etc.

During our first telephone conversation Miss Gordon had mentioned that when the telephonic and paging systems became useless due to the reception of high-pitched "electronic" sounds, she would leave the building for short periods of time. When she did this, she explained, the disturbing shrill sounds would die out and normal operation of the communications systems would resume.

I was seated in her office when she recounted the history of the strange case in detail and told me about the plant equipment and its accompanying intense radio-frequency output. Due to previous difficulties with a nearby airport control tower and its communications system, the manufacturing equipment had been heavily shielded, but in spite of these measures a large output of radio frequency still occurred. This output, I believe, was responsible for my tape recorder being rendered inoperative by the reception of high-pitched sounds.

Mr. Rogo arrived at 4:15 pm and our discussion continued. The electrical oddities, we were told, actually began in August, 1977. She and other members of the company soon discovered that she was the focal point of the activity. Her office phone and other phones that she might use would become completely dead and silent or would emit the usual high-pitched, "electronic" sounds that completely drowned out any possibility of communication. The buttons or stations at the telephone base would light up apparently at random and the paging speakers throughout the plant would give out extremely loud "electronic" sounds. Miss Gordon remarked that on occasion her electric typewriter and calculator were affected, a statement later verified by the plant's general manager.

Miss Gordon said that during a day of particularly intense activity, she could "sense" the radio output, "I can feel it in my body," she said. Other employees of the company confirmed having heard her make this comment immediately prior to an outbreak of the disturbance.

The phenomena had undergone some changes as time passed. For example, she said that the tone of the sounds "now goes up and down." She also insisted that when "things were active," other telephones that she used became subject to the same disturbances that plagued her office phone.

At 4:47 pm while we were talking, a paging speaker set in the ceiling just outside Miss Gordon's office suddenly began to emit a continuous intense, high-pitched "screech." The racket was echoed by other speakers up and down the hallway and undoubtedly throughout the entire plant. Any attempt to communicate via the paging system would have to be postponed as the system, for the time-being, was rendered totally inoperative.

Quickly following this bizarre outbreak, the various illuminated buttons on the base of Miss Gordon's desk telephone began to light up in, as far as I could tell, a random fashion. While this fascinating activity was underway, she picked up the telephone several times to demonstrate that it would either be silent or produce the same type of sound as the paging speakers. I was handed the telephone several times, also, and on each occasion it was either completely silent or swamped with a tone like that from the hall speakers. After listening, I handed the phone to Mr. Rogo and he verified the weird interference or equally strange silence. At 4:49 pm the bizarre noises suddenly ceased.

A second outbreak, seconds later, began starting with the paging speakers and, as before, the telephone prefaced its peculiar behavior with the buttons lighting up. When the instrument was picked up, it was once more either silent or squealing shrill tones. At 4:53 pm the second flurry of activity ended.

For a third time, at 5:07, there was a quick (seven-second) period of activity but it was of diminished intensity and confined to the speakers. Miss Gordon, Mr. Rogo and I left the beleaguered building a few minutes after this outbreak.

Interestingly, a small electric clock on Miss Gordon's desk operated quite normally during the three periods of disturbance. I had brought a small pocket compass with me to test for the presence of any possible electro-magnetic oddities but it yielded no peculiar behavior.

On September 19 I paid a second visit to the plant. Only one abnormal incident occurred during my stay of about forty-five minutes: the speakers began their usual misbehavior but the duration of the disturbances was short and the actual volume of sound much less than that heard previously.

Miss Gordon introduced me to several of her associates and some of them contributed relevant information. Miss Audrey Smith volunteered the most important item when she told us that she had been the focal point of a somewhat similar disturbance about one year previously, prior to Miss Gordon's employment. Miss Smith's telephone had been affected by the "electronic" sounds, but the paging system had not been influenced. She also remarked that after the installation of new telephone and paging equipment the disturbances had ceased. Agreeing with Miss Gordon, Miss Smith said that she, too, frequently "felt" the radio output bodily.

The plant's general manager, Ceil Vance, joined us in Miss Gordon's office and said that in his presence her electric typewriter and calculator had misbehaved during one outburst. He further stated that he felt the radio output bodily, an obser-

vation all present considered important of itself besides providing confirmation of the Gordon and Smith statements.

Leslie Butterworth, vice-president of sales, also joined our discussion and he firmly asserted that a relationship between Miss Gordon's presence and the disturbance, had definitely been established.

On August 10 I visited James Tyler, vice president of a prominent company specializing in telephonic communication systems, and he kindly allowed me to tape his comments on the Gordon case. It was his firm that had installed new and revised equipment within the industrial plant and, as reports of the strange behavior of the communications systems reached him, he began a review of the circumstances in an attempt to resolve the many problems that had been encountered.

He stated that the phenomena began after the original telephone system had been revised and some additions made. Miss Gordon's desk phone was then changed but that had no effect. Next, the button connections on the base of her telephone were revised but that gave no relief. Finally, the lines to the phone were isolated and still nothing changed.

As Mr. Butterworth, the sales vice-president noted: "Inasmuch as we were changing the system to a much larger one ... it might have had an effect on the disturbance. We used different relays, different circuitry, but these changes had no effect. It still happened. There are only certain basic things that happen in telephone equipment and once you have checked these functions, then you know that you have done everything to correct anything normally out of order. But it still happens."

One last incident occurred on May 17, 1979: Miss Gordon telephoned at 2:20 pm and my wife, Marjorie, answered the call. At first Miss Gordon's voice was clear but it soon faded and was covered by high-pitched "electronic" sounds. My wife could not hear because of the interference and both women hung up. Miss Gordon called later to tell me that the phenomena had continued and, in fact, had become even more intense. She added that her outgoing calls seem to affect other people's phones.

Miss Gordon insists that the disturbances are related to emotional states and claims that her car radio and the telephone and television in her apartment also continue to be affected.

Equipment at the plant still emits a heavy output of radio frequencies and in spite of careful shielding, a certain amount of radiation escapes. Several people employed at the plant have said that they can, at times, bodily feel the radio output, and herein, I think, lies a partial explanation of the phenomena.

It seems unlikely that two individuals, at different times and not in the presence of each other, can be "poltergeist agents." Possible, yes, but not likely. Therefore, I suggest a "near-physical" foundation — in this case actual radio emissions, electro-magnetic fields or transmissions. The two young women are, I suspect, actually serving as "detectors" and modulate radio frequencies into a form that is intercepted or "picked up" by electronic equipment, in this case telephones and speakers. One of the case's unique attributes is the close relationship between the occurrances and normal "physical" activity, a characteristic that perhaps removes it from the poltergeist category. In that, the phenomena are so closely allied to "normal" physical effects and that the "raw material" for the phenomena encountered is actual radio emissions, and that more than one unrelated person can trigger the manifestations. I think that the case can be termed a proto-poltergeist disturbance.

Credit: *THETA*, published by Dr. William Roll

Calico: A Progress Report

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mousing (they are approximately mouse-sized), chasing them down from step to step until she loses interest and goes off after the real thing.

She remains on reasonably good terms with the other cats though she still doesn't like being sneaked up on. In particular, there is a bit of sparring when we encounter one of the other cats far afield. Both Caligula and Gabby have taken to visiting the upper woods on their own, and Calico tends to stay on the defensive until they have identified themselves properly, which means touching noses very gently, at which point her expressions says clearly, "Oh, it's you" and she settles down. She appears not to recognize their voices though she knows mine. In particular, if I waken her by crunching across the gravel drive, she looks very mildly apprehensive until I speak to her. Oddly, she is rather afraid of my landlord though he has never done her the slightest harm. The only explanation I can come up with is that she associates his voice with loud and potentially dangerous machinery — tractors and such — which she avoids.

She rarely uses the 'escape hatch' nowadays and seems to have a very clear idea of where she is and is not safe from cars on the property as well as on the county road, not bothering to move if she knows she is on a spot where cars don't go, but clearing off if she happens to be in the driveway.

She adapts quickly to changes in her environment and takes advantage of any useful improvements — useful to her, that is. On our return from a walk on a particularly hot day, she went off to the left just before we reached the old bridge. I thought at first that she had got muddled about where we were. Oh dear no! She had discovered that the lengths of large culvert pipe lying near the stream were just the thing for a hot day. She curled up inside the shady end of one of them. The top of the pipe gets hot, but the bottom, lying on damp earth, stays nice and cool, and the pipe is large enough for breezes to blow through it. Altogether most satisfactory.

I admit that I believe Calico to be unusually intelligent. Certainly she has more brains than any of my other cats do. Occasionally their behavior is, frankly, stupid. I have never seen Calico do anything even remotely stupid. And in addition to being intelligent, she is, I think, dauntless, and will survive anything short of catastrophe.

The Insectry

by Philip S. Callahan

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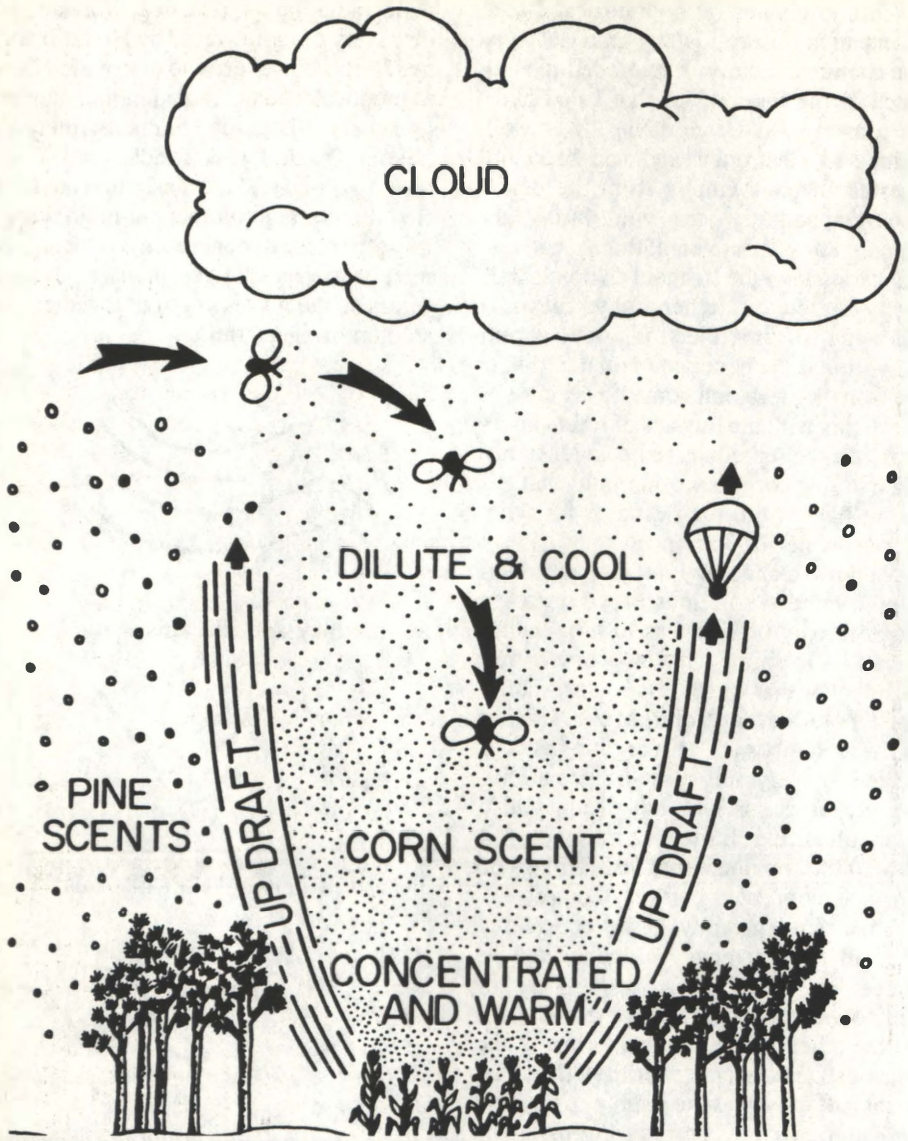


Plant scent rising from a crop is warm and concentrated at the crop level. It cools and becomes more dilute as it rises into the atmosphere. Up-drafts are generated by surrounding objects such as pine trees. I studied this up-draft phenomenon by shooting toy rockets into the air and watching the falling parachute rise up as it crossed the boundary between the cooler forest and warmed soil of the crop area. A corn earworm moth migrating above such a crop would fly into the dilute, cool scent (molecular) upper region and the spine sensilla of the antenna resonate to the coherent molecular scatter IR frequencies. Since it has been demonstrated to me, utilizing Fourier transform spectrophotometeric techniques, that the IR coherence shifts to shorter and shorter wavelengths (higher frequencies) as it becomes more dilute and cools, the crop scent presents a smooth shifting signal from long wavelength IR at crop level (across a 1 mu band) to shorter IR wavelengths up high. Since the moth has short spines (sensillum) at the tip and longer ones at the base, it is able to follow the scent directly to the crop. In other words, the coherent frequencies scale along not only direction, but distance from the crop. Sex scent (pheromone) and ant trails work by the same shifting-wavelength mechanism. This, of course, explains why so many insects have graduated (long to short) sensilla along their antenna. The shape of the free-floating molecule and wavelength from the environment (blue-green, near IR or whatever) determine the coherent (inelastic) scatter radiation from the attractant scent. God's ways are more subtle and beautiful than we often realize. —Dr. Philip Callahan.

The parking lot is west of the Kansas State University football stadium. In 1955 it was not a very large stadium nor was the football team known for its prowess. In fact, the word to follow "Kansas State" back then was "College;" the Manhattan, Kansas, institution did not achieve university status until 1959.

In winter the snow would blow in streams of rippling waves across the flat asphalt of the parking lot and stack the flakes like marshmallow pillows against the several sides of the small white insectry where I worked in the spring and summer.

During the dull gray days of winter, the insectry was closed down; in summer, I spent most of my nights in the ancient white building.

The insectry was (or perhaps I should say is, since it is still there) more of a shed than a building. It sets on a small clearing to the south of the parking lot. Since the snow always blew from the north, it was caught and stuck to the weed-dappled surface of the ground. I suppose that was for the good, since the dead weeds trapped the water from the melting snows in the spring and softened the hard-clay pan for my yearly planting of corn near the insectry. I used the corn to feed the insects that I reared inside the screened-in, "stone age" laboratory, for that is what an insectry is — an open-side laboratory for studying insects.

Of course, in the winter, the high screened walls were not opened. Long board shutters suspended from above, closed down over the sides and blocked out the winter gray from the inside of the shed.

In the summer the shutters were hooked up to the eaves of the roof and the room became light and airy, though slightly musty from old cobs of corn. I worked mostly at night (from 8 p.m. to 5 a.m.), and into early morning, observing the night-flying corn earworm moths [*Heliothis zea* (Boddie)] that I studied for my doctoral dissertation. During the day I could see from the bench where I sat the three white, farm-style, two-storied houses that bordered the insectry lot. I watched a spring-nesting cat bird feeding her young in the shrubbery alongside the first house. I never bothered the cat bird, even though she picked open the ends of my corn ears and stole the larvae of the corn earworm moths that I reared for my research.

The insectry is still there, because unlike prevailing institutional practices, that, in these days, lead to ripping and tearing things apart to replace them with

dreary, windowless buildings, Kansas State has a tradition of holding onto the old and cherished.

Not long ago I learned that they now call the little white insectry the Painter Building, after Professor Reginald Painter. I was working under the direction of Dr. Painter who was one of the most astute, and earliest of the great ecologists, long before the world even knew what that word meant. Dr. Painter was responsible for developing varieties of wheat and corn that are resistant to damage from insects. His work on what he called breeding "host plant resistance" saved Kansas from becoming buried in the insidious and deadly insecticides that are slowly killing the soil, and sometimes wildlife, all over our countryside.

Professor Painter, who was a world authority on corn, spent many of his summers in central America and Mexico studying *Teosinte,* the wild ancestor of corn. He died in Mexico City while working on a Rockefeller grant after his retirement from the Kansas State faculty.

Most of Dr. Painter's graduate students were studying new varieties of corn- and wheat-resistant to insect damage, but when I asked to work under Dr. Painter, I told him I did not want to search for new resistant varieties but rather to find out why certain varieties were resistant to insects and others were not. In the early 1950s the field of entomology had become so enamored by the success in controlling insects with DDT, there was a tremendous pressure to work only on chemical methods of control. Dr. Painter's elegant work was, and still is, pretty much ignored. Although resistant varieties work ecological perfection, the methods of breeding plants resistant to insect damage is long-term and entails hard field-work. There is no instant success, as with the overrated poisons.

Dr. Painter felt that if we could find out why certain varieties of corn were resistant to insects, more research money would flow toward the few researchers engaged in breeding insect-resistant varieties. He was therefore delighted when I suggested trying to find out why some of the corn varieties that worked and were discovered through a lengthy screening and breeding process (plant and select, plant and select, etc.) were resistant to corn earworm damage. The night-flying corn earworm moth simply did not lay eggs on the corn silk of such resistant varieties.

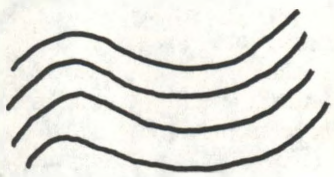
Professor Painter assumed that I would take a chemical view of host-plant resistance and search for some nebulous chemical in the silk that either repelled the insect, like the newly discovered mosquito repellents, or conversely, an attractant chemical in the silk that was missing in the resistance varieties. Since I was bored to tears in chemistry laboratories, I had no intention of spending my graduate days in a chemical factory. It reminded me too much of the insecticides that I detested.

From my Air Force days, I was well trained in electronics and had been interested in photography from the day I photographed my first wild bird. Dr. Painter soon discovered that I had no plans for taking the standard chemical trail to my degree, but rather a physical trail. Knowing of my electronic and optic background, he never attempted to divert me from my research goal. It was my experiments with the physics of light and its effect on the reproductive behavior of my night-flying corn earworm moths that led me to have a life-long distaste for what I call "either-or" science.

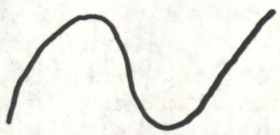
Modern technology is rampant with simple-minded solutions based on some single theory or belief as to how nature works — in short, "nature works either this way or that way." Of course, nature does not, and as John Muir, another early ecologist said, "Everything is connected to everything else." Since all living creatures survive bathed in a sea of gas called the Earth's atmosphere, it should be obvious that everything on Earth is connected to everything else.

Victorian-Age physicists considered that all the universe was connected — planet to planet, star to star — by an unknown and undetectable medium called the ether. That is probably one of the most astute concepts ever thought up by mankind. It enables the mighty of physical research to envision electromagnetic energy as traveling in waves like the ripples of disturbed water: "Disturb" the water and out go waves to "disturb" receivers far away. With no theoretical mathematics background at all, although he was a competent mathematician, the great Irish physicist, John Tyndall, was enabled to envision the concept of a vibrating ether disturbing the gases of the atmosphere so that they oscillated and emitted infrared light. He called the emitted energies long-wave calorescence, and utilizing this ether-gas oscillator theory, invented the first infrared spectrophotometer to measure the frequencies of his "vibrating" gases in the infrared region of the spectrum. That is a region of the spectrum at least as important as the visible, for it is the spectral region where molecular vibrations occur at what biologists call "room" temperatures, that is, from about 30° to 110° F., the range of Earth temperatures.

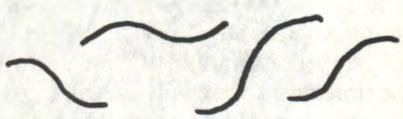
Of course, John Tyndall had no knowledge of coherence in electromagnetic radiation — that had to await the discovery of radio waves by Hertz. It was not Hertz, however,who discovered how to produce coherent radiation, but another great scientist, the Serbian-American Nikola Tesla. I call Tyndall and Tesla "the two great T's." Tesla invented the first resonant circuit that put radio waves in step (called coherence). Coherence merely means that the physical system forces all the waves to go out together like soldiers in step, thus:



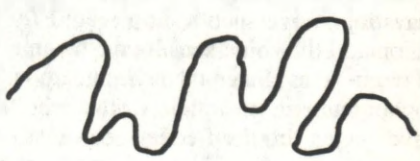
so that they add like this:



instead of helter skelter like this:



where they sometimes add and sometimes subtract the dips and peaks, and thus there is no amplification and they cannot carry very far like this:



In graduate school, I never heard of either Tyndall or Tesla since I never took a physics course. Even if I had, I probably never would have heard of either of these giants. Although much of what we know about electromagnetic energy is based on their work, it has been utilized by others with no credit given. That is always the

fate of scientific generalists — they make most of the original scientific discoveries and the specialists utilize their work to reap the honors and rewards. The proof of this is that nearly everybody knows about Marconi, who really did not invent radio, but not one person in 10,000 has ever heard of Nikola Tesla, who did.

Although John Tyndall first described light scattering from small particles, Lord Raleigh, who explained it mathematically, is honored for its discovery. Had Lord Raleigh not read Tyndall's work on scattering of light from small suspended solid particles, he most likely would not have set out to explain light scattering from gaseous molecules. The 1953 edition of the *Encyclopedia Britannica* states that although John Tyndall was a great teacher, he was not a great scientist. That is quite a statement about one of the greatest geniuses of all time — so much for the *Encyclopedia Britannica!*

It was in that little Kansas State insectry that I made my first "black box" discovery. It was a "black box" discovery literally if not figuratively. I constructed a big, glass-fronted cage to observe my moths at night. Like all the other researchers in entomology, I painted my cage black. After all, night time is black — or is it? I later discovered I would have done better had I lined the cage with shiny aluminum like a carnival fun house. The reason for that lay in what I still call my "corn silk experiment."

Corn earworm moths do most of their mating and egg laying during what I call "the hour of the wolf" (taken from the East-European literature) about 3 a.m. It is the time when werewolves strike. We know now from NASA work that at that time the sky is filled with blue and near-UV which our dark-adapted eye rods cannot see (our cones see blue color only during daylight).

I first noticed that although the hairy corn silk I placed in the cage supposedly gave off a scent, the moths would almost always lay their eggs on a hairy piece of white cloth that I hung in the cage for the moths to cling to during daylight when they were asleep. The white cloth always outperformed the host-plant corn silk. Why?

I modified my cage by cutting round holes in each end and covering the holes with white cloth. I projected low intensity light on the round cloth panels at either end of the cage and compared egg counts on the cloth to those on preferred host plants.

The results were astonishing — the corn plants might as well have not been in the cage. Over 95% of the eggs were on the low-intensity lighted cloth, and hatched there, even though there was no corn silk to feed on.

I put colored filters over the light and tested one color against the other. The shortest wavelengths always won out. Yellow was better than red, and green better than yellow, and blue or purple best of all. Since I have been a photographer and watercolor painter from childhood, I understood that the human-eye-mediated approach to colored surfaces made no sense at all where night-flying moths were concerned.

I did not know much about light scattering in those days but I did understand the physical explanation for the blue sky, which states that when light passes through the molecular particles of the atmosphere, wavelengths are scattered by the small molecules in all directions, and some come out at longer wavelengths than the wavelengths of the original colored light. When a light wave smacks into a small-diameter wall, so to speak, it bounces off depending on the shape of the microscopic wall, and usually "shudders" at a different vibration frequency than it did when approaching the molecular wall. Snap an elastic band against a solid wall and note the phenomenon. That scattered light waves might change frequency should be obvious, but was not until John Tyndall explained it.

I decided that although what was going into the system might be blue, what was scattered off of those little cloth hairs, or perhaps scattered from corn-scent molecules floating close to or stuck onto the cloth hairs, must be longer wavelengths (IR) than the incoming blue wavelengths. Only longer wavelengths would match the length of the antenna sensilla (spines) which measure in the micrometer (IR) wavelengths. Even if the longer wavelengths were scattered from the scent and not from the cloth hair, the results would be the same since I had corn silk in the box. Scatter from the corn-silk molecules would always be greatest closest to the higher-intensity blue light. I had put a water-filled, glass flask between the white light bulb and the colored filters to block out any direct infrared radiations given off by the blackbody heat from the light bulb.

Since the moths could find the blue-lighted cloth surface even with their eyes painted out, I knew that it must be the sensilla (antenna spines) that picked up the frequencies. When I wrote *that* in my thesis, I was in immediate trouble. My critics all assured my graduate committee (particularly critics from chemistry) that for a spine to resonate to a frequency, the frequency would have to be coherent, and whoever heard of coherent infrared radiation at room temperature? In fact at that time, 1953-1955, the laser had just been invented and everyone "knew" that one had to put tons of energy into a light system, visible or IR, to get coherent light out. The committee insisted I take such untenable speculations out of my thesis, which I did as far as the spine sensilla (receiver) part was concerned; but with a wink from the astute Professor Painter, I put the molecular scatter (transmitter) portion back in the discussion of my thesis. (I published that part of my dissertation two years later, in 1957.)

It was to be 1965 before I could get a journal to publish my antenna paper, which in essence stated that "the antenna really was an antenna and resonated to infrared coherent frequencies." I was not allowed to use the term coherent, for my critics still insisted that room-temperature IR could not possibly be coherent. In order to get around that typical tunnel-vision way of thinking, I coined the word "MASERLIKE," knowing anyone with even a shred of intellectual honesty would understand that any radiation that was maserlike must be coherent.

In a second paper published from my thesis, I pointed out that the last two abdominal segments of the female were responsible for signaling to the male, and that she probably released a scent. I further described the entire reproductive behavior of that moth. I utilized counts of sperm sacks (spermatophores) to determine the number of times a female moth had mated. That paper was the first detailed reproductive work on a member of the family of moths called Noctuidae (owlet moths). The Noctuidae family contains many economically damaging species besides the corn earworm moth, such as armyworm and cutworm moths. It is the most destructive, agriculturally speaking, of insect groups. In later years, almost all the work being done on moth reproductive behavior was based on that one paper from my dissertation — although it is seldom or never quoted these days.

After I left Kansas and went to Louisiana State University to join the Entomology Department, I set up experiments based on the assumption that if the mechanism of attraction was IR-scatter radiation from scent molecules, whether plant or sex scents, then the molecular wavelengths would be amplified, not by

painting cages black, but by lining each cage with highly reflective aluminum. After all, that is what laser scientists do. They put highly reflective mirrors at each end of the resonant cavity tube that contains the gas to be lased. The wavelength energy bounces back and forth between the shining mirrors and shoots out the end through a little hole in one mirror.

I lined one of my little moth-behavior cages with aluminum and a second with black construction paper. By counting spermatophores in each female moth, I could determine how many times each female had mated. By 1956, I was certain that Noctuid moths, by means of the pumping movements at the tip of the abdomen, release a chemical sex-scent (pheromone). Since the pheromone would float around in the little cage it would be radiated from all sides by the low-intensity light reflected from the aluminum sides of the cage. Therefore the blue (most attractive color) hitting the sex-scent in the aluminum cage would stimulate a strong IR signal, but inside the black, paper-lined cage most of the visible energy would be absorbed by the black sides, and thus would not scatter to longer IR frequencies from off the oscillating pheromone.

That, of course, is exactly what happened. In the black-lined box I got only 30% mating and in the aluminum box over 100% mating; some of the females even mated 2, 3 and up to 6 times in the aluminum box. I knew from that one experiment that my maserlike (coherent) IR-antenna theory had to be correct. It was 1965 before, while working with my colleague Dr. Wendell Snow, we published my aluminum-box experiment. Dr. Snow ran the critical experiments in large chambers with controlled temperature and humidity so that all the atmospheric parameters would be constant.

Since those days, I have run hundreds of experiments where I take an insect attractant (collectively called semiochemicals by entomologists), and by the use of shining aluminum, reflected visible, near-UV, or near-IR radiation on the attracting chemical, have raised the behavioral response of the insect, whether feeding (plant scent), mating (pheromone), or following chemical trails (ants), hundreds to thousands of times above what it would be under lower scatter-light intensities. I know now that these far-infrared, coherent, scatter frequencies are a control mechanism in all of the life processes; for I have gotten them even from human breath. Simple logic teaches that life could not be controlled by static (incoherent radiation) from oscillating molecules any more than we would use static to control our communication satellites. The living molecular communication system must of necessity operate by a mechanism of coherent molecular-frequency emission.

It has been a long, long trail from the insectry to my present ability not only to stimulate scatter coherence from insect attractant chemicals, but also to actually tune to the narrow-band, infrared (maserlike) emissions with the first commercial IR Fourier transform spectrophotometer ever built. It was bought and modified by me to detect the coherent IR frequencies at a time (1969) when most researchers had never even heard of such a system.

Since most of my papers today mainly appear in physical journals, many believe me to be a physicist; however, since I never had a college course in physics, I still consider myself an entomologist or, perhaps better yet, a naturalist who first became enamored with the small brown moth that flew during the "hour of the wolf," that I studied years ago in the little white insectry by the football-field parking lot at Kansas State College.

Our Western "Nessie" — Creatures of Tahoe

Floating lazily on a rubber raft, near to dozing beneath the bright sun, a cold one in hand, the other dangling in the crystal clear water of Lake Tahoe. Not a care in the world.

But, wait — what was that dark shape moving just beneath the surface? Eyes suddenly focus, straining to see below. Was something there or not? The hand jerks out of the water, clutching the puny safety of the raft.

Fear of "what's down there" is part of Tahoe's folklore. Story tellers claimed it was connected underground to nearby Donner Lake. Others said it drained into the mines of Virginia City 20 miles east. Some even claimed it drained far beneath the earth into the Pacific Ocean.

Less than a decade ago, scientists using sonar proved that beneath its 22 by 12 mile shimmering surface, there is indeed a bottom to Lake Tahoe. But, at an average of 989 feet and reaching 1,645 feet at one point, it is one of the deepest lakes in North America.

Many of Tahoe's legends are told for the fun of it. But one of them causes the smile to weaken a little, for it tells of Tahoe being home to a huge underwater predator with a taste for human flesh.

The Washoe Indians, Tahoe residents for thousands of years, warned early settlers not to venture too far from shore because of the monster waiting to prey on the unwary.

The settlers soon began to add their own tales of strange huge forms swimming in the lake. The stories gained credibility because so few of Tahoe's drowning victims were ever found. Scientists say that is because the lake's unusually cold water retards decomposition, which causes a body to float in most lakes.

Pat Murphy of the Tahoe City Public Utility District says two fishermen claimed in the 1950s to have spotted the body of a young woman floating beneath the surface, perfectly preserved and clothed in a Victorian ball gown dating to the 1880s.

But the tales come not just from the oldtimers. Even in the 1980s, the lake by now one of the most popular vacation spots in the West, the Coast Guard still gets an occasional monster report.

In June 1982, waterskier Kris Beebe saw something black, slimy and huge swim past as he waited for his partner to turn the boat around. Jerry Jones saw it, too, from the boat. "We didn't just think we saw it, we saw it," said Beebe. "It wasn't threatening us, it was just gliding right past. We checked into everything, diver, subs, everything and we're convinced it was some very, very large creature."

Their story gained credibility because both were police officers and they were not drinking that day.

It was not the first such report. Former Tahoe Coast Guard chief Don Anderson said there have been many sightings of "creatures," but he believes most were wind-created patterns that seem to glide across the lake.

Murphy said he has seen that phenomenon. "Sometimes when you have a wind on the lake and the water is real calm it almost looks like a big snake going through the water," he said.

But Beebe and Jones were only 25 feet from whatever they saw.

Such reports date back to Indian legends of a large animal with a lizard-like head and long neck reminiscent of the Loch Ness monster in Scotland. One such report is related in *"Tales of Tahoe"* by David Stollery. The legends say the creature made lunch out of those who went too far onto Tahoe.

But, as with Nessie, scientists have been unable to find anything that would explain it.

Strangely, similar tales were told by the tribes living around Walker and Pyramid Lakes, remnants of an ancient sea that once covered much of Nevada.

"The *University of California* had a submarine down there in 1979 and they didn't see anything," said Coast Guard boatswain's mate James Cavin.

"Of course, I imagine a monster would stay away from a sub. You never know what's down there. It's really a deep lake and there are crevices at the bottom that could hide things."

Bill Bechdolt of Tahoe City, a lifelong resident of the Tahoe Basin, says maybe what Beebe and Jones saw was *"Herther,"* the big fish in Tahoe." Bechdolt said several fishermen have claimed over the years to have hooked a fish so large it broke the strongest lines or ripped rod and reel from the mounts on the stern of the boat. "The one guy who claims he saw it claims it's about 16 feet long," said Bechdolt.

(Continued on page 42)

STAR WARS NOW!
The Bohm-Aharonov Effect, Scalar Interferometry, and Soviet Weaponization

T. E. Bearden
The Search for a Tesla Earthquake Weapon

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EDITOR'S NOTE; We have published several papers by Lt. Col. Thomas E. Bearden (US Army, Ret.) in previous issues of PURSUIT. We realize that some of Mr. Bearden's material was difficult to comprehend, but we felt it was involved with the unexplained phenomena we are investigating and was, therefore, worthy for inclusion in this journal.

Mr. Bearden urgently requests, now, that we carefully review his latest paper with an open mind since it "contains the basic mechanisms used in the Soviet scalar electromagnetic (Tesla) weapons." And, he states further, "the situation is grave."

ACKNOWLEDGEMENT

I wish to thank Drs. Harold Faretto and Jack Dea for invaluable assistance, and basic information on building a precision scalar wave detector. In addition, I am most grateful to Mr. Hal Crawford for his marvelous special drawings and his kind permission to include them. And I owe a very special debt to Mr. John Bedini for his fundamental laboratory and bench work and his willingness to share his results and insights with me.

Also, I wish to express my deepest appreciation to Mr. Josh Reynolds, Essentia Research, and the Association of Distinguished American Scientists for financial support on this project.

Without the invaluable assistance of these persons, this effort would not have been possible.

Tom Bearden

ABSTRACT

The Bohm-Aharonov Effect shows that, even in the absence of electrical and magnetic fields, the potentials cause real effects to occur in the field-free regions. Using this principle, beams of pure potential without vector force fields (without E and H fields) may be deliberately produced and intersected at a distance to cause effects in the interference zone, in contradiction to classical mechanics.

Essentially, energy may be produced directly at the distant interference site or extracted from it, without energy transmission through space.

Implications for weapons built on these concepts are given, and several types of such scalar electromagnetics weapons are discussed. The use of the "cold explosion" is detailed and evidence of its extensive testing is given. The basic mechanism for Soviet weather control over North America is briefly presented and a more extensive reference given.

Evidence of massive Soviet weaponization of these effects for nearly three decades and of Soviet scalar electromagnetics weapons testing on a global scale exists in the open literature. Selected examples and related information are itemized.

The Bohm-Aharonov Effect

Originally electrical and magnetics experiments and ideas developed primarily in terms of statics, and great difficulty was experienced in combining the two and passing to a more dynamic theoretical representation. With the advent of Maxwell's equations, electricity and magnetism were combined into an elegant electromagnetic theory, and these equations then served as the basis for the development of modern theory. Gradually potentials were relegated to a position of inferior importance, and they even came to be regarded as purely mathematical conveniences by most scientists.

However, with the advent of Aharonov and Bohm's seminal paper [a], it became crystal clear that potentials are in fact real entities, and they can directly affect and control charged particle systems even in a region where all the fields and hence the forces of the particles have vanished. While this, of course, is completely counter to the conclusions of classical mechanics [a, p. 485], it follows inescapably from quantum mechanics. With Chamber's direct experimental proof of the predicted Bohm-Aharonov effects in 1960 [b], this new viewpoint was firmly established for quantum mechanics and quantum electromagnetics in general. Indeed, the Bohm-Aharonov effect even affects gauge theories, requiring the concept of nonintegrable phase factors and global formulation of gauge fields. [c] Thus increasingly it is the potentials that are primary physical entities, and the fields are of secondary, derived importance in modern quantum electrodynamics.

Yet the full weapon implications of the Bohm-Aharonov discovery have not yet penetrated the minds and consciousnesses of Western physicists, electrical engineers, and weapons analysts. Indeed, an extended treatment of such implications has not even been addressed in the literature. This may be somewhat understandable, since it required over 30 years for physicists to realize the primary actuality of the potentials in the first place [d, p. 15-12]. Nobelist Feynman states it succinctly: "It is interesting that something like this can be around for thirty years but, because of certain prejudices of what is and is not significant, continues to be ignored." [d, p. 15-12.]

Slowly, however, the overwhelming importance of the scalar electromagnetics indicated by Bohm and Aharonov has been noted by this analyst, and work to investigate and apply this

rich new region of quantum electrodynamics is now most certainly warranted. Indeed, it is imperative that an effort of the highest priority be mounted immediately, for our very survival is gravely threatened by scalar electromagnetics weapons already in the hands of the Soviet Union. And at this moment we have absolutely no defense whatsoever against them.

Scalar Electromagnetics

We first define scalar electromagnetics as the quantum mechnical effects and influences that can be accomplished by electrical and magnetic scalar potentials, even in the absence of electric and magnetic fields, or — in other words — that can occur even in otherwise zero-E (electric) and zero-B (magnetic) force-field regions. Note that this definition includes as subsets both the ordinary classical EM field approach and the more fundamental approach of quantum electrodynamics. In the latter approach, one replaces the fields E and B in modern theory with the O (electrostatic scalar potential) and A (magnetic vector potential), with the view that these potentials create and E and B fields in the first place. The Bohm-Aharonov effect shows that the E and B fields can remain zero, and yet the potentials can still cause physical effects.

Thus scalar electromagnetics encompasses two cases: (1) the normal case, in which the potentials are viewed as first creating the fields E and B, and these force fields in turn product physical effects on charged particle systems; and (2) the case in which fields E and B are zero, yet potentials still exist and produce physical effects on charged particle systems.

Indeed, we assume total primacy of scalar potentials, after the work of Whittaker [e], holding that all the effects of present electrodynamics can be produced by utilization and interference of two or more scalar potentials.

Note particularly that one may deliberately create the zero-field, pure potential condition by opposing magnetic and or electrical fields so that they sum to zero. (Figure 1). That is, the "zero fields" can be resultant vector zeros, where the combining vector components still exist. In this case one creates a deliberate, artificial scalar potential which contains all the energies of the separate infolded [Bohm's term] vector fields used to make the resultant vector zero. All this infolded energy has been transformed to stress of spacetime, or pure potential. (Table 1) However, it does not have a randomized substructure as is usual in quantum electrodynamics, but has a determined, known substructure consisting of the constructed infolded E and B field vectors.

Figure 1. **SCALAR $\bar{0}$-WAVE PRODUCTION**

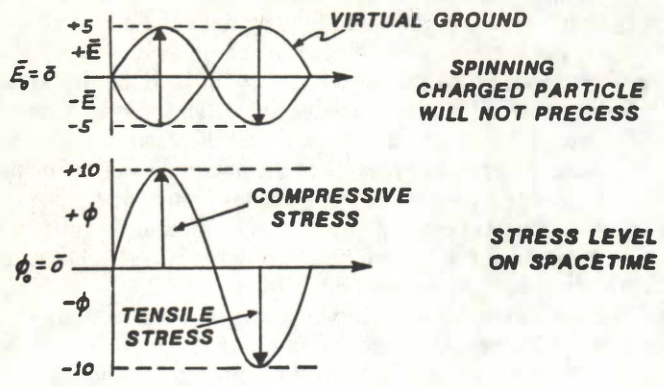


Table 1. **CONSERVATION OF ANENERGY (AE): (AN EXPANDED ENERGY CONSERVATION LAW)**

1. **CONSERVATION OF CHARGE:**
   - **"CHARGE" = MASS $|M_c|$ + CHARGE $|AE_c|$**
   - $|M_c| + |AE_c| = K_1$
2. **CONSERVATION OF ENERGY:**
   - **DYNAMIC ENERGY (E)**
   - **ENERGY EQUIVALENCE OF MASS (M_E)**
   - $|E| + |M_E| = K_2$
3. **ADDING (1) AND (2):**
   $|M_c| + |AE_c| + |E| + |M_E| = K_1 + K_2 = K_3$
4. **LETTING $|M| = |M_c| + |M_E|$.**
   $|M| + |E| + |AE_c| = K_3$
5. **LETTING $|M| = AE_1$, $|E| = |AE_2|$, $|AE_c| = AE_3$.**
   $AE_1 + AE_2 + AE_3 = K_3$

Conceptually, a magnetic pole is such a spatiotemporal stress potential — but usually with a randomized substructure — as is an electrical charge.

Now it is fundamental that only the envelope is "observable," and the infolded substructure has become "virtual." But by having a deliberately designed and controlled substructure, one has turned quantum mechanics inside out. One can now control and engineer the probabilities themselves, and even determine which eigenvector state of a propagating Shrödinger wave will be produced in the collapse of the wave function. Indeed, in theory one can control when the wave function collapses, and under what circumstances. Einstein was correct after all; once we discover His more subtle control mechanism, God does not actually play dice with the universe.

I strongly point out that this is a fundamental change to present quantum mechanics itself. In the axioms of quantum mechanics, the basic virtual state background activity of the universe is assumed to be totally statistical. If it can be made deterministic, then one should be able to "engineer" the presently probabilistic quantum interactions as desired. In short, one would have directly implemented David Bohm's "hidden variables" in a controlled, non-statistical manner.

Awesome implications follow from such capability; literally one can directly engineer the present quantum mechanical structure of physical reality itself, since one can engineer, affect, and control the fundamental virtual processes of nature. A potential is a "point" function, and it can be used to penetrate to any degree of fineness desired. Simply by making and utilizing artificial potentials with deliberate substructures, one can engineer the virtual particle interactions that produce all the physical forces of nature, bind the nucleus together, and control and CREATE the world of macroscopic changes we think we inhabit.

Conceptually, a magnetic pole is such a spatiotemporal stress potential — but usually with a randomized substructure — as is an electrical charge.

Note also that, if one rhythmically varies all the individual summation vectors in the substructure by the same factor, one produces pure potential stress waves -- scalar waves — without ever creating external electric and magnetic fields. These are pure waves of spacetime, and they are oscillating curvatures of spacetime itself. They are pure waves of compression and rarefaction of the massless charge of spacetime, and are properly represented as longitudinal waves rather than transverse

waves. Thus they are nonHertzian in nature. Among other things, they may be used to generate mass and inertial field directly, but that is beyond the scope of this paper.

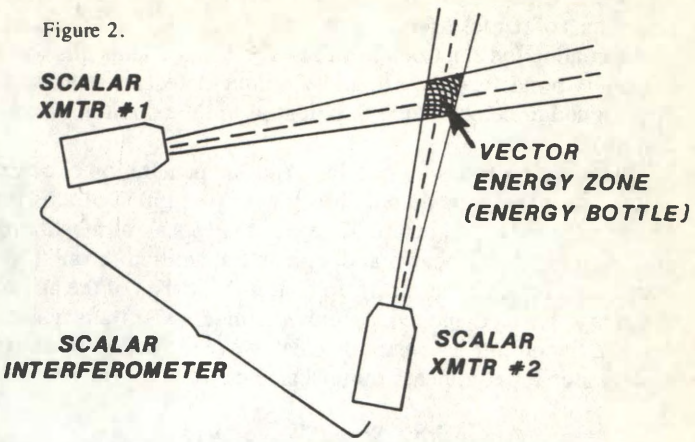
Wireless Transmission of Energy at a Distance

To illustrate one remarkable though typical implication of this new breakthrough area, we point out that, by changing the potentials while keeping the force-fields zero, one can directly produce energy at a distance as if it were transported through space without losses, even though no energy transmission through space in the normal fashion occurs as such. Indeed, it may even be possible to utilize pure potential waves to "transport" the energy at any velocity — not limited by the speed of light — since in some cases a potential (for examle, electrostatic scalar potential) can be regarded as having infinite velocity, simply appearing "everywhere at once." [f]

Electrostatic scalar potential, for example, may be regarded as a sort of "locked-in stress energy" of vacuum, as can any other vacuum potential. Changing the potential in a region or at a point changes the amount of "locked-in" or "infolded" vacuum energy available or stored in that region or at that point. Yet simply changing the potential at that point or in that region need not involve any local expenditure of work there; the work may be expended elsewhere, and the results realized directly at a distant region by a change in that region's potential, according to the Bohm-Aharonov effect. In the remote region, charged particles are imbedded in vacuum potential by their virtual particle charge flux, and in the induced potential gradients the imbedded particles move, producing electrical and magnetic forces and fields and performing work.

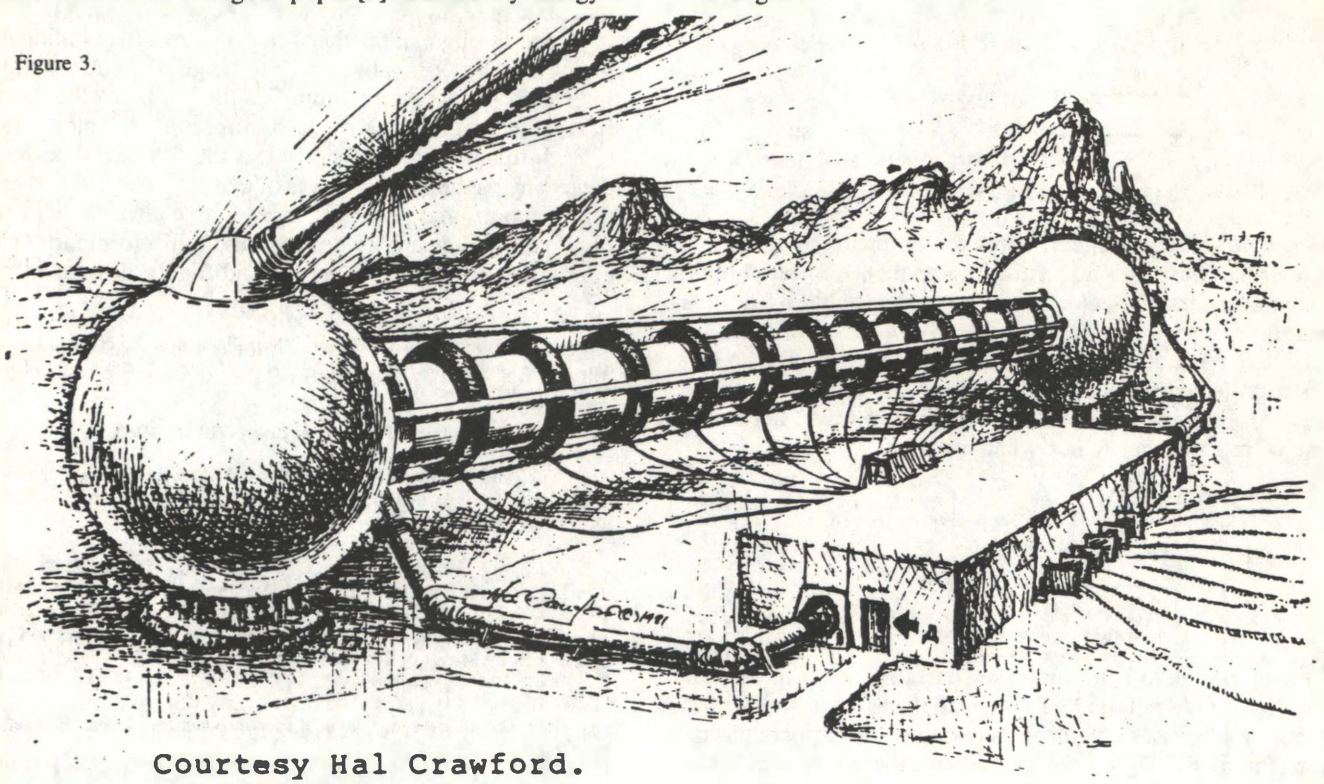
This is somewhat analogous to "putting energy in here" and "extracting it out there" without any travel or losses in between — Nikola Tesla's old "wireless transmission of energy at a distance without losses" idea. Note that, quantum mechanically, we may take the view that this is a very special class of macroscopic "energy tunneling" phenomena, as illustrated in Aharonov and Bohm's original paper [a]. Essentially energy is put into the system at the locations where the scalar potentials are produced, and is recovered at the distant interference zone where particle effects are produced (Figure 2).

Figure 2.



To pursue this single example and further show its implications, we point out that in theory one may deliberately make a beam containing zero electric and magnetic fields, simply by properly phase-locking together two or more beams of oscillating ordinary E-H electrical energy, all at the same frequency. In the perfect hypothetical case, for example, two single-frequency beams phase-locked together 180 degrees apart would create such a zero-field or scalar-wave beam (Figure 1). In the real world, one would be phase-locking two beams containing narrow bandwidths, and how much zero-field beam is obtained at the center of the bandwidth would depend on the "Q" (sharpness) of each beam. To purify the beam, it could first be transmitted through a grounded Faraday shield, which would remove most of the orthodox E-H field components not properly zeroed. By successive Faraday "stripping" of the beam, a scalar beam as pure as desired can be obtained. Hal Crawford's artistic concept of a large scalar interferometer weapon is shown in Figure 3.

Figure 3.



Courtesy Hal Crawford.

Some Characteristics of a Scalar Wave Beam

Such a beam is totally undetectable by a normal E-H detector, since it does not produce normal force-field-induced accelerations of particles (such as the free electron gas in an antenna or the conduction electrons in a Faraday shield). Thus this wave is usually nondetectable except by unique detectors specifically designed to detect O and A potential in the conditon of zero E and H.

This scalar beam also is capable of strong penetration of ocean water, since free ions do not absorb nearly so much of it as for an ordinary E-H field beam. Thus one may speak of megahertz and even gigahertz beams and signals transmitted through the ocean (and through the earth). In fact, an associate of the author appears to have developed a prototype underwater transmission system, including a sensitive scalar wave detector. Even an underwater radar appears quite feasible.

A Sensitive Scalar Wave Detector

Very briefly we present a method of making a very sensitive scalar wave detector so that direct measurement and quantization can be established.

First, we regard one oscillation (one wavelength) of the scalar potential wave as a longitudinal photon. Note that this photon contains a substructure, which may be deliberately determined (when artifically made) or randomized (when naturally made in the idealized case).

For convenience we represent normal linearized vacuum (spacetime) as a horizontal or longitudinal vector (Figure 4), implying the direction of motion of the wave in the laboratory frame. By horizontal position in our diagram, we imply a linear, uncurved spacetime and non-rotated frame. We represent the longitudinal scalar wave as a horizontal vector, and the usual Hertzian wave as a vertical or "transverse" vector. We visualize a normal detector as detecting only a vertical or "transverse" vector, as we have illustrated in Figure 4.

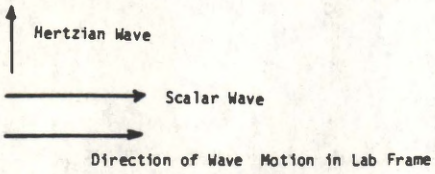


Figure 4. Linear, uncurved laboratory frame.

As can be seen, in a linear, unrotated or uncurved spacetime a pure scalar wave has no vertical component projected upon the laboratory frame vector, so it is not detectable by normal detectors.

To detect the scalar wave, of course we could bend it so that it has a projected vertical component in the laboratory frame (Figure 5). However, this would be an impure wave, not a pure scalar wave, and that is not what we wish.

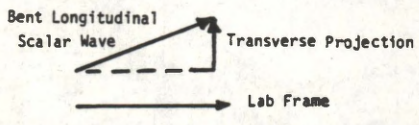


Figure 5. Rotating the longitudinal wave produces a transverse component.

A better way is to bend or curve spacetime itself in a small region, so that a longitudinal wave that passed through that region now possesses a vertical component with respect to that region (Figure 6). Thus a normal detector there will detect that

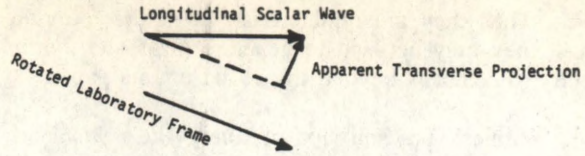


Figure 6. Bending the laboratory spacetime frame produces a transverse component.

vertical component. We conduct the detection current out of the "bent spacetime" region to an outside (normal) detector, and we then have a scalar wave detector.

To illustrate, we show conceptually how this has been successfully done. Figure 7 shows the concept. First, we utilize a magnetic pole to provide the infolded energy (potential) to bend or curve spacetime. To reach good sensitivity, we need a pole strength connected with a magnetic field strength of 40,000 Gauss or higher. We utilize a small superconducting magnet, which can reach field strengths of from 40,000 to 80,000 Gauss.

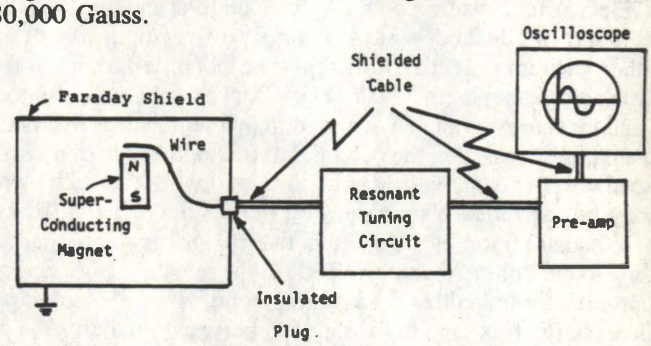


Figure 7. A sensitive scalar wave detector.

Then to prevent detection of superfluous "normal" radiation, we shield the entire magnet in a grounded Faraday cage, as shown in the figure. Hertzian waves will be grounded in this shield, while scalar waves will readily penetrate it undiminished. In other words, the Faraday cage serves as a "stripper," to strip away the ordinary waves, leaving only the scalar waves to penetrate inside. An ordinary wire lies at the top of the magnetic pole, in proximity to it. The wire runs out of the Faraday cage through an insulated port to a resonant tuning circuit, which is sharply tunable over the range of frequencies we are interested in. A preamp amplifies the output of the tuner, and in turn feeds the input of an oscilloscope or other detector.

With this detector we can select the frequency desired, and detect any passing scalar waves of that frequency. By other variations of amps and preamps, regenerative circuits, etc., we can obtain all the sensitivity desired, and utilize ordinary detection equipment already well-known and highly developed.

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(To be concluded in PURSUIT, 2nd quarter 1984)

Energy and Paranormal Phenomena

by Raymond A. Nelli

There are aspects of alternate energy, such as the Hubbard generator, the Ecklin motor, the Moray device, Tesla scalar-wave technology, the Hendershott generator, the Bifeld-Brown/Hooper & Wallace Antigravity devices, the Searl levitating generator, Mobius coils and propulsion systems, Mobius Effects on electrical transmission configurations, and probably a couple of dozen other devices and systems which I have not yet had the pleasure of learning about the areas being investigated by HEER* encompass somewhat more objective and broader aspects of alternate energy technology. We are of the very firm opinion at this point, or until we discover facts or evidence to the contrary, that to most effectively make and use such devices in physical reality, we must first understand what the energy is that we are trying to tap and control, and from where it originates.

Based on many years of experimental studies with electrical fields and discharges of high voltage of varying energy densities, we believe that the very essence of all energy in reality — physical and non-physical — may indeed be what we currently recognize and label in physical reality as *electromagnetic* energy. However, in its more subtle and less measurable forms, we believe this energy to be of such extraordinarily high frequency as to be non-measurable by our conventionally utilized physical devices which are borne of physical reality and consequently have certain physical limitations which prevent the detection of, or provide the alteration or destruction of, the very things we seek to measure.

An interesting example of such elusive limitations may be set forth by relating a series of subjective experiments I devised, using a living organism as the detector. I assembled a series of simple electrical devices to provide carefully controlled elecrical shock to myself at varying voltage, current and frequency combinations to determine the subjective effect on my own living biosystem.

It was interesting to notice at the outset that the conventional description of electrical shock held true; that is, when an electrical potential was applied across my living tissue, the contractions which occurred varied in intensity — directly with the amount of power conducted therethrough. (The typical threshold potential of *feeling* such contractions varies greatly with each individual's skin-conductivity, i.e., cellular and surface moisture, and muscular fluid content. The usual threshold seems to be in a range of from 18-38 volts.)

The frequency of such contractions was clearly and easily detected to vary directly with the applied frequency of the shocking potential. This led to an accidental discovery which I feel is critically important. In the process of building these devices, quite unhappily I received a few accidental shocks of intensity far beyond anything to which I would deliberately expose myself. Some of the shocks were 60 Hz line current across both hands; I was barely able to break free, and the experience was a sobering one. When the intensity of a shock causes muscular contractions to the point of nearly arresting one's ability to respirate, the natural reaction is to become a bit gun-shy for awhile.

Two other instances were equally unpleasant but highly educational. One of these was a serious 30 KV RF shock which resulted in tissue destruction at the point of contact and left a neat little hole in my palm which took about three years to disappear.† The other instance was a DC shock of about 90 volts from a small bank of photoflash batteries. At this point a fascinating thing registered on my mind: In both cases, the shock was *subjectively* identical. That is to say, both the DC shock and the RF shock *felt* the same, notwithstanding the tissue-destruction of the RF shock caused by its extremely high potential. In both instances, the feeling was a powerful pinching/burning sensation. Repeating these shocks under less unpleasant and better-controlled conditions led me to a very strong subjective conclusion, which is that direct current simply does not exist.

We have designed hundreds of quantitatively analytical measuring devices which are highly responsive to various frequencies and potentials, but the currents we measure with "electrostatically" sensitive devices are of a more *capacitive* nature. Thus the question was raised; when we utilize a "DC" voltmeter or ammeter for measuring so-called "direct currents," if they do not really exist, how do our meter coils develop the magnetic field that causes deflection?

Those of us who have experimented with very high voltages, particularly in induction coils, are quite familiar with the inter-turn and inter-layer "capacity" effects resulting in dielectric punch-through when certain potentials are reached. Are we here dealing with "electrostatic effects," "electromagnetic inductive effects," "capacitive effects," "magnetic effects," or perhaps even "gravitational effects"?

I submit that we are dealing with all of them simultaneously; it is the *differences* therebetween which we tend to categorize and pigeonhole as electric, magnetic or gravitational effects. I submit that they are all slightly different manifestations of a greater, more generic energy of such high electromagnetic frequencies as to defy detection and categorization via normally utilized "instrumentation" borne of physical reality. In some instances, the biosystem is infinitely more accurate as a subject detector, but not for quantitative evaluation.

Perhaps the very essence of this "energy" in its ultimate form can be "categorized" or "labeled" as Consciousness itself. It is not my intent, nor was it ever, to delve into highly esoteric areas behind which one could hide and set forth indeterminable vagaries which forever fascinate and interest people but fail to provide the critical links and knowledge between physical and non-physical reality. It is my contention, however, that such links indeed do exist and may, with some hard work and practice, be controlled by physical man to alleviate the interminable destruction and consumption of physical mass to generate minute and inefficient quantities of energy. Persistence in our current direction of such consumption must ultimately create such gross imbalances in man's physical world, and perhaps destroy physical man himself.

We know well, from the proliferating documented material on Kirlian photography, extrasensory perception, radionics, psychotronics, and much more than can be discussed here, that the living biosystem indeed *is energetic* in its nature and is in obvious electromagnetic communication (Consciousness) with every other living biosystem and more. We know the brain emanates electromagnetic radiation of various types, some of which are detectable as sinusoidal-like waves. These, however, I submit are a function of the living biostructure. The Con-

sciousness operates on little bursts of energy, much like capacitive discharges. These cascade-like discharges may carry incredibly powerful harmonics of indeterminably high frequencies which are unmeasurable by physical devices and may be the key to the omnipresent communication between each and every individual Consciousness. These may comprise the very source of limitless energy we seek to tap and utilize in physical reality.

How, indeed, do we obtain such energy? Well, before we can utilize it, we obviously must first understand it. I submit to you, that if we bury ourselves in laboratory experimentation without first understanding that the very physical devices we seek to build may be doomed to failure unless we realize that in some of the areas we are working, our very thoughts and attitudes can physically affect the device we are building or the success of its operation, or the repeatability of an experiment.

We cannot isolate ourselves as robots building other robots, but we *can* be aware of the fact that we are an inseparable part of what we think, build or operate. For example, if we work with an extremely high-Q electrical resonant circuit, say a Q of about 4000 or maybe even 10,000, and we're dealing with a band-width of 1/2 Hz, not only will the most minute changes in physical environment shift the resonant point immediately, but so will even the normal EM radiations from our biosystem brain. If we have powerful thought-activity, the cascade discharges in the synapse areas alone could play havoc with such a delicate circuital balance. It was never my intent to attempt to understand the nature of our very existence, to delve into areas which can be devoid of hard experimental repeatability, but years of study and experimentation have led me to understand that there really is no such thing as "esoteric" or "paranormal" phenomena, but only phenomena non-measurable with devices borne of physical reality or understandable in conventionally perceived terms. There is no separation between physical and non-physical reality, and there are links which may be established therebetween. These may be directly or indirectly related to the individual Consciousness of each living entity. There are both direct and indirect ways to use "Consciousness energy" to affect reality. In the highest forms of practice, this involves using the Consciousness directly or aiding it indirectly by physical devices which can act to amplify and channel such energies.

A few of my distinguished colleagues have investigated these areas to some depth as exemplified by some of the concepts being developed in the areas of crystallography, light, sound, hyperspace, radionics, psychotronics and Kirlian aura. I have done many subjectively successful experiments in "reality creation" which will be discussed in significant detail in my upcoming second volume on paranormal phenomena.

* * *

Digressing momentarily back to the days of Atlantis and Lemuria some 13,000 years ago, it is alleged via Psychic Inputs, some limited biblical interpretations, and in some of the barely understood Dead Sea Scrolls, that the Atlanteans utilized a great power-crystal operated from sunlight for energy, communications, levitation, and weaponry. This smacks strongly of some of the so-called "soft particle" concepts set forth by Joe Cater in his book *The Awesome Force*. I currently see no strong evidence for the physical validity of a "soft particle" theory, but I am thoroughly investigating the principle to determine whether or not there are any effects at all. How we label these effects is completely irrelevant. We will publish the results in our books or follow-up reports. In each area of experimental investigation we plan to publish results and procedures in significant detail, clearly indicating whether or not positive results occur; and we welcome constructive criticism to improve such experiments, should results be negative. If, for example, there is a notable effect achieved by such a multiplicity of front-surface reflections of light as purported by Cater and Dr. Richard L. Clark, we will thoroughly document the measured or observed results. We fully expect that some notable phenomena may be be caused, especially since there is a very strong similarity to the internal stimulation of light which causes the coherent laser beam.

Our objective, therefore, is to find viable links between physical and non-physical reality which will enable us to channel, in usable ways, the enormous field of energy within which we not only dwell, but of which we are an intrinsic and inseparable part. We must all, in our experiments and investigations, steadfastly maintain as much objectivity and honesty as humanly possible. We are dealing in areas which many individuals of the conventional and powerful Scientific Priesthood regularly and viciously denigrate, sometimes to the point of professional or even physical violence. Objectivity and honesty are the most powerful tools we have with which to work. I am a firm believer in the principles of truth, knowledge and understanding. While I fully realize that one man's reality can be another man's fantasy (and vice-versa), all new things should be presented in a light which will bear the utmost scrutiny. Regardless of those who would mindlessly dismiss and deride new concepts without making the effort to investigate them, the truth will, indeed, eventually be brought to the surface.

* * *

Continuing now to look for the viable and usable links between physical and non-physical reality, we have been drawn, by years of observation and experimentation with electrical discharges and many other phenomena, to the following *tentative* conclusions which we feel are valid until we either discover or are shown otherwise:

1. All existence is comprised of a pure energy "gestalt"or "all that is," which in our recognizable terms may be a form of "Pure Consciousness" comprising incredibly high frequencies beyond our present instrumentation measuring capabilities.

2. Electric, magnetic and gravitational fields represent three *slightly different* manifestations of this more generic energy of "Consciousness" in physical reality.

3. This enormous energy within which we exist and are an inseparable part of, may be *channeled* (*not* tapped) from non-physical to physical reality by the proper manipulation of these high frequencies with some forms of crystalline devices and special geometrical shapes, using *resonance* principles, i.e, the Moray generator, pyramid phenomena, and Gallimore experiments.

4. All physical reality is comprised of a lower energy state of this great gestalt of high-frequency energy of Consciousness, much like ice as opposed to steam. Another perception of physical reality would be as "holographic" projections of the higher energy states to lower in-phase resonating states which project the illusion of solidarity to our individual consciousness in so-called physicality.

5. Time does not exist in absolute terms. Temporality is a subjective illusion caused by our consciousness being forced to perceive events in a *linear* fashion when focused through our physical bodies. Such temporal illusions may be readily transcended in meditative or similar states.

6. The nature of existence is incredibly dynamic and pulsating. There is absolutely *no statism* anywhere in existence. Were there statism, existence itself would simply cease to be.

The very essence of existence appears to comprise a pulsating gestalt of energy devoid of temporality and inherently omniscient and omnipresent.

7. The channeling of higher energy (i.e., non-physical) states into physical reality should result in 100%-efficient energy transformation with no imbalance within the physical biosphere.

The above conclusions are based on physical, experimental, psychic, historical and speculative inputs. In the process of our experimentation in physical reality, we hope eventually to be able to provide detailed, repeatable experimental procedures which will be within the realm of any researcher without his having to spend tens of thousands of dollars building elaborate experimental setups.

Once the links between physical and non-physical reality are established, we believe that *all* physical reality may be transcended. In other words, "time-travel" — *physical* time travel, not just Consciousness time-travel — will be a repeatable, workable reality and energy will be viable and unlimited in its availability in physical reality. I certainly hope that physical man will be wise enough to evolve to his capabilities without destroying his phyiscal world during this evolutionary transformation.

We at HEER are currently attempting to construct, with some difficulty, an extremely powerful high-voltage ion generator which we hope will enable us to further experiment with the alleged "DC" field that we believe is an extremely high-frequency alternating energy field closely related to the actual structure of space-time and the energy "gestalt" of "all that is."

The scalar fields of non-Hertzian "waves" may be a manisfestation in physical reality of a workable tool in space-time. I believe the work already being done today may well confirm this.

As to the nature of the so-called "antigravity" or "electrogravity" field, as addressed in my first book, "*Antigravity and UFOs,*" this may be produced in any number of ways as demonstrated in the Brown patents (i.e., the well-known Bifeld-Brown effect), the Wallace patents and the Hooper gravity generators, and in thereto-directed experiments presented in my Volume I.

The Searl generator may utilize some type of Mobius electromagnetic configuration which might have the *reverse* effect of the reverse-induced magnetic field in transformer action. that is, where in an induction configuration an *opposing* magnetic field is created, the Searl device might use Mobius electromagnets which could possibly provide a vector-reversal of this field such that, as magnetic energy is input to the rotating generator, instead of *resisting* magnetic force being developed, an *assisting* magnetic force is produced which would have an incredibly powerful self-sustaining effect, once a certain point is reached. I believe at this point that the resultant levitation is a combined effect of Bifeld-Brown and Hooper gravity generation which creates the inertia-free ether vortex in which the device operates. The Paget craft may operate in a very similar manner. Unfortunately, detailed data on Searl's generator appears difficult to retrieve for many reasons, not the least of which is British Security.

There is such a preponderance of speculative data coupled with communications leaks in many of these areas, that I do not feel the "secrets" of any truly successful device in *our* area of research can either be held as proprietary or otherwise concealed too much longer — nor should they be. We at HEER are trying to put into print all of our experiments, ideas and speculations in order to get as much information as possible out to the public. We do not dismiss *any* theory or speculation, provided it is not totally devoid of fact, reasonable logic or even reasonable speculation. We do strongly avoid collaboration with those who are absolutely certain that they know all the answers or who persist in their ideas with dogmatic close-mindedness. A closed dogmatic mind has no room to learn to grow. On the other hand, any idea we come across which appears to have any merit whatsoever, we believe is worth checking-out, to satisfy its degree of credibility to ourselves. We will not, nor should anyone, dismiss a bizarre idea, no matter how poorly it may be conceived or presented, prior to checking it out thoroughly both with laboratory and thought experiments.

We are living in an age of transition, where mankind will evolve to a different level. The process has already started and will continue over the next five to twenty-five years, I think. Hopefully, the transitions will *not* be a painful one. But those who have read some of the possibilities of the horrors of what could occur during the transition should not fear it. The transition *will* be made by every conscious entity, and whether or not it is painful or pleasant is really of little consequence, inasmuch as pain is a part of experience in physicality, and it is one of the many contrasts required to give physicality meaning. Without the counterparts of pain and pleasure, good and evil, struggle and reward — all pulsating contrasts — physicality, and perhaps existence itself, would simply cease to be. Physicality is a marvelous unending (in our temporal terms) game which gives "being" its meaning. The contrasts of physicality are the catalysts of existence.

Reality in all the many forms it takes, provides a totally malleable substance, fully manipulable by every single consciousness entity of existence, both individually and en masse. We each create our own realities — sometimes in readily recognizable terms, at other times in *not* readily recognizable terms. For example, if you decide you're going to build a table, when the idea hits you, you immediately start *imaging* the table and how you want it to look. The imaging is visually an agglomeration of tables you have seen in the past, and your mind scans, compares and modifies features and construction details to meet your particular needs. This imaging, once you have decided your final configuration, becomes an instantaneous thought-form or reality in a non-physical dimension, or virtual-state reality, if you will.

You then proceed to list the hardware and lumber you need to construct this thought-form, and you may further push it towards evolving into a physical reality by sketching it on paper. Now you've gone a step further toward physical materialization of your thought-form reality. Next, you actually go out and purchase the raw materials (already congealed and shaped energy-forms) you take them to your workshop and start to cut, shape, drill and assemble until you have completed your physical-reality *via physical channels*. The actual operatives involved in creation of reality may easily transcend the intermediate and cumbersome steps of manipulating already existing physical matter. The conscious procedure you followed, and follow every day of your life in physical form, involves imaging or virtual-state thought-forms, then an intermediate step of congealing the imaging on paper, and finally, progression to three-dimensional space-time.

Now suppose you were able to simply proceed directly from thought-form to physical congealment or energy assemblage. Then you would have evolved to the point where your electromagnetic consciousness directly *controls* energy. This is indeed possible. Tom Bearden has presented some very worthwhile ideas along these lines, along with what appears to come very close to the actual modeling of the links between physical and non-physical reality. I will further expand very greatly on this subject in my second volume on paranormal phenomena, in non-mathematical and non-technical terms with actual exer-

cises that will permit subjective but highly convincing proof of such phenomena. These exercises will be presented in a manner which will teach one to control *his own* reality while also affecting the reality of others.

This may appear to have dangerous implications, and well it does, but not as uncontrollably as some may think. Although we can powerfully affect the thoughts and actions of others, we can only do so within the limitations of others' *root-belief structures.* That is how voodoo works. The victims are convinced of the power of the witch doctor. They are brought up in a religious-cultist culture which powerfully affects their root-belief structures in favor of the witch doctor's power. This is all he needs. Now they are convinced that he can, with his little voodoo dolls, inflict pain, injury and suffering upon themselves, and indeed he can! They have opened the electromagnetic consciousness-linking channel between them and him, giving him such power by virtue of their combined belief-structures. We are *not* talking magic here; we are discussing very real energy operatives under conscious control of the involved entities. Such belief structures provide the very same operatives for faith-healers and lunatic-fringe cultists who would combine their energies to override that of the individual. This, also, is dangerously possible. There are other methods of amplifying consciousness-imaging energy that use crystal devices to give an individual somewhat inordinate power.

I would not want people to run around in a panic, thinking that someone who was out to get them would have them at their mercy by using such techniques. It isn't so. The greatest danger to an individual which weakens his ability to protect himself against such an attack lies in the weakness of his own belief that he may not have equal power rooted in *his* belief structure! The most insidious element which feeds such weakness is *fear.* We must fear *nothing*! Do not fear the corporate monopolies, the police state, some of the mindless and violent drug cultures, the lunatic-fringe groups, or death itself. All these are part of the very necessary contrasts which maintain the physical-world reality wherein we exist! We will evolve beyond these points, physicality being only a portion of the transitional experience. We should enjoy the game of existence, play it as we must, and relish our little discoveries of physical reality, creation and manipulation, because this is why we *are*.

So, in conclusion, the only religion or belief-structures I would recommend are those which purport love, learning, understanding, caring, sharing and discovery — all fascinating contrasts which make "being" palatable. The only real evil is to deny others the same experiences.

*Acronym for the author's research organization: High Energy Electrostatics Research, P.O. Box 5286, Springfield, VA 22150.

†Radio-frequency (RF) burns from inside outward in living tissue [Ed.]

Cougars are Reported on the Prowl in Upper Peninsula

They are big cats, reddish-brown in color, with stocky bodies and long tails.

Cougars? Maybe.

It appears that cats believed long gone from the state are stalking the woods of the Upper Peninsula in Escanaba. The last cougar was thought killed in the U.P. some 60 years ago, but if you believe scores of recent eyewitness reports, the animal is back.

Mike Zuidema, a forester for the Department of Natural Resources (DNR) in Escanaba, is convinced the cougar is here again. He has spent the last two years compiling sightings for the department.

"There are too many reputable people, knowledgeable about the woods, who have seen these large cats," he said. "Whether a cougar or not, we won't know until we get some hard physical evidence."

That's been the problem — verification.

No one has ever obtained a clear track of the animal for positive identification, nor has a carcass ever been found. What the DNR is waiting for is a "hot" sighting to utilize the best method for trapping cougar — dogs.

"We have people with dogs that can track a cougar," he said. "They are just waiting for us to call them, day or night."

Zuidema's interest stems from an incident in 1981, when he saw a large cat with an extremely long tail cross a road in front of him.

Other witnesses have included dairy farmers, hunters, foresters, trappers, loggers, cross-country skiers and hunting camp owners, according to Zuidema.

Sightings have come from all over the Upper Peninsula, as far east as Drummond Island and west to Watersmeet.

Within the last few months, there has been a rash of sightings from a small area on the Delta-Menominee county line near the village of Perronville, 25 miles east of Escanaba.

Bob Hafeman, postmaster in the village of Wallace in Menominee County, doesn't know if he saw a cougar in October, but he says it was a very large cat.

The cat ran across the road and stopped beside a creek. Hafeman was able to get within 50 feet before the animal jumped and swam across the stream.

For a moment, it stood on the other side looking back at him.

"It was dark brown with a long tail, definitely a cat," he said. "It was only 35 to 40 pounds, but I wouldn't want to meet it alone in the middle of the woods."

Dan Kolich of Escanaba says he was on his way to a hunting camp over the July 4th when he saw a cougar standing in the road eating a pine snake.

"I've seen a bobcat before and this was no bobcat," he said. "Right away, I thought it was a mountain lion."

Bobcats, or lynxes, are much smaller than cougars and are relatively common in Michigan woods.

Ray Juetten, a DNR fish biologist in Baraga, is certain he and another employe saw a cougar in 1977 near Lake Gogebic in the western U.P.

"There was no question in my mind what it was," he said. "It ran right in front of the truck. It must have weighted 100 pounds. I know what I saw and that was a cougar."

Disbelievers say that if cougars were in the U.P., one would have been trapped or shot by a hunter, but Zuidema discounts this, saying the lack of such evidence may be due to the cougar's well-known elusiveness.

"These are shy, harmless animals," he said. "They don't like people and probably tend to stay in isolated areas. It's important for people to know that they aren't going to harm you."

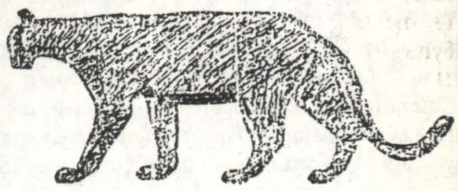
If the animals are cougars or mountain lions — also called pumas, panthers and catamounts — why are they back in Michigan?

"It's hard to say where these animals came from, since mountain lions were believed to be eradicated from Michigan by the 1920s," Zuidema said.

"I don't think this is a remnant population from that period. More likely they were brought and released here by someone, or they have extended their range from other areas.

SOURCE: *Detroit News*
1/12/84
CREDIT: Mr. & Mrs. William Kingsley

WANTED ALIVE



Information on Cougars/Mountain Lions Seen in this Area

CONTACT: John & Linda Lutz
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P.O. Box 3562
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(301) 254-2517

Lost Cities of France: Fact or Folklore?

by Jon Douglas Singer, M.A.

(French legends describe mysterious lost cities which are apparently neither Greek nor Roman. Are they Celtic, Pre-Celtic, or Dark Age Frankish?)

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Ker Ys, A Lost French City

There are many tales of lost cities in France and especially in Brittany. English and American researchers have neglected this aspect of archaeology despite the fact that it is relatively easy to visit the locations, and there are neither major political crises nor devastating tropical diseases to worry about. It is odd that so many of our archaeologists probe the dangerous jungles of Latin America for artifacts of antiquity when they can spend less effort on expeditions to the benign countryside of France. At this rate, they will probably miss the opportunity to discover the ruins of a lost city which sank in the Dark Ages.

According to legend, Ker Ys (spelled also Ys, Is, or Ker Is) was located in western Brittany. It was ruled by King Gradlon, who lived in the late fifth century A.D. Gradlon (also called Grallon) fought against northern pagan invaders and when the war was over, his victorious kingdom became the seat of commerce and art. His people were the Britons from Britain. Although they were at first refugees, their numbers increased. Eventually they took over all Armorica from the Gallo-Roman people and its name was changed to Brittany. Gradlon, one of many kings, ruled a land which was called Cornouailles in modern French. Research indicates that Gradlon was a historical character although he was not mentioned in major chronicles. Most historians do not believe that Gradlon ruled Ys because they say his capital was the "modern" city of Quimper.

As Ys prospered, some of the people followed the paths of luxury, sloth, and sin. Among them was Dahut, daughter of Gradlon. She took many lovers, including the Devil in disguise as a handsome visiting nobleman. Witchcraft and druidism began to flourish despite warnings by the holy St. Guenole. In the end, the sinful city was submerged by an angry God. Only Gradlon escaped. To this day, local people claim that they can see ruined walls beneath the sea. The legend is supported by the very name of the town. Historian Rachel Bromwich states that Ker Ys means, "the bottom fortress," while researcher Maria Tymoczko suggests that Ys or Is is short fo *izel* which means, "low" in Breton.

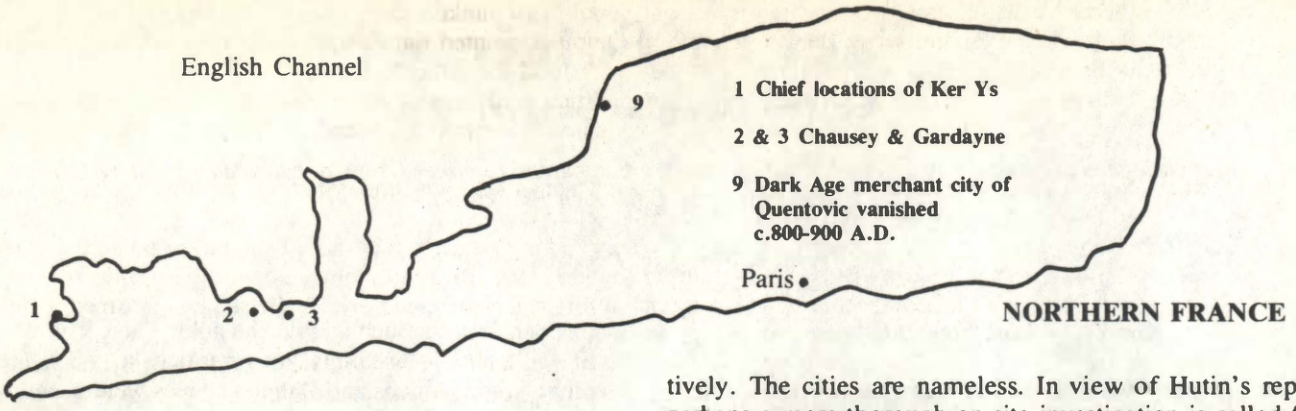
The city's appearance varies from text to text, but most of the writers who described it in detail said that it was quite large, surrounded by high walls around 30 feet tall, and that there were great gates opening to roads or canals which let in seawater. The city was below sea level similar to some Dutch cities so the excess water ran into huge collecting basins called *Puits* (wells). The location of one Puit was at Gorle-Greis; there were eleven others. Another legend stated that Ys was at the junction of seven Roman roads which met at the sea. A third tale said that the city had thousands of people and a hundred cathedrals. There were many castles and turrets with many windows. The roofs had a shining crystalline substance. The king's palace was originally a rather somber place built of oak, granite and iron. As prosperity increased it was rebuilt like a Byzantine palace with much marble and gold. There was also a metal like gold but of "unearthly" origin (orichalk?-J.S.). There were ornate royal gardens and Dahut's stables were paved with red, black and white marble. Lastly, there were probably some druid temples. The king had charge of a golden key which opened the gates. At one point, Dahut stole the key and opened the gates at the wrong time, thereby flooding the city.

Theories vary about Ys. Lewis Spence suggested that it was either in Atlantis or an Atlantean colony. Egerton Sykes suggested that it was built by megalithic peoples influenced by Egyptians around 2000 B.C. There is no clear-cut evidence supporting either of those theories. Hermann and Georg Schreiber decided that it was a Gallo-Roman city taken over by the Britons (Bretons) and that it was destroyed by great storms which actually took place in the late fourth or early fifth century A.D. It is fascinating to learn that Alexander Krappe, a folklorist, learned that the seventh century A.D. "Geographer of Ravenna" has depicted on his well-known map a city called Chris or Keris in the vicinity of Brittany! Since the sixteenth century, people have sighted walls under the sea near Quimper in the Bay of Douarnenez, but no archaeologist has yet found them. I list the sightings in chronological order on Table 1. Only one archaeologist searched for Ys, Captain Phillipe Tailliez. He explored the Bay of Douarnenez in 1950 but found nothing. Modern equipment used by divers may prove him wrong. Other early archaeologists searched for ruins elsewhere and found nothing until contemporary investigators found sites by using up-to-date equipment.

Other Lost Cities in France

I have found during my research on Ys that there are around thirty or so other tales of lost cities in France. I can summarize only a few such reports here. St. Malo, on the north coast of Brittany, is a good place to look for some of them. Alexander Krappe said that the sailors of St. Malo believed that they saw the buildings of the ancient city of Chausey near the cliffs. The city was destroyed by a cataclysm. (See Table 2) A similar legend concerning the same locality states that the city of Gardayne or Gardoine was destroyed by a flood in the eighth century A.D. during an attack by the monarch Charlemagne. In their book, *Vanished Cities,* Hermann and Georg Schreiber reported that they learned that a flood had indeed struck the area in the eighth century A.D. Just to the east of St. Malo is the town of Cancale. The Schreibers learned that as recently as 1957, local people had claimed that they saw ruins of buildings beneath the sea there. The local people thought that Ys was located there, but the Schreibers thought that the sunken city at Cancale was more likely lost Gardoine, as they spelled Gardayne.

Professor H. H. Johnson wrote in 1907 that the people of St. Raphael on the south coast of France in Var province believed in a sunken city whose name he did not record. The inhabitants



heard submerged bells ringing (a common occurrence in this type of legend). Fishermen dove to try to find the city; all attempts in 1907 proved fruitless. Perhaps a modern search with minisubs could be conducted.

A similar tale is that of Issarles. This city sank in a volcanic crater lake northwest of Ardeche, on the border of Haute-Loire and Lozere in the northern Cevennes Mountains. Its ruins are visible on a clear day. Its name, by the way, may not be related to Ys.

In *The Mystery of Atlantis,* Charles Berlitz reports that French diver Jacques Mayol found a submerged mine five miles due south of Marseilles. It was 60 to 120 feet deep and a mile long. There were vertical shafts, quarries, and ancient slag heaps. Berlitz guessed that it dated to Cro Magnon times.

Serge Hutin reported on some fascinating ruins near Lyons, along the Rhone River. One group of ruins are artificial tunnels called *sarrasinieres* by local people in the mistaken belief that medieval Arab (Saracen) invaders built them. Hutin said that they were pre-Celtic and megalithic, possibly even Atlantean. Nearby them on the old bed of the Rhone is a large ruined city of unknown age and origin. It had impressive embankments of black stone. When the old Rhone changed course, the city was stranded. Hutin said no archaeologists had investigated it. Incidentally, there are two sunken city legends in the same region near Lyons. They are in Lake Marlay and Lake Maras, respectively. The cities are nameless. In view of Hutin's reports, perhaps a more thorough on-site investigation is called for.

The last report in this survey dates from 1981 when archaeologist D. Fonquerle reported on the discovery and excavation of a large submerged Bronze Age settlement in the Thau Lagoon on the coast of Languedoc near the town of Sete. This is not far from the famous city of Montpellier. Radiocarbon-14 dated submerged wooden posts to 3350-3150 B.P. (Before Present) or c.1370 B.C., the middle of the Bronze Age. Some artifacts dated to the Neolithic and Iron Ages as well. It was inferred from the type of artifacts found that the people were mostly cattleherders and farmers. Fonquerle concluded that, contrary to popular belief, much rapid submergence of land had occurred in recent times since the Iron Age.

It is clear, then, that there really are mysterious ruins of unknown origin on dry land or beneath the waters throughout France. Some, as is the case with Quentovic near Etaples, are accepted as real places mentioned in chronicles, but archaeologists have not yet found them. Other lost cities such as Ys have not been found by archaeologists, but many people claim that they have seen ruins beneath the waves. Are these hallucinations, natural formations, or are there really ancient ruins of legendary drowned metropoli? At least two submerged ruins have been found. Who knows what a thorough search for the others would find? Certain folktales may be memories of half-forgotten events and catastrophies of the distant past. A search may be rewarded with the discovery of an actual sunken city which may be, "...half as old as Time."

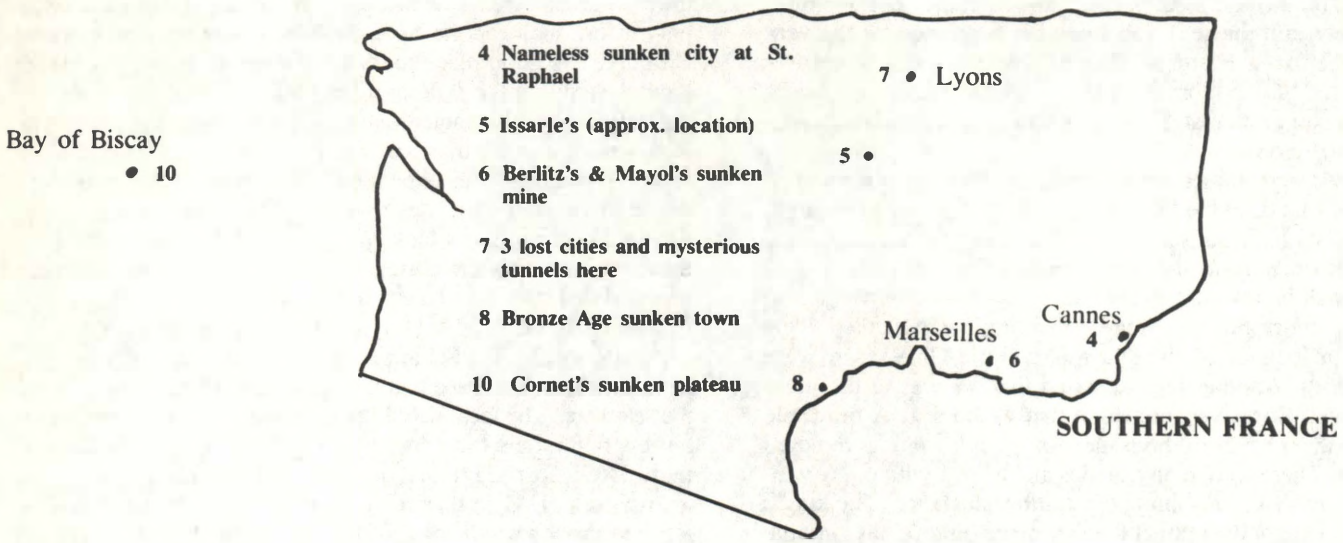


TABLE 1: SIGHTS OF YS AND SUNKEN WALLS LINKED TO YS

c.1515: Pierre Le Baud wrote that in his time, local people saw sunken ruins beneath the sea.

1588: Bertrand d'Argentre wrote that the people of Quimper pointed out sunken ruins such as the remains of walls which were so well-mortared that they withstood the Atlantic waves.

1858: Souvestre, author of *The Breton Hearth,* reported that sunken ruins were visible in his day in the Bay of Douarnenez. Historian Rachel Bromwich investigated this report but found no further data and apparently did not use any minisubs there.

1946: Rene Thevenin reported in *Les Pays Legendaires* that in his own time, when the weather was clear, one could see the ruins of a sunken city in the Bay of Douarnenez.

1969 &: 1975: Charles Berlitz in *The Mystery of Atlantis* wrote that a few years ago (date not given) there was a tremendous ebb tide off the Breton coast which exposed the sea floor for a brief time. For a while, piles of rocks, seemingly man-made structures, were visible. Before scientists could arrive, the sea had returned and the ruins, if such they were, were not relocated.

1975: Robin Palmer in *Demons, Monsters, and Abodes of the Dead* reported that the fisherfolk of Brittany could see the ruins of Ys beneath the sea and occasionally heard the bells of submerged cathedrals ringing as the waves rocked them back and forth. (New York, Scholastics Book Services, 1975)

1979: Deirdre Cavanagh, translator and illustrator of Charles Guyot's *The Legend of the City of Ys,* said that a Breton friend, Jacques Monteil, pointed out a place where old roads led to the shore and ended abruptly. He insisted that Ys sank there.

TABLE 2: EVIDENCE FOR CATACLYSMS

395 A.D.: The Schreibers report that a great flood hit Brittany at this time.

441 A.D.: An even greater flood struck in the middle of the night. The Schreibers think this could be an alternate date for Ys' sinking. If it sank this early, that could be why it is not mentioned in Gregory of Tours' *History of the Franks.*

685 A.D.: Thomas Jones' translation of the Welsh *Chronicle of the Princes* (Cardiff, Univ. of Wales Press, 1955), p. 3 notes that in this year a great earthquake hit Brittany. Could Ys have sunk then?

1925: A mysterious submerged plateau, never noted before, is found in the Gulf of Gascony (Bay of Biscay) at 45°7' north and 3°57' west by Lt. Cornet on French naval ship *Loiret.* Plateau is 50 miles long and 34-70 meters deep. (Reported in *NY Times,* summer, 1925 and in Lewis Spence's *The History of Atlantis.)* By coincidence or by choice, science fiction writer Jack Vance located the equally mysterious country of Lyonesse here in his 1983 novel, *Lyonesse.* Inquiries by Spence to M. Fichot, Director in 1925 of the French Naval Ministry's Hydrographic Office, concerning a proposed expedition there were never answered.

1979: Maria Tymoczko in introduction to Guyot's novel of Ys wrote that the geology of Cap Sizun, where she located Ys, was poorly understood and local floods or upheavals could sink cities there.

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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).

Search for Joseph's Secret

Almost 4,000 years after Joseph of the Old Testament saved the ancient Egyptians from starvation by stockpiling grain in the desert, Israeli scientists are puzzling over his methods in hopes of offsetting famine in drought-ridden Twentieth Century lands.

By a barren stretch of road in the western Negev desert, a white-domed tent rises on cracked sandy-colored ground. Inside are stored 550 tons of wheat.

The wheat is the object of a joint US-Israeli research effort to perfect grain-storage methods in the desert.

Professor Moshe Kalderon, who heads the project at the government-financed Volcani Institute, said in an interview that his team is utilizing elements of the desert climate that are traditionally regarded as man's enemies:

•Cold night air, which kills insects incapable of surviving at temperatures lower than 59 degrees Fahrenheit.

•The summer heat, which can reach 122 degrees and also destroy insects.

•The arid climate year-round which inhibits mold.

Mr. Kalderon said he did not know how Joseph did it, storing grains during the seven "plenteous years" in preparation for the seven "lean years." All it says in Genesis is: "And Joseph opened up all the store houses and sold unto the Egyptians and all the countries came into Egypt to Joseph for to buy corn."

One of the theories Mr. Kalderon suggested was that Joseph, the Israelite who acted as the Egyptian pharaoh's viceroy, used mud huts and sealed them hermetically with ashes, much as some Africans do nowadays.

Another member of Mr. Kalderon's team, Jonathan Donahaye, speculated that Joseph may have stored the food in pits in the ground, as nomadic Bedouin tribes do to this day. The disadvantage of that method, Mr. Donahaye added, was that moisture from underground water could breed mold.

Mr. Donahaye, a British scientist working toward a doctoral degree in insect control at the Volcani Institute, said in an interview that the team is trying to perfect hermetic sealing of the tent to fight insect infestations.

"If they can't breathe, they'll die. We have very few resources against pests, because we're dealing with what will one day become food and we can't poison it with too many insecticides."

The scientists are also experimenting with funneling gases such as nitrogen or carbon dioxide into the tent to replace oxygen and create a "controlled atmosphere" in which insects cannot live.

Mr. Donahaye pointed to glass vials housing flower beetles, in which their resistance to various gases is being tested in laboratory conditions at the institute near Tel Aviv.

The advantage of the tent, which looks roughly like a muffin the size of a beach cottage, is its mobility and low cost. In emergencies, Mr. Donahaye said, it could be a portable silo for areas hit by drought or it could be used as a "buffer stock" in countries with little rainfall.

SOURCE: AP in *The Sun* Baltimore, MD 3/18/84
CREDIT: H. Hollander

Fossil Suggests 10-foot Catfish

Fossilized bones found in Arkansas have been identified as the skull of an extinct catfish that may have been 10 feet long and up to 1,500 pounds, say a state scientist.

John D. McFarland, a paleontologist with the state Geological Commission, said that the fish must have lived 40 million to 45 million years ago when shallow sea covered the region.

The commission won't say exactly where the bones were found because it doesn't want unauthorized diggers poking around, he said.

SOURCE: AP in *The Nashville Tennessean* 12/16/83
CREDIT: Harold Holland

Asian Bird Found Spending Winter on Coast

A sparrow-like bird from Asia has been found along the California coast, the latest in a series of birds found on the wrong side of the globe this winter.

"The idea of it appearing here has gotten us all excited," said Ron Levalle, an ornithologist. "I even quit watching the 49er game to go look for it. Basically, this bird is on the wrong side of the ocean."

The sighting of the rustic bunting just north of Eureka, 90 miles south of the Oregon border, was the first in the lower 48 states, according to ornithologists. Normally the bunting breeds in Siberia and migrates to China and Japan in the winter.

Last week another Asian bird species, the slaty backed gull, was reported for the first time along the Mississippi River near St. Louis.

"We're not sure what's causing all this, but there's been more first sightings this winter than anyone can remember," said Richard Erickson, a biologist who is one of the experts who saw the rustic bunting this week.

So far this winter, he said, two other Asian birds rarely seen in the Western Hemisphere, the brambling and the Siberian accentor, have been seen along the West Coast.

The rustic bunting is a small brown-feathered bird with broad stripes across its cheeks and white tail feathers. It was first sighted last weekend by Gary Strachan, a state park ranger at Stone Lagoon State Park.

"I only had a half-second look at it, and then it disappeared into some willows," Mr. Strachan said. He went home to consult his bird books and found a drawing of a rustic bunting. He returned the next day with Mr. Erickson and another bird watcher, Gary Lester and Mr. Erickson saw the bird.

Since then, at least a half-dozen experts have sighted the bunting.

SOURCE: A.P. in *N.Y. Times* 1/15/84
CREDIT: H. Hollander

Earthbeat

While searching for Einstein's undiscovered gravity waves, a team of physicists from the University of Rome has unexpectedly determined that the Earth pulsates precisely every twelve hours. So far, the scientists are unable to pinpoint the reason for the phenomenon.

The team made its finding by monitoring hugh, aluminum "antennas" in Frascati, Italy and Geneva, Switzerland. They were expecting small signals which would correspond to gravity waves passing through the aluminum. (The elusive gravity wave was predicted theoretically by Einstein but has yet to be physically observed.) Instead, the scientists got regular, twice-daily pulses that were 100 times larger than those predicted for gravity waves.

They have observed the pulse for about a year and have searched for but not found any equipment errors. The "Earthbeat" seems to recur on a pattern that is relative to the Earths movement through the universe, rather than around its own axis. According to Italian physicist Guido Pizzella, the precise timing of the pulse indicates it is unlikely to result from some "trivial terrestrial effect."

Other scientists disagreed, however, saying that pulse could be the result of tidal movements within the Earth's crust. An interaction between solar and lunar tides could be peaking every twelve hours and causing the pulse, said scientists at the University of Bologna.

SOURCE: *EastWest Journal* 2/84
CREDIT: K. Waldron

(Continued on page 42)

Books Reviewed

PSYCHIC WARFARE: THREAT OR ILLUSION? by Martin Ebon; McGraw-Hill; $15.95; 282 pp.

MIND WARS by Ron McRae; St. Martin's Press; $12.95; 155 pp.

Reviewed by George W. Earley

You remember the scene. Luke Skywalker is attacking the Death Star when the discarnate voice of Obi-wan Kenobi intones: "Trust the Force, Luke!" and Luke turns off the targeting computer, drops the nuke on instinct, and blows the Death Star into a billion sparkling bits.

The audience loved it, although most of them walked away convinced that The Force existed only in the reel -- as opposed to the real -- world.

But does it? IS The Force simply a convenient (and much beloved) science fiction gimmick to allow the nature boys to whomp the technologists? Or does it really exist?

You won't get a positive answer to that question from either Ebon or McRae, but you will get a fascinating behind-the-scenes look at what appears to be a strong interest in paranormal research by both the Soviet Union and Uncle Sam. Ebon looks at activity in both countries; McRae at just the U.S.

From Ebon we learn that the Soviets (as *PURSUIT* readers doubtless know) have been researching PSI phenomena for years and apparently take it seriously; in 1977, they kicked out *Los Angeles Times* reporter Robert Toth for possessing "state secrets" about Soviet PSI research.

Ebon's recounting of Soviet experimentation over the past several decades makes it clear that communist authorities have had mixed feelings about paranormal research. Their controlled press has seesawed between acceptance and disbelief, while researchers have been both praised and imprisoned. Right now, belief seems to have the upper hand and, as Ebon points out, parapsychology's potential does seem to fit neatly into the Soviet view of the mind as "little more than a complex electro-chemical apparatus...in practical terms Soviet science views the brain as an apparatus available for probing and manipulation."

And while we can't be sure just what military use they may be trying to make of it, events in Baguio, in the Phillipines, provided an almost comic relief example of one possible Soviet use of mental manipulation.

The setting was the 1978 World Chess Championship, with Soviet Chessmaster and World Champion Anatoly Karpov being challenged by Soviet defector Viktor Korchnoi. In Karpov's entourage, much to Korchnoi's distress, was Dr. Vladimir Soukhar, "whom Korchnoi," writes Ebon, "identified as a hypnotist and parapsychologist." Korchnoi lost both his protest over Soukhar's presence and the chess match.

Yesterday, the World Chess Championship...tomorrow, the world itself?

There is American interest in PSI phenomena too, beyond that of Hollywood and science fiction tales. How much of it is sparked by amateur activity in this country and how much by what our military knows (or thinks it knows) of Soviet activity is not clear, but Ebon quotes extensively from "The Mental Battlefield" which appeared in a 1980 issue of *MILITARY REVIEW*, the official journal of the U.S. Army. Written by Lt. Col. John B. Alexander, Ph. D., it dealt with psychotronic warfare and called for "more coordinated research in the realm of the paranormal."

Judging from Ebon's quotes from Alexander's material, he draws quite heavily on the ideas advanced by retired Lt. Col. Thomas E. Bearden whose controversial speculations have appeared in several forteanesque publications, including *PURSUIT*.

Even the CIA got into the paranormal act. Ebon reprints the text, obtained recently under the Freedom of Information Act, of 1952 (!) paper on the potential use of extrasensory perception for "practical problems of intelligence."

It is those "practical problems" and their possible paranormal solution that occupies McRae's book. For if, as he points out, paranormal powers actually exist and can be made to function with reliable repeatability, their value in warfare (or under benign guidance) is obvious: mindreading spies could learn the most closely guarded secrets, telekinetics could induce heart attacks, immobolize computers, or cause or prevent nuclear explosions, while psychics with precognitive powers could foresee an enemy's intentions and instruct diplomats on the means of defusing a situation that might otherwise lead to a planet-wrecking war.

It may all sound like STAR WARS, but as McRae documents in this "true story of secret government research into the military potential of psychic weapons," considerable time and money has already been spent to (hopefully) insure there's no "psychic gap" between the U.S. and the USSR.

Skeptics -- most notably the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) -- charge that no scientific evidence exists for psychic phenomena and that therefore any research into the subject is futile. Uri Geller -- the Israeli spoon bender -- is a demonstrable fraud, says CISCOP, as are all other 'psychics' they've investigated.

CSICOP makes a good case against psychic research. Certainly magician James Randi has demonstrated how the will of many researchers to believe in psychic abilities has enabled tricksters to fool scientists and manipulate laboratory tests. However, I can't help wondering why, if paranormal research is all a waste, it hasn't been singled out by Senator Proxmire for one of his "Golden Fleece" awards.

Between them, Ebon and McRae have written two very interesting (and somewhat disquieting) books about a phenomenon few in this country wish to take seriously. On balance, Ebon's is probably the better book -- there's more material, including a lengthy appendix containing translations of Soviet, Red Chinese, and East German papers on various aspects of psychic research. However, both books are well-written, well-indexed and have extensive (and overlapping) bibliographies well suited to enable the interested reader to pursue the topic further.

ALIENS ABOVE, *ALWAYS*, by John Magor, Hancock House, 1983, 158 pps., $11.50 (available from CUFOR Books, P.O. Box 758, Duncan, B.C., Canada V9L 3Y1).

Reviewed by Robert Barrow

Always was added to the title by the author just before publication, "and so dedicated this book to the enduring nature of the UFO presence". John Magor realizes that, while public interest in UFOs is currently low, the mysterious goings-on continue, as they "always" have.

Readers of this provocative report will make no mistake about the author's conviction that the aliens in question are 100% certified extraterrestrial in origin. He finds the evidence for beings from one, or more likely a host of other worlds too overwhelming by comparison with theories which suggest time/space dimensions and other esoteric ideas. Clearly, Magor's fine style and approach to his belief that visitors from space come here frequently make this worthwhile reading. Like a whodunit detective, he builds his chapter-by-chapter case for the aliens' possible motives and explains how various UFO characteristics could relate to their goals.

Most unusual is Magor's research into bell jar-like apparatus sometimes associated with UFO incidents (an actual full-color photo on the back cover of an alleged bell jar accompanied by what seem like ape-like figures is quite intriguing). The importance of the bell jar to the aliens' environment is discussed and woven among the threads of other UFO evidence as the author explores how UFO craft make peculiar ground markings and why they have an interest in our planet's power sources. "*Antonio's Ordeal*" and other instances of UFO abductions are detailed as the controversial area of cattle mutilations performed by UFOs is introduced.

Suggesting how all of the usual, and sometimes not so well known, pieces of the UFO mosaic fit into place is the task Magor sets out to complete, and he has accomplished a nice book for thought, though he occasionally seems to reach a bit far to tie things together — an unavoidable dilemma that one must resolve to live with, since the definitive *truthful* interview with a willing alien still seems hard to come by to settle the why-and-what-for questions.

(Continued from page 40)

Youth Kills 6-foot Lizard

In these days of dungeons and dragons and other romantic fantasies, Rodney Cameron is about as close to a real dragon slayer as you'll want to find in Ohio.

Instead of a magic spear or enchanted sword, the 19-year-old used a 22-caliber rifle to bag an African lizard nearly 6 feet long.

Cameron, a high school senior, said he was walking around a pond in his family's backyard when he saw the lizard.

The unlucky beast likely would not have survived for long in Ohio's climate even if Cameron hadn't shot it six times, a game official said.

The exotic Nile Monitor lizard was 5 feet 11¼ inches long and weighed about 35 pounds.

Abrams said he hasn't been able to find out how the lizard got into the pond and doubted whether he ever would. Abrams said of whoever knows its origin: "They may be afraid to come out now. I don't know if the person will ever surface.

SOURCE: AP in *Schenectady Gazette* 2/84
CREDIT: Bob Girard

Flying? Have Another Martini

Tass, the Soviet news agency, reported that a fireball invaded the interior of an airliner and "flew above the heads of the stunned passengers," then disappeared out the tail section.

There were no injuries but radar and other equipment aboard the plane was damaged by the "visiting fireball," which left two holes in the plane, an Ilyushin-18. Tass said the plane took off in good weather from the town of Sochi on the Black Sea. Soon after takeoff, thunderclouds were spotted about 60 miles from the craft's flight path.

"Suddenly, at the height of 1,200 yards, a fireball about four inches in diameter appeared on the fuselage in front of the crew's cockpit. It disappeared with a deafening noise, but reemerged several seconds later in the passenger's lounge, after piercing, in an uncanny way, the airtight metal wall," Tass said.

"The fireball slowly flew about the heads of the stunned passengers. In the tail section of the airliner it divided into two glowing crescents which then joined together again and left the plane almost noiselessly," the agency said.

SOURCE: AP in *The Philadelphia Inquirer* 1/26/84
CREDIT: H. Hollander

Winner Saved by Horoscope

Maurice Hay would be a man with a skinny wallet and no job if not for his horoscope.

Hay, 63, thought he won $10,000 in the Western Express Lottery recently, only to learn that his "winning" number was a printing mistake in the morning edition of the Winnipeg Free Press.

Good thing he scanned his horoscope that morning. It told him not to act rashly about quitting his job in the provincial government.

"I don't usually read my horoscope but I just happened to that morning," he said. "It was a funny coincidence."

It was that afternoon when he got the bad news from lottery officials, he was not a winner.

"I had my moment of joy, but we live for tomorrow," he said with a shrug.

SOURCE: UPI in *The Gazette*, Schenectady, NY
3/17/84
CREDIT: Joe Zarzynski

(Continued from page 28)

Scientists say Tahoe's largest known denizens are Mackinaw, a variety of lake trout known to surpass 60 pounds. Murphy added that several scuba divers have claimed they saw "mackies" over 6 feet long.

But some fishermen say there must be something else down there. There are reliable reports of trophy-sized Mackinaw bitten in half by a foot-wide set of jaws as the fish was reeled in.

John Rousch, in his book, "*Successfully Fishing Tahoe*," theorized that the monster fish could be sturgeon, gar or muskellunge accidentally planted with lake trout at the turn of the century. Sturgeon as long as 26 feet have been caught in Russia. The largest North American catches are about 10 feet long, but they weigh hundreds of pounds. Maybe that would explain "*Heither.*"

Rousch speculated the teeth marks could be from a muskie, a hugh variety of pike and a voracious predator. But, he wrote, some believe the monsters are descendants of prehistoric Ichthyosaurs that once lived in Lake Lahontan, the ancient inland sea that once covered much of Nevada.

Evidence of what those creatures were like can be seen at a state park outside of Berlin, a tiny community in central Nevada, where skeletons of Ichtheosaurs with jaws six feet long and bodies upwards of 60 feet are on display.

While more than happy to discuss the legends, most longtime Tahoe residents say they are unconvinced. "It seems the more you know about the water, the less mysteries you see," said Cavin. But he pointed out that with Tahoe's depth and size there's plenty of room for the unknown.

SOURCE: UPI in *The Auburn Journal, CA* 3/18/84
CREDIT: Robert Carson

Letters to the Editors

Dear Editor,

I received *Pursuit* #64 today. Another excellent issue. However, I should like to offer a written reply to Zecharia Sitchin's article, "Earth Chronicles and the Giza Forgery". (Perhaps you can consider this an official letter to the Editor.)

Some things never change. Skeptics and believers are alike in their inflexible attitudes about their pet theories. Quite frankly though, I am getting tired of people who continue to be mystified by Egyptian pyramids. So much nonsense has been written about the Giza group that the sound archeological work which exists on pyramids remains buried under heaps of drivel.

The modern study of the pyramids of the Nile valley began with the Italian adventurer Belzone at the turn of the 19th century. Since then, almost all the pyramids have been either plotted on maps, entered, or identified. The work on them continues today, and the current generation of native Egyptian archeologists are happily free of the romantic notions of the early European investigators.

Pyramids are — were — *tombs*. It's that simple. How can I be so sure? The great mass of evidence does not permit any other interpretation. Studies clearly show the evolution of the pyramid form from the mastaba tombs of the archaic dynasties (Dyn. I-II) to the sudden inspiration of the architect Imhotep in Dynasty III. Imhotep, who was later deified for his genius, squared off the rectangular mastaba and proceeded to pile even smaller mastabas on top of the base. The resulting Step Pyramid (*not* 'Steppe") served as the tomb of Imhotep's sovereign, King Djoser. Moreover, the pyramid did not stand alone. It was surrounded by a large wall, in which shrines to the memory of the Living God (Djoser himself) were served by a loyal priesthood for many, many years.

Djoser's successors built their own step pyramids. We can see from their efforts attempts to improve upon Imhotep's design. Usually these did not work out well. The lower stages of the pyramid of Meydum have fallen away, leaving the rest of the structure looking like a medieval tower. Other cheaply built tombs have eroded away as time and stone plunderers reduced their outer coverings.

Few occult minded pyramidologists or Ancient astronaut enthusiasts are familiar with the pyramid of Sekhem-ket. This unfinished step pyramid was discovered in the 1950s by Dr. Ghoneim of the Egyptian archeological department. Some of the most interesting questions about pyramids were answered by close examination of Sekhem-ket's tomb. For one thing, the builders' ramps were still in place around the base. Remember all those wild theories about space ships levitating blocks of stone for the poor primitave Egyptians? Well Sekhem-ket's tomb, never completed, has its ramps in place. The conservative scientists were right all along; the Egyptians pushed their stone blocks into place with nothing more than the lavish use of human muscle power.

The burial chamber of Sekhem-ket yielded some surprises too. In the rough hewn vault, an enclosed sacrophagous was apparently still sealed shut. Atop the stone case were withered flowers — a last offering to the Living God. When the seals were broken, the sacrophagous was empty! There were no signs it had been used. What happened to Sekhem-ket? Why was his tomb unfinished? It may be he died under circumstances which did not allow his people to recover his body.

It is apropos to point out here that the tombs of Old Kingdom pharaohs were not highly decorated, as were the rock-cut tombs of New Kingdom (Dyn. XVII-XX). This was directly related to the different religious procedures in the Old Kingdom. The great pyramid kings had long causeways leading from their tombs down to the valley of the Nile, where funerary temples were built. Here the descendants of the king, or pious pilgrims, could make offerings to the dead king, now restored to the company of the immortal gods. Herodotos, the Greek traveller and historian, saw the funerary temple complex for the Great Pyramid at Giza; he described it as being fully as remarkable as the pyramid itself. Why, I may ask, did ancient astronauts include a funerary temple with "their" Great Pyramid? Ruins of the causeways and temples of all the Giza group *still can be traced*.

So we must consider: who built the Giza pyramids? It would be very stubborn to persist in the belief they are not tombs, but the matter of identifying who had them built is a valid question.

The answer seems to be Khufu, Khephren, and Menkaure. The ancient Egyptians referred to the Great Pyramids as *Khuit Khufu*, The Horizon of Khufu. The valley temple and causeway were dedicated to Khufu. The subsidiary tombs of family members and courtiers all indicate Khufu as their master and patron. What more proof is required? The Nile Valley has seen many upheavals in its 4,000 year history; more than likely Khufu's body, along with his funerary objects were looted in the First Intermediate Period (Dyn. VII-X) when central authority broke down. Tales from the days of Caliph Al Mamoun about breaking into the Great Pyramid and finding a gold wrapped mummy are either spurious or were a later, intrusive burial.

Sitchin's article is very careless in matters of Egyptian orthography. Over the years, renderings of ancient Egyptians' names has improved. Nevertheless, popular literature does not reflect this trend. For example, the hieroglyph ☉ , is best rendered as Re (pronounced "ray") instead of the incorrect Ra. I suppose the latter spelling is popular due to the efforts of Thor Heyerdahl and his "Ra Expeditions" across the Atlantic.

Egyptians kings had very complex names. This was mostly due to their religious duties to the cults of the gods. Thus the king would have a Horus name, as he was the incarnation of the god Horus; in the Old Kingdom, the pharaoh often had a *nebty* name, which signified his rule over both Upper and Lower Egypt. Khufu was also known as Medjdu (his Horus name). Some Egyptologists spell the Great Pyramid builder's name Khufwey, which is a shortened verson of his name Khnomkhufwey.

As for the charge of forgery against Hill and Vyse, this is a very serious charge to make against a scholar, especially one who is dead and cannot defend himself. It may be that Hill did what is alleged; however, other explanations do come to mind as well. After all, why would Hill change the painted marks? Recent repainting would be obvious. What is Hill supposed to have changed the cartouche *from*? If he added completely new ones, he may have simply mistaken the KH symbol for the RE

hieroglyph. Since Champollion had begun to decipher hieroglyphs only a few years before Vyse's expedition, it does not seem to me to be so sinister that Hill made a mistake. The point is, a forgery is committed to disguise or obscure the true ownership; and since Khufu did build the Great Pyramid, Hill's grafitto, though incorrect, amounts to little more than a latter day ascription. Finally, in contrast to Sitchin's contention that no new study of the Giza group has been done since Vyse, serious investigation of the pyramids has been done many times since. (e.g., Petrie's in 1881-2).

It is a pity so much careless and extravagant theorization has gone into the Giza pyramids. Other structures in Egypt are far more interesting; indeed, the only distinction of the Giza group is their size. For sheer ingenuity, amounting to architectural genius, consider the pyramid of Amenemhet III at Dahshur. Within this moderate sized pyramid is a labyrinth of tunnels, trapdoors, and passages all carved in the hardest stone. Khufu's tomb, though huge, is constructed almost entirely of limestone.

I urge Zecharia Sitchin and all those with a sincere interest in the monuments of ancient Egypt to read the responsible, scientific authors who know the pyramids firsthand. Among the best books are Ahmed Fakhry's *The Pyramids* (University of Chicago Press, 1969); Mohammed Ghoneim, *The Lost Pyramid* (about Sekhem-ket's tomb). I.E.S. Edwards' *The Pyramids of Egypt* (1947) is good, if out of date. With honest scholarship, the needless mysteries which exist primarily in the minds of the mystified will hopefully give way to a better understanding of the undeniably great civiliation of the ancient Nile. Great enough, I might add, to not need the intervention of angels, extraterrestrials, or occult teachers.

Paul B. Thompson
SITU Member 3416

P.S.

Upon further reflection, I have a suspicion that the cartouch Hill is reputed to have added is not read as "Ra-u-f-u" as Sitchin says; it may in fact be the cartouche of Khufu's successor, Rededef. I will consult my hieroglyphic dictionary and let you know.

★ ★ ★

Here is a Letter to the Editor for the next *Pursuit*. I'm also sending copies of it to Senator Specter and John F. Murphy of NASA. If you have an opportunity, please express my gratitude to Gene Kelch for following through on this. Here's the text:

According to Mr. Murphy's response to Senator Specter, concerning his inquiry about NASA regulation 1211.101: "It was not intended to, nor did it, implement any specific law passed by Congress regarding the subject of extraterrestrial exposure on Earth."

Although the regulation did not implement any specific law, the regulation was itself passed by Congress on July 16th, 1969, which endowed the regulation itself with the status of federal law. As the only federal law on the books dealing with the subject of extraterrestrial contact, it establishes a legal precedent. I accept that NASA's authority only applies to NASA missions, but what about the legal precedent established to interpret and enforce this NASA regulation (which is also a federal law) in the manner I have suggested?

George Andrews

There is an item in a batch of material just received that seems to me of considerable potential importance. It is from a French-language publication entitled "Les Nouvelles de Moscou" ("The Moscow News"), No. 46, 1983. If it's a weekly, that would make it mid-November. Credit is given to the original Russian source as "Sovietskaia Rossia," no date given. Here's my translation:

EXTRA-TERRESTRIALS AGAIN?

A large cave painting made by Bronze Age artists has been discovered in the upper part of the Ienissei River section of southern Siberia by an expedition from the Institute of Archaeology of the Soviet Academy of Sciences.

An enormous meteorite fell in this region between three and four thousand years ago. Specialists say the damage resembles that caused by the Tungouska catastrophe. It seems that it is because of this incident that the place was considered to be sacred. Cave paintings and enigmatic symbols cover the rock faces that form majestic stone stairways.

One photograph depicts an astonishing face or mask. It is not possible to ignore its resemblance to the depictions of "extra-terrestrials" that were found in the Sahara.

Mr. Devlet, who headed the expedition, says: "There are indeed similarities, but the fact is that it is a ritual mask."

So there you have it: another Tungouska site between three and four thousand years old that was also a Bronze Age ceremonial center with gigantic stone stairways and at least one face resembling the Tassiliji depictions in the Algerian Sahara. And southern Siberia is the most likely region for the location of the now-vanished Shambhala.

Are there any SITU members on the other side of the Iron Curtain who might check this one out? Even copies of the expedition's photographs would be well worth acquiring.

—George Andrews

★ ★ ★

There are a great many scientists today who believe humanity may have received visits from extraterrestrials in the past. Where they disagree with ancient astronaut proponents is over the question of evidence. There is much about our origins that remains unknown, and this is where von Daniken and company step in. Their one basic thesis is this: We don't know how it was done, nor why; therefore, aliens must be involved.

We need to remember that a real mystery is just that — a mystery. It should be examined on its own terms and not forced to fit anyone's preconceived theory, whether it be Carl Sagan's or von Daniken's.

—Kim L. Neidigh

ERRATA: We regret that we failed to properly credit the "Ghosts in Caves" article in *PURSUIT* No. 64, Fourth Quarter, 1983. It should have read: "Copyright 1983 by the Conservation Commission of the State of Missouri. Reprinted with permission."

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.
A	Aurora
ab.	about
Acad of sci	Academy of Science
ac to	according to
(A 1)	[? Almanac ?]
Am. J. Sci..	*American Journal of Science*
An. Reg.	*Annual Register*
Arc Sci	*Arcana of Science*
Attrib	Attributed
B.A.	*Report of the British Association for the Advancement of Science*
Bet	Between
Bib. Univ	*Bibliographic 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, #*, p. 14, c. 1)
Brit Assoc	*Report of the British Association for the Advancement of Science*
Cent Amer	Central America
Conn.	Connecticut
cor	correspondent
CR	*Comptes Rendus*
(Cut)	illustrated
D-85	*The Book of the Damned*, page 85
Dept.	Department
det met	detonating meteor
dets	details
E	East
Edin N. P. J.	*Edinburgh New Philosophical Journal*
(F.)	*Fletcher's List*
Finley's Rept.	*Finley's Reports on the Characters of 600 Tornadoes*
(Fr)	France
frgs	frogs
Ga.	Georgia
Gelat	Gelatin
Gents Mag	*Gentleman's Magazine*
Geog Mag	*Geological Magazine*
h	hours
Inf conjunction	Inferious conjunction
Intro to Met	*Introduction to Meteorology*
(It)	Italy
J. F. Inst.	*Journal of the Franklin Institute*
Jour Asiatic Soc Bengal	*Journal of the Asiatic Society of Bengal*
Jour des Deb.	*Journal des Debats*
Jour Soc	*Journal of the Society for Psychical Research*
K. Hauser	Kaspar Hauser
La	Louisiana
Lat	Latitude
L. Institut	[?]
Loc mets	Locus [?] of meteors
Long	Longitude
L.T.	London *Times*
Lum obj	Luminous object
m	minutes
mag	magnitude
Mag. Nat. Hist.	*Magazine of Natural History*
Mag of Pop Sci	*Magazine of Popular Science*
Mechanics Mag	*Mechanics Magazine*
Met	Meteor
Metite	Meteorite
Miss.	Mississippi
Mo	Missouri
M. Post	London [?] *Morning Post*
Mts	Mountains
M.W.R.	*Monthly Weather Review*
N	North
N and Q	*Notes and Queries*
N. Eng.	New England
Niles Nat. Register	*Niles' National Register*
N.J.	New Jersey
Nor Car	North Carolina
N.S.	New Series
n.w.	northwest
N.Y.	New York
Op Mars	Opposition of Mars
p.	page
(P)	[?]
Pa.	Pennsylvania
phe	phenomena
Phil Myst Agents	*Philosophy of Mysterious Agents*
Polt	Poltergeist
proc. Amer Phil. Soc	*Proceedings of the American Philosophical Society*
q	earthquake
Rec Sci	*Recreative Science*
Ref	Reference
Religio-Ph. J.	*Religio-Philosophical Journal*
Rept BA	*Report of the British Association for the Advancement of Science*
/// [Reverse Side]	probably not related
S.C.	South Carolina
Spon comb	Spontaneous combustion
"sub." sounds	subterranean sounds
s.w.	southwest
(T.)	[?]
Tenn.	Tennessee
Thompson, Met.	Thompson, *Introduction to Meteorology*
th. storm	thunderstorm
Trans. Geolog. Soc.	*Transactions of the [?] Geological Society*
Trans Merc	Transit of Mercury
Va	Virginia
(ver.)	[?]
vol	volume
Volc	Volcano
vs	versus
W	West
w. spout	waterspout
(YRD)	library call letters

(Continued from *Pursuit* No. 64)

[BCF: pp. 382-384:

At the meeting of the Royal Astronomical Society, Jan. 11, 1878, was read a paper W. F. Denning. It was by its implications one of the most exciting documents in history. The subject was: "Suspected repetitions in meteor-showers." Mr. Denning listed twenty-two radiants that lasted from three to four months each.

In the year 1799, Humboldt noticed that the paths of meteors, when parts of one display, led back to one point of common origin, or one point from which all the meteors had radiated. This is the radiant-point, or the radiant. When a radiant occurs under a constellation, the meteors are named relatively. In the extraordinary meteoric display of Nov. 13-14, 1833, there was a circumstance that was as extraordinary as the display itself: that, though this earth is supposed to rotate upon its axis, giving to the stars the appearance of revolving nightly, and supposed to revolve around the sun, so affecting the seeming motions of the stars, these meteors of November. 1833, began under the constellation Leo, and six hours later, though Leo had changed position in the sky, had changed with, and seemed still coming from, Leo.

There was no parallax along the great base line from Canada to Florida.

Then these meteors did come from Leo, or parallax,or absence of parallex, is meaningless.

The circumstance of precise position maintained under a moving constellation upon the night of Nov. 13-14, 1833, becomes insignificant relatively to Denning's data of such synchronization with a duration of months. When a radiant-point remains under Leo or Lyra, night after night, month after month, it is either that something is shifting it, without parallax, in exact coincidence with a doubly shifting constellation, which is so unthinkable that Denning says, "I cannot explain," or that the constellation is the radiant-point, in which case maintenance of precise position under it is unthinkable if it be far away —

That the stars are near.

Think of a ship, slowly sailing past a seacoast town, firing with smokeless powder, say. Shells from it burst before quite reaching the town, and all explosion-points are in line between the city and the ship, or are traceable to one such radiant. The bombardment continues. The ship moves slowly. Still all points of exploding shells are traceable to one point between the ship and the town. The bombardment goes on and goes on and goes on, and the ship is far from its first position. The point of exploding shells is still between the ship and the town. Wise men in the town say that the shells are not coming from the ship. They say this because formerly they had said that shells could not come from a ship. They reason: therefore shells are not coming from this ship. They are asked how, then, the point of explosion could so shift exactly in line with the moving ship. If there be a W. F. Denning among them, he will say, "I cannot explain." But the other wise men will be like Prof. Moulton, for instance. In his books, Prof. Moulton writes a great deal upon the subject of meteors, but he does not mention the meteors that, for months at a time, appear between observers and a shifting constellation.

There are other considerations. The shells are heard to explode. So then they explode near the town. But there is something the matter with that smokeless powder aboard ship: very feeble projectile-force, because also must the shells be exploding near the ship, or the radiant-point would not have the same background, as seen from different parts of the town. Then, in this town, inhabitants, provided they be not wise men, will conclude that, if the explosion-point is near the town, and is also near the ship, the ship is near the town —

Leo and Lyra and Andromeda — argosies that sail the sky and that bombard this earth — and that they are not far away. .

And some of us there may be who, instead of trying to speculate upon an unthinkable remoteness, will suffer a sensitiveness to proximity instead; enter a new revolt against a black encompassment that glitters with a light beyond, and wonder what exists in a brilliant environment not far away — and a new anguish for hyperaesthesia upon this earth: a suffocating consciousness of the pressure of the stars.

The Sicle of Leo, from which come the Leonids, gleams like a great question-mark in the sky.

The answer —

But God knows what the answer to anything is.

Perhaps it is that the stars are very close indeed.]

1833 Nov. 24 / Vesuvius in eruption / Mag. Nat Hist 7-292.

1833 Nov. 25 / Blansko, Moravia, Austria / (F).

1833 Nov. 25 / Presburg / Aue, Hungary / 3 stones / B A 49/2 / See for other mets of Hungary.

1833 Nov. 25 / (F.) / Metite / Blansko, Moravia /
For description, see Athenaeum, before 1833 Jan. 13, 1834. / See May 22, '08.

1833 end of Nov. / Fall of stones / Kandahar, Afghanistan / BA 60 /
[Reverse side] Ac to Arago, end of Ap., 1834.

1833 Dec / Formosa / II / [Medium quake / BA 1911].

1833 Dec 4 / Mexico / I / [Light quake / BA 1911].

1833 Dec 7 / Japan (Sado) / and sea waves / II / [Medium quake / BA 1911].

1833 Dec 11 / Exception fall mets / Parma / L.T., 1837, Jan 4/6/2.

1833 Dec 11 / Herefordshire / Fireball / BA 60.

1833 Dec 11 / Similar phe at Parma, to Dec 11, 1836 / Se [e].

1833 Dec 12 / Great meteor / Yucatan / C.R. 6-866 / [Reverse side] Told of in a book on a voyage to Yucatan. / So in Yucatan?

1833 Dec 14 / 3rd attack on K. Hauser.

[BCF, pp. 703-710 / See May, 1828.]

1833 Dec 18 [L.T.] 2-e / Chichester / mill blown down.

1833 Dec 27 or 28 / Stones at Volhynia, Russia / BA 60.

[BCF, pp. 202-203:

Haase had collected reports of twenty observations like Lescarbault's. The list was published in 1872, by Wolf. Also there are other instances like Gruthinsen's:

Amer. Jour. Sci., 2-28-446:

Report by Pastorff that he had seen twice in 1836, and once in 1837, two round spots of unequal size moving across the sun, changing position relatively to each other, and taking a different course, if not orbit, each time: that, in 1834, he had seen similar bodies pass six times across the disk of the sun, looking very much like Mercury in his transits.]

1834

1834 Jan 2 / Zeitz, Saxony / Stone fell, ac to Baumhauer.
[Reverse side] Ac to Chladni, only a piece of granite and mere newspaper humbug. / BA 60.

1834 Jan 22 / Peru / great q / [BA] '11.

1834 Jan 30 / Gainsborough / E to W. / Fireball / Ba 60.

1834 Feb 2 / During torrential rains, part of Mt. Telo Mojo, Java, sank, carrying houses.
[Reverse side] On Feb. 26, a volc outburst in Palambang. / L.T., July 4-2-c, 1834.

1834 Feb 2 - March 27 / (Polt) / Polt — bells in a hous[e] / Bealings, near Woodbridge, Suffolk /
[Reverse side] Jour Soc 9-27. R. Ac 3834/.

1834 / Polt / Woodbridge. N.J. / Rogers, Phil Myst Agents, p. 38.

1834 / The two Woodbridges.

1834 Feb 2 / Began door bell ringing in home of Major Edward Moor, F.R.S., at Great Bealings, described by [Reverse side] him in his book "Bealings Bells. Lasted 53 days. / See 1830//.

1834 / "Philosophy of Mysterious Agents," by E. C. Rogers (YRD) p. 38 / Town of Woodbridge, N.J., home of Mr. Joseph Barron — phe accompanying a *servant girl* ab 14 years old. At [Reverse side] first a loud thumping apparently against the side of the house after all to bed, and at intervals all night. Next evening, the girl passing a window, the house was jarred, the window broke with an explosive sound, and the girl was seized with a violent spasm.
[Second page] Sounds continued and with them the girl had spasms. Thumping ceased at daylight. Each night began a little earlier until at noon. Whatever room girl placed in, there were the
[Reverse side] thumping sounds — 5 or 6 in succession — an interval and then a succession. Girl seemed good health and the convulsions stopped. Some phe continued.

1834 Feb 4 / Upper Silesia / Fireball / BA 60 / = moon.

1834 Feb 12 / Lancaster, Pa. / Shock like explosion of a powder mill / BA 60.

1834 Feb 13 - 17 / Shocks / Italy / BA 60.

1834 Feb 20 / midday / Aurora / Westmoreland / L.T. 26-3-c.

1834 Mar 10/ Hirschberg, Silesia / det met / BA '60.

1834 Mar 27/ Great Bealings Bells stop.
[Reverse side] 27th last day of ringings.

1834 Ap 15 - 17 / Shocks / Italy / and loud explosive sounds / BA 60 / ab March 21 and May 2 - to Aug 2 /

[Reverse side] See Ap 15, 1835.

1834 early / At Kandahar, Afghanistan, fall of stones followed by dry fog which obscured the sun

[Reverse side] three days. / C.R. 3-51 / (See end of Nov., 1834.)

1834 Ap. 19 / Afghanistan / stones and obscuration / D-168 /
[Reverse side] Ac to a Baltimore newspaper of Ap. 19.

[BCF, p. 176:

Super-Sargasso Sea and the beaches of its floating islands from which, I think, or at least accept, pebbles have fallen:

Wolverhampton, England, June, 1860 — violent storm — fall of so many little black pepples that they were cleared away by shoveling (*La. Sci. Pour Tous*, 5-264); great number of small black stones that fell at Birmingham, England, August, 1858 — violent storm — said to be similar to some basalt a few leagues from Birmingham (*Rept. Brit. Assoc*., 1864-37); pebbles described as "common waterworn pebbles" that fell at Palestine, Texas, July 6, 1888 — "of a formation not found near Palestine".
(W. H. Perry, Sergeant, Signal Corps, *Monthly Weather Review*, July 1888); round, smooth pebbles at Kandahor, 1834 (*Am. J. Sci*., 1-26-161); "a number of stones of peculiar formation and shapes, unknown in this neighborhood, fell in a tornado at Hillsboro, Ill., May 18, 1883." (*Monthly Weather Review*, May, 1883.)]

1834 early in April / Shropshire / shock / L.T., April 14, 1836-5-e.

1834 May 3 / pollen? / 11:30 - 12 / Very heavy rainfall and sulphur so thick [Reverse side] that it was scraped off the pavements. / Mag. Nat Hist 7-304 / Rodelheim, near Frankfort.

1834 May 15 / Bunzlau / Meteor / BA 60.

1834 May 16 / In Tuscany / qs and "sub." sounds / See July 4. / BA 54 / See July 18, '31.

1834 May 16 / Shock in Tuscany — The evening before, magnetic perturbations
[Reverse side] had been observed at Parma.

1834 May 16 / Japan / q / II [Medium] / BA '11.

1834 May 16 or 17 / Bloodfish / India / D-43 / See May - 1833.

[BCF, pp. 41-44 / See August 13, 1819.]

1834 May 21 / 1:30 a.m. / det met / Hanley, Worcestshire / Mag. Nat. Hist 7-296.

1834 May 23 / Asia Minor / I [Light quake / BA 1911].

1834 May 23 / Dry fog / dry fog on Hartz Mts / 21 to 24, at Munster / 25th, at Orleans / Thompson, Intro to Met, p. 120 /
[Reverse side] In July and Aug — at Halle, Freiberg and Altenburg / 479.

1834 last of May and first of June / Dry fog / France / Cosmos 14/676.

1834 June 7 / Philadelphia / toward s.w. / 8 p.m. / brilliant white meteoric light
[Reverse side] reaching from zenith to horizon / BA 60.

(1834) / 1833 / June // (Fr.) / Jouy / fall of frogs / said that
[Reverse side] drops of water that fell with them not more numerous. / Magasin Pittoresque — 4/371.

1834 June / at Jouy, France / Letter from M. Huard to French Acad of Sci. read Oct 28 /
[Reverse side] shower of little toads, and received them on his umbrella / Leisure Hour 3-779 / quantity prodigious.

1834 June 9 / Banff / Pollen in rain / Thomson, Met., p. 151 / See June 9, 1879. ///
[Reverse side] 30851. / 0851.44.

1834 June 12 / Metite / (F) / Charwallas, 30 miles from Hissar, India / A. J. Sci. 2/11/36 /
[Reverse side] Edin N. P. J. 53/246.

1834 ab. June 8 / (June 12) // Metite / near Hissar / detonations heard 1/2 hour before it fell /
[Reverse side] Jour Asiatic Soc Bengal 3/413 / See Feb. 28, 1857.

1834 June 12 / (F) / Met stone / Hissar, India / Edin New P. J. 53/246 ///
[Reverse side) 18— / Sept. 8 / Met stones / Sandwich Islands / Edin new Phil Jour 40/204.

1834 June 18 / q. / Island of Cephalonia / (Greece?) / BA 54 / severe shocks.
1834 July 4 / 1:45 a.m. / See Oct 4. / Parma, Milan, Genoa, etc. / q / at Milan, a hissing in air / See May 16.

1834 July 4 / See Aug. 4, '35. / fireball / S. Herefordshire / BA '60. /
[Reverse side) 9:15 p.m. / '52/183.

1834 July 10 - 22 / q / III [Heavy] / China / BA '11.
1834 July 10 - 22 / or June 28 - July 19 // different authorities / III / China / [Heavy quake / BA 1911].

1834 July 12 / morning / Near Ripon, England, tremendous explosion heard and a fissure found in a field. /
[Reverse side] Gents Mag, N.S., 2/205.

1834 July 18 - 23 / Aug 23 - 25, 27 - 29 // Vesuvius / Arc. Sci 1835-272.

1834 July 25 / evening / Phe / J. F. Inst. 1834, vol 14 — 222 - 224.

1834 July 28 / (It) / [L.T.] 5-b / q / Piedmont.

1834 Aug 9 / Mussels / N.S. / M.W.R. 45/220 /
[Reverse side] L.T., Sept 30, 1834 / Some weighed 2 ounces.

1834 Aug 9 / Fell into the yard of the jail at Pittsburg, Pa.
[Reverse side) mussels, little frogs, and several stones. / L.T., Sept. 30, 1834.

1834 Aug 14 / 4:05 p.m. / Utica, N.Y. / Tornado / Finley's Rept.

1834 Aug 16 - 17 / midnight / Norway / shock and brilliant fireballs / BA 54 /
[Reverse side] At Snaasen, no shock felt, but western horizon seemed on fire. /
[Front side] On 23rd, 7 and 9 a.m., shocks at Ilvidsöe, Norway. / Sept. 3 — 8 p.m., severe shocks. /
[Reverse side] Night, Sept. 4 - 5, slight q., Hardanger, Norway.

1834 Aug 16 - 17 / Norway succession / q / Ilvidsöe, Norway / See Sept 3. / and met / On 23rd, 7 and 9 a.m., qs at Ilvidsöe.

1834 Aug 18 / Vesuvius began / and till 22nd / then 27 - 19, renewed violence. /
[Reverse side] Gents Mag. N.S., 2/420.

1834 Aug 27 - 29 / Vesuvius renews after subsiding. /
L. T., Sept 22-3-a.

1834 last of August / Vesuvius / preceded by drying of wells / A. J. Sci 28-199.

1834 Aug 24 / Vesuvius active and following days. / BA ' 54.

1834 Aug 26 - 30 / Vesuvius / Mag Nat Hist 8/130.

1834 Aug 26 / Padua / hail with gray powder in / Bib. Univ 57/391.

1834 Aug / Brick / Italy / (D-114) / 48.

[BCF, p. 119:

Pieces of "furnace-made brick" said to have fallen — in a hailstorm — at Padua, August, 1834. *(Edin. New Phil Jour.*, 19-87.) The writer offered an explanation that started another convention: that the fragments of brick had been knocked from buildings by the hailstones. But there is here a concomitant that will be disagreeable to anyone who may have been inclined to smile at the now digestible-enough notion that furnace-made bricks have fallen from the sky. It is that in some of the hailstones — two per cent of them — that were found with the pieces of brick, was a light grayish powder.]

1834 Aug 27 / Atmosphere at Chichester, etc., suffocating. / 7 to 8 p.m., thunder heard.
[Reverse side] "The appearance of the sunset was extraordinary." / BA 54 / Loud report and q. / See BA for Chichester year back. / q's and rains here.

1834 Aug 27 / Chichester / Aug 3, 1835 / metite, Herefordsh [ire] / Aug 4.

1834 Aug 27 / Whirlwind near Chichester / 3 hours later, a, (q) / Edin N P. J 31/121 / (Cut) /
[Reverse side] Rept BA, '54/247.

1834 Aug last / BO / L Institut, vol. 2 / Meeting of Fr. Acad., Oct 13, 1834, Col. Marmier, letter from him read — he was near a small village in department of Seine-et-Oise. A rain of innumerable little toads from
[Reverse side] a great cloud. /
[Second page] BO / Frgs / were innumerable. /
letter from M. Huard, frgs of Jouy — saw them fall and caught on his umbrella / Even M. Gayet not clear that tadpoles as that frgs not yet fully developed.
[Reverse side] Says that most of them had the posterior part elongated into a tail; that is to say, in the tadpole state.

1834 Sept 3 / Norway / ab. 8 p.m. / See Aug 16 - 17 / Shocks and w. horizon
[Reverse side] "seemed to be all on fire and constantly lit up by lightning. / BA 54.

1834 Sept 16 / hot wind / 11 p.m. / "A sudden gust of hot wind from the east, fierce as if from
[Reverse side] a furnace," at Dublin, blowing in gusts for a minute, Ab. 2 hours later, it appeared at Carnarvon, from the n.w. /
[Front side] Mag Nat Hist 8-28.

1834 Sept 18 / Violent whirlwind at Breadlow, Bucks / L.T. 22-3-a.

1834 Sept 20 - 21 / night / Hurricane / Dominica / L.T. Nov 11-1-e.

1834 Sept 21 / 11:20 a.m. / (BA 54) / Another shock at Chichester — had been extraordinary and unseasonable, hot weather. See whole
[Reverse side] series of Chichester and heat.

1834 Sept 29 / 7:15 p.m. / S. Herefordshire / Met / BA 52/184.

1834 Sept. 28 - Oct 1 / Spalding — 28th, "very small, black flies" / 29, 30, Oct. 1, at
[Reverse side] Colchester and Chelmsford (Essex Standard) / 29th, Halifax and York / also in Devonshire, a column 3/4 miles long /
[Front side] Mag Nat Hist 7-611.

1834 Oct or Nov / Lum obj / Oswego, N.Y. / See Lum objs.

1834 Oct 4 / 8 p.m. / Parma, etc. / violent shock / loud hissing sound / BA '54 / See July 4.

1834 Oct 4 / Italy / (Bologna) / I / [Light quake / BA 1911].

1834 Oct 6 / 3 and 7 a.m. / Carthagena, Spain. / Later in same day, a tremendous
[Reverse side] th. storm. / BA 54.

1834 Oct / Ref to Fr Acad and frgs = vols of L'Institut 2, 4, 6.

1834 Oct. 13 / frgs / Case recorded by Col. Maunier / not said where / Rec Sci 3-333 /
[Reverse side] See Leisure Hour 3/779.

1834 Oct 15, 16, 17 / in N.N.E. Hungary / It had rained only 3 times since May. Then
[Reverse side] came "dreadful weather, followed by violent shocks. / BA 54.

1834 Oct 17 / Burlington Sentinel / nothing.

1834 Oct 17 / Intense darkness / Quebec / Niles National Register 57/192.

1834 Oct 17 / Darkness and black rain / Montreal / supposed from forest fires / Mag Nat Hist 8-137.

1834 Oct 20 / Meeting of this date by French Acad Sci., M. Peltier told of great shower of small toads that
[Reverse side] he had witnessed and felt, years bef[ore] at Ham (Somme). Leisure Hour 3/779 / felt them hit his hand.

1834 Oct 23 / at Dieppe / in the hurricane / "Many North American birds." / Mag Nat Hist.8-23.

1834 Oct 28 / (+) /(Tadpoles) / M. Gayet tells of meeting of French Acad Sci of [Oct 28] that in summer of 1794
[Reverse side] he had seen shower of little toads, many still in tadpole state.

1834 Nov 3 / (P) / (Cut) / Shaft of light in evening sky — Liverpool / Mechanics Mag 22/128.

1834 Nov 3 / ab. 8 p.m. / at Liverpool / A band of light from a point near the
[Reverse side] western horizon to a point near Jupiter ab 20 degrees above eastern horizon. / L.T., Nov 7-3-a.

1834 Nov 12 / See Quads, Jan. 2.

1834 Nov 12 / (Nov) / (volc) / 2 p.m. / s.e. China / Air suddenly darkened and so continued on 13th. / Mag Nat Hist. 8-422 /
[Reverse side] A dim light, and air appeared to be full of "smoke without smell". 4 p.m. — a brown dust without smell, of a salt taste — no known volcano.

1834 Nov. 12 and 13 / A thick shower of ashes fell near Tsourou Koitou,
[Reverse side] "on the frontiers between Russia and China". / Tasmanian Journal 1-327.

1834 Nov 12 / See this and following vols. A. J. Sci. / Prof.Olmstead to support his
[Reverse side] theory gives instances of Leonids this year.

1834 Nov 12 - 13 / Nothing unusual reported from N. Eng., N.Y., Nor Car. S. Car., Florida, La, Mo, etc. / A. J. Sci 28-307/
[Reverse side] And yet Prof. Olmstead at New Haven, and Mr. Twing in N.Y., reported them from 1 a.m. till daybreak.

1834 Dec 15, 16 / Marsala and Palermo ab 50 miles apart.

1834 Dec 15 or 10 / Many stones / night / Marsala, Sicily / BA 60.

[1834 Dec] / BO / "At Marsala, on the southern coast of Sicily, on a serene day, there appeared in the sky a small black cloud, which
[Reverse side] gradually extended itself

at last disgorged itself in a shower of stones, which broke the slates and roofs of the house." / Niles Register, Aug 8, 1835.

1834 Dec 16 / voc and substance / 4 a.m. / Hurricane / an immense shower of yellow hailstones / Mag. Nat Hist 8/143 /
[Reverse side] At Palermo.

1834 Dec 17 / Neuhaus, Bohemia / Stones, ac to Boguslawski / BA 60.

1834 Dec 21 / — 3 h / Venus Inf Conj Sun / (A 1).

1835

1835 about / The Bell witch (Bell family) / Robertson Co., Alabama / Religio-Ph. J., Oct 9-1-2, 1875.

1835, etc. / Haunted hous[e] of Wellington, Tyneside / Jour Soc 5-331 /
[Reverse side] See June, 1840.

1835 / Halley's Comet / Letter received by Littrow (director of Observatory of Vienna) from Sir John Herschell
[Reverse side] that Halley's Comet, positively expected in August, would not be visible because it had long changed its orbit. / L.T., Ap.23-3-d.

1835 Jan, early in / Vesuvius / An Reg.'35-1.

1835 Jan 2 / Op Mars / (A 1).

1835 Jan 2 / Extraordinary display of mets at Mornez, near Geneva. / Proc. Amer Phil. Soc 13-501.

1835 Jan 6 / Great q. / Mexico / BA '11.

1835 Jan 6 / Mexico / III / [Great quake / BA 1911].

1835 Jan 12 / Breslau / Fireball / Ba 60.

1835 Jan 13 / (ver)/ Ferriginous sand at Lobau, Saxony / Cr 3-77.

1835 Jan 13 / Meteoric dust / Lobau, Saxony / L'Astro 2/84 / following explosion of bolide.

1835 Jan 13 / Berlin / Fireball / Ba 60.

1835 Jan 18 / Lobau / 4:30 p.m. / A "curious account" in 10th Sup to Chadlini — in Poggendorf's Annalen, vol. 4. / D-68.

BCF, p. 70:

Fall of small, friable, vesicular masses, from size of a pea to size of a walnut, at Lobau, Jan. 18, 1835 *(Rept. Brit. Assoc.* 1860-85).]

1835 Jan 19 / [L.T.] 7-a / Vesuvius.

1835 Jan 19 / Great volcanic eruption / w. coast Central America. / Mag of Pop Sci 2/284 ///
[Reverse side] 20 / 271.

1835 Jan 19 - 23 / at Cousequina/13N and 87W. / Great eruption / Mag Pop. Sci 2-287/
[Reverse side] Said that the ashes reached as far as Chiapa in the north — "upwards of 400 leagues to the windward of the volcano, thus proving the existence of a counter current of wind in the higher regions of the atmosphere."
[Front side] There were deluges of rain. "At this season such a n occurrence was extraordinary and almost unprecedented in Central America.

1835 Jan 20 / Eruption of Cousequina Mexico. After that the same brilliant sunsets and sunrises
[Reverse side] as those attrib to Krakatoa. / Houston, Volcs and Earthquakes, p. 93.

1835 Jan 20 / Volc. / Cent Amer / Column in L.T., *June* 30-6-a.

1835 Jan 30 / Great q. Chili / and extreme volcanic phe / Mag of Pop Sci 2/278.

1835 Jan 20 / The volc / The shower of dust lasted till the 27th. / Arc of Sci 1836-261.

1835 Jan 20, etc. / Volc / Nicaragua / A.J. Sci 28-332 (good).

1835 Jan 20 / Three volcs burst out simultaneously in the Andes, ac to Darwin (Trans. Geolog.
[Reverse side] Soc., March, 1838). / Osorno, Lat 40S / Concagus, 32S / Cousequina Lat 13N / Os and Cos are 3700 miles apart.

1835 Jan 20 - 23 / Violent shocks / Honduras / BA 1911-50.

1835 Jan 22 - 23 / (T.) / night / L.T. Ap. 16-3-d / Letters from Belize. Supposed great volc eruption somewhere in Cent Amer. Sounds like gunfire heard and it was supposed that a vessel was in distress. Not known
[Reverse side] up to Feb. 13 where it was. So like gunfire that guns at fort in Belize fired in answer to the supposed ship. Boats were sent off to find the ship. On 24th a vessel came in reporting the fall of ashes of Truxillo.
[Second page] In Guatemala the sounds heard and thought gunfire and the troops ordered under arms. This second cor had heard that the volc was at San Salvador, ab 90 miles from Belize.
[Reverse side] Evidently no sand fell at Belize. // L.T., May 5-3 / Eruptions, one at San Salvador and one near Belize (doubtful? I say.) One near Truxillo.

1835 Jan 23 / (Loc mets) / At Bogota, from 1 to 8 a.m., sounds of meteors. Meteors and the sounds were like firing of artillery and musketry.

1835 Jan 23 / Said that the sounds were "produced by the bursting of meteors in the sky". Not said were seen. / Niles Register, May 16, 1835.

1835 Jan 23 - 26 /(+)/ (volc dust vs trade wind elsewhere) / Volcanoes in Central America. Dust fell 800 or 900 miles away. / Mag Nat Hist 8-428 /
[Reverse side] But "the dust falling at Jamaica was supposed there to come from the eastward." Writer thinks was carried far beyond Jamaica "and also far above the trade wind, and then falling to and carried back by the trade wind.

1835 Jan 24 - 25 / Sky obscured and ashes falling in Jamaica from volc of 19th. / Mag Pop. Sci 2-287.

1835 [Jan] / Chili / Ac to M. Domeiko, of the University of Santiago, the volcanoes of Chile showed no perturbations.
[Reverse side] There was some activity at the time. M. D was at Llanquihue and it smoked with neither increase nor decrease. / The Student 4-147.

1835 Jan 23 / Quito, Equador / noises in sky / 7 hours / BA '60 /
[Reverse side] 1200 miles from the volcano.

1835 Jan. 29 / Wallachia / Stones that burned like coals / An. Reg 1835/338.

1835 Feb 6 / q. / Tuscany, Italy / BA 60.

1835 Feb 6 / Parma / Fireball / BA '11.

1835 Feb 8 / 16 qs / Tuscany places of / See Ap 15 - 17, 1834. / On 24th, at
[Reverse side] Palermo, "flashes of lightning darted for a particular group of clouds" during shocks. / BA 54.

1835 Feb 9 / See May 19, 1806. / at 0 57' S and 25 39' W. / Vessel has a sharp shock as if struck reef.

1835 Feb 12 / Ship — severe q. / 10 h, 15 m / Lat 18°, 47 m N. / Long 61 22 m W / L.T., March 28 /
[Reverse side] Lasted ab. a minute but no uncommon ripple on the calm water.

1835 Feb 15 / Violent th. storms, destroying churches in Yorkshire and in Germany.
[Reverse side] Also th storms on 21st and 22nd. / Mag Nat Hist 8-428.

1835 Feb 20 / 11:30 a.m. / Great q. Chile / 2 eruptions of dense smoke from
[Reverse side] the sea. Q followed by rain and windstorms. / BA 54.

1835 Feb 20 / 11:30 a.m. / q — Chile / Tidal wave rolled in 28 feet above high water mark.
[Reverse side] 2 eruptions of smoke from the sea. / BA 54.

1835 Feb 20 to March 4 / 300 shocks, all over Chile / Geog Mag 4-207.

1835 Feb 20 / 11:30 a.m. / Chile / q / Message from town of Concepcion — "This town has ceased to exist. Sea rose 33 feet, landed a vessel in the town square. / L.T., July 6-2-d.

1835 Feb 20 to March 6, and on 17th/ 11 a.m. / q. / Chile / A. J. Sci 28-336 / Attrib to a volc in Lat 36 and 30 leagues from a coast. / sea wave 30 feet.

1835 Feb 24 / See Feb 8.

1835 Feb 26 / Columbia, Haiti, Venuzuela / III / [Great quake / BA 1911].

1835 March 13, etc. / Vesuvius / Arcana of Science 1836-259 /
[Reverse side] etc. in L. *Times*, Ap 8-4-f.

1835 March 22 / At Fortress Troizkosaffsk, Russian and Prussian frontier, 9 p.m. "a remarkable
[Reverse side] meteoric appearance and noise". / BA 60.

1835 March 23 / Cuneo, Italy / q / I [Light] / BA 60.

1835 March 23 / 2:07 a.m., severe shocks / 4:23 a.m. — "Flashes of lightning darted from a particular group
[Reverse side] of clouds — and 3 other shocks. / B.A., '54.

1835 Ap. 1 / Vesuvius / violent after long quiet / BA 54.

1835 Ap. 2 / Vesuvius / violent eruption / A. J. Sci 28-340.

1835 Ap. 9 / Lat. 7N. and Long 99W. / Vessel sailed 50 miles through thinly scattered pumice stones. / Niles Register 51-66.

1835 Ap 14/Pribilof Islands, Bering Sea / III / [Heavy quake / BA 1911].

1835 Ap 15 / Slight shocks, Borgotaro, Tuscany, place of Ap 15, 1834.
[Reverse side] On 20th 2 p.m., severe shock and detonations. / BA 54.

1835 Ap.21 / Russia, Bessarabia, Bucharest / I / [Light quake / BA 1911].

1835 Ap. 25 / 3:45 a.m. / Borgotaro./ Another shock and "very intense noise". / BA 54 /
[Reverse side] On Aug 1, sound heard here.

1835 May / Edinburgh / Polt / "Footfalls, p. 253.

1835 May / Cacciatore's planet / Nature 18-261.

1835 May 11 and 14 / Cacciatore's planet / C.R. 9/141, 424.
[Reverse side] Details / See Nature 18/261.

[BCF, pp. 412-413 / See July 31, 1826.]

1835 May 13 / Sumter District, S.C. / Tornado / Finley's Rept.

1835 May14 / afternoon / Macon, Georgia / Tornado / Finley's Rept.

1835 June 13 / Konigsberg / Fireball / BA 60.

1835 June 15 / 12:29 a.m. // June 17 / 12:29 a.m. //June20/ exact time not given /// loud detonations
[Reverse side] and slight shocks / Majorica / An Reg '35-94.

1835 June 19 / Waterspout / New Brunswick / A.J. Sci 36-115 / 5:30p.m.

1835 June 19 / 4 p.m. / Tornado / Finley's Rept.

1835 June 19 / 5:12 p.m. / New Brunswick, N.J. / Tornado / Finley's Rept /
[Reverse side] Tornad[o] and w. spout.

1835 July 16 / 22 h / Mercury / Inf conjunction sun / (A 1).

1835 July 17 / Milan and Wirtemberg / 8:30 p.m. / S.E. to N.W. /detonating meteor /
[Reverse side] exploded over Wirtenberg / seen at Stutgardt and other places / no stones mentioned / BA 60.

1835 July 18 / Aarhus and Berlin / Fireball / BA 60.

1835 July 20 / Russia / I / [Light quake / BA 1911].

1835 July 30 or 31 or Aug. 1./ 2:30 p.m. / Dickson Co. Tenn. / Loud detonations / iron found later / BA 60-75.

1835 July 31 or Aug. 1 / Met iron / Charlotte, Dickson Co, Tenn. / (on other notes) "F" = Fletcher's Intro to Study of Mets.

[BCF, p. 381 / See 1827//.]

1835 Aug. 3 / Chichester / bet. 11 - 12 p.m. / 2 shocks / L.T., Aug 11, 1835.

(To be continued)

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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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