



PURSUIT[®]

"SCIENCE IS THE PURSUIT OF THE UNEXPLAINED"

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SOCIETY FOR THE INVESTIGATION OF THE UNEXPLAINED

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Vol. 7, No. 4
October, 1974

PURSUIT[®]

THE JOURNAL OF THE SOCIETY FOR THE
INVESTIGATION OF THE UNEXPLAINED

FOUNDED BY IVAN T. SANDERSON

DEVOTED TO THE INVESTIGATION OF "THINGS"
THAT ARE CUSTOMARILY DISCOUNTED

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FORTEAN PHENOMENA AND 'SEPARATE' REALITIES

Prelude: This 'editorial' is written in response to the stimulating discussion of Fortean vs Orthodox Science presented by Robert J. Durant in the April 1974 issue of Pursuit.

Fortean phenomena are those which, to a greater or lesser extent, contradict our view of the world. In some cases the contradiction is more apparent than real (as in 'The Continuous Roll', PURSUIT, April 1974, p. 35), and close examination dispels it. In other cases, our view of reality can be altered to include the newly discovered occurrence, as in the continuing discovery of unexpected nuclear particles. Yet there is a remaining category of hard-core phenomena, such as UFOs, ABSMs, fire-walking and the like which in every characteristic, from their occurrence to their continued avoidance of explanation, violate our concept of what should occur, and for which every explanation appears far-fetched and unsatisfying. This category of events actually occupies much of the space in Pursuit, and, as the number of well documented reports increases, it has become the time to enquire if there is something inherent in our view of the world which prevents us from seeing the explanation.

How is our view of reality determined? On a personal basis, as we grow up our minds are trained to see the world as our parents and their contemporaries see it — they in turn see the world largely as their parents saw it, and so on in an historically developed world view, whose contributions include Galileo, Newton, Maxwell, Einstein, etc., commonly called 'scientific positivism'. For those raised in this tradition reality is known through scientific observation, the world 'works' according to certain scientific laws, and we know pretty well how the world is. Confidence in this position is strengthened as bridges are built, refrigerators work, and one's perceptions almost always validate it — except for fortean phenomena.

Yet evidence is starting to surface that this entire superstructure of perceiving the world is but one of many that can be erected — and all work, according to the needs and desires of the particular time and place. In these separate realities the world is completely different, and what is impossible in one reality is commonplace and accepted in another. A few examples can be given; for a more detailed view, some references are noted at the end.

The aborigine child undergoes a brutal experience after which, if he survives, his view of the world is completely changed. His new reality finds him intimately connected to all things via his Gods — the 'Two Brothers'. Naive and fanciful? In this reality the aborigine can run, in a slow loping fashion, twenty miles straight over a high ridge to intercept a rare rainfall, undetectable by any ordinary means

from his point of departure; he can also perform many other feats 'impossible' in our view of the world. His reality works, in that the world view produces required results, just as ours produces electricity. The aborigines' name for men from our reality? — the 'unreal men'.

Carlos Castaneda, in his now famous books, described his experiences in learning to 'see' the 'other reality' of the Mexican sorcerers — and he finally did. In this new reality cars and the world as we know it do not exist — but other 'powers' do, and once again events impossible to us become routine and accepted. Fire walkers in Ceylon and elsewhere are in a reality in which fire does not burn—no matter how inconceivable this may appear to us. The followers of Jesus could see the results of 'his way' of looking at the world — and thus 'miracles' (to us) occurred.

The point to be emphasized from all this is that reality does not exist apriori — it is invented and shaped, and is malleable to the extent that it can support different, even contradictory realities quite nicely. This may make the world seem frighteningly unsubstantial, with the terror of madness and chaos as the only alternative to our secure world view. Yet perhaps things are not that bad; all these realities appear to have one thing in common—they are the product of thousands of years of looking at the world in a certain way, and thus have at least an historical substance built by the power of continual thought. The 'hard core' fortean phenomena may themselves be the products of certain realities with such history — if so they will not be amenable to being explained in terms of our reality, in terms of our parochial world view.

The explanation of UFOs, ABSMs and the like, if in fact products of other realities will not come easily, but the work required is not necessarily that of collecting and categorizing observations. All that is just necessary to call attention to the real effort required—overcoming the fixation, the psychological dependence, which forces us to look for 'scientific explanations', but in some cases it may never catch up, for the phenomena lie outside the reality in which science pursues. Carlos Castaneda needed help to see another reality; perhaps fortean phenomena in general and SITU specifically—albeit unwittingly—will lead our reality to accept others, and thus allow the unexplained to contact us. For it is belief which makes a reality work and once we believe in other realities they will become a part of ours and we will be satisfied, and our consciousness expanded.

There are a number of ramifications not yet touched upon in this article. The primary one is this: how is it possible to see anything of another reality if our perceptions are governed by our own? The answer

seems to me to be this: the first people to see these things are people who have already been alienated from their own reality for one reason or another. The first (biblical) people to see UFOs were "prophets" who had a stake in attacking society. The first 'miracles' Jesus performed were in front of his disciples, who were not the staunch torchbearers of reality, but outcasts. Once word got around, everybody started seeing them because, through rumor, they had entered the mass reality. The one place Jesus could not (or at any rate did not) perform 'miracles' was in front of the court, before people who had a stake in not seeing them, in keeping to their own reality. The history of UFOs in the modern era has probably also worked that way—first it was the 'fringe outcasts' who saw them, and UFOs entered our reality in the position of something to be disbelieved. Once word got around, more people saw them, this time people more centered in our reality because UFOs were gradually becoming part of it. Now 'respectable' people see them. Thus the criticism directed at people who encounter fortean phenomena is correct—they are 'nuts' or at least people not fully centered in our reality—but this allows them a degree of freedom to see other realities.

References

For a discussion of reality building and various other realities: Joseph Clinton Pearce, The Crack in the Cosmic Egg, Julian Press, Inc., New York, 1971.

For a detailed discussion of one specific reality: Carlos Castaneda, The Teachings of Don Juan: a Yacui Way of Knowledge, University of California Press, 1968; A Separate Reality, Simon and Schuster, Inc. New York, 1971; and Journey to Ixtlan, Simon and Schuster, Inc. New York, 1972.

For a reality to which many aspire but few have the courage to drop their world view to enter in ('ye must first become as little children before ye can enter the kingdom of heaven') may I suggest the Old and New Testament.

David Rind

(Editor's Note: Though the view expressed here is not strictly within the general approach espoused by our Society, the philosophical problem posed by the author deserves a hearing.)

EVOLUTION OF THE FORTEAN SOURCEBOOKS

by William R. Corliss

Hopefully, most readers of Pursuit are already familiar with STRANGE PHENOMENA and the other Fortean sourcebooks I have published recently. I term these sourcebooks "Fortean" because in many ways they are extensions of Fort's work. They differ from Fort's books in that the original sources are usually reprinted completely and are categorized and indexed. Thus, although they lack Fort's humor and philosophy, the sourcebooks should be better research tools.

The Fortean sourcebooks espouse no cause; there are no attempts to prove the existence of UFOs, ancient astronauts, the Biblical Deluge, sea monsters, or anything else. One might think this would make the sourcebooks dull reading, but I believe the contrary is true. The original accounts of atmospheric phenomena, geological conundrums, and the discoveries of inexplicable artifacts of ancient man are intrinsically exciting because the eyewitnesses were often astounded or at least highly intrigued by what they saw.

The Making of a Fortean

For all these comparisons with Fort's efforts, it is rather ironical that my own Fortean proclivities

(and therefore the sourcebooks themselves) did not begin with Charles Fort. Rather, the American geologist George McCree Price was the initial stimulus. One day in 1951, while browsing through a table of second-hand books in Berkeley, California, I came upon his Evolutionary Geology and the New Catastrophism. This was my first encounter with "outlaw science"; that is, systematic investigations that are ignored or rejected out of hand by organized science of the moment. Price had collected many facts that he claimed undermined conventional geology and supported catastrophic hypotheses such as the Biblical Deluge. Price and his small following worked contrary to the geological and biological philosophies set in motion by Lyell and Darwin.

Once my mind was adjusted to the heresy of it all, I quickly discovered the Crehore atom, the Drayson theory, and finally, in 1953, on a bookshelf at the University of Colorado library, the works of Charles Fort. It was all rather fortuitous. One has to be in the right place at the right time, because theories contrary to prevailing dogma rarely hit the mainstream of literature. It has always been this way—it is human nature—and it does not annoy me nearly as much as it does most Forteans. I believe that inertia and skepticism play important roles in science. Furthermore, it

has been my experience that Forteans have sacred cows,] too.

The foregoing aside has a purpose, for it betrays the fact that the sourcebooks have a different genesis than most Fortean literature.

To continue with the account of my discovery of the Fortean world, which I suspect is similar in emotional impact to that experienced by initiates in Rosicrucianism, Atlantism, etc.; I will testify that my first contacts with Fort were identical in psychic content to my first heady encounters with idealized Baconian science. It took but a short while for me to realize that honest science and honest Forteanism are one and the same.

Should not the true Fortean, who dogmatically warns Science that its dogmas will be replaced ultimately, also admit that even Forteanism may be but an ephemeral vision? Perhaps Forteanism's "suspended judgment" is a poor way to approach the real world. Dedication and conviction of individuals may play important roles in the way things work. To illustrate, Tennyson had the wounded Arthur say: "More things are wrought by prayer than this world dreams of."

Such were my thoughts as I began to accumulate books and papers on the borderland of science during the 1960s. It was a Fortean collection in many respects, but it should be obvious by now that I cannot subscribe to the Fortean approach as the final solution. My collecting made a fine avocation, but I was led to the conclusion that something "different" had to be done if any of the enigmas being regurgitated ad nauseum in the literature were ever to be understood. Almost everything, particularly the books, in my collection advocated one hypothesis or another. Many were the syntheses of carefully collected data. Each author saw the universe through his own particular set of glasses. It all made good reading but it was not getting us anywhere fast.

Setting Some Goals

Over and above all of the isms and dogmas are the data—the supreme arbiters, the facts that do not fit prevailing theories. The data is there all right. If there is one thing Fort did not get across well, it was an appreciation of the true extent of the anomalous data, the great bulk of which still ticks away like a time bomb amidst dusty library shelves. Fortean data may represent only 0.001% of all nonfictional literature, but summed over the centuries this is still a great deal. My experience has been that Fort merely skimmed off some of the cream and not all of that either. Not only is the foreign literature largely untapped, but little has been done with the last 50 years of anomalies excepting for extensive files of newspaper clippings dealing mainly with UFOs and monsters. Truly revolutionary data that Fort never imagined may come from radio astronomy, the cell nucleus, and the offices of psychologists.

By 1972 I had decided that three things must be done if Fort's work was not to be in vain (I'm sure he didn't care if it was in vain or not):

1. The scope of the Fortean approach had to be broadened to include all areas of knowledge, in particular the life sciences.
2. The scientific community must be brought in, for only scientists are likely to come up with more answers than questions.
3. The older Fortean data had to be rescued quickly and organized into useful form for it was suffering attrition in the libraries. In addition, the post-Fort data (the last 50 years) had to be collected. (Due to the exponential growth of the literature, the last 50 years of Fortean data may far exceed all previous data, even though it is of lower concentration.)

Items 2 and 3 deserve some elaboration. One of my contentions is that Forteans by themselves may stimulate but cannot by themselves carry through scientific revolutions. Even individuals such as Velikovsky, van Daniken, and Wilhelm Reich have barely perturbed Science. I do not want to imply that the three gentlemen just mentioned are Forteans. Indeed, their advocacy makes them distinctly anti-Fortean. I merely wish to point out that even exciting hypotheses backed by some data will make little impression. Such challenges from without may even be counterproductive.

The third item in the list was stimulated by my observations in several large library systems. All data, particularly those from the Nineteenth Century and earlier, are sinking rapidly out of sight. Not that the data are being destroyed outright, as were the writings in the Library of Alexandria and the temples of pre-Columbian America. They are just becoming unavailable. Libraries are increasingly expensive to operate, and the older books and journals are too expensive to place in modern information retrieval systems. In some libraries, books more than 10 years old are sold or stored somewhere where they are not available to the casual researcher. Soon, I am afraid, the only readily available data will be those that conventional wisdom has deemed worthy of indexing, cataloging, and computerizing. Is this not as effective as fire?

The Sourcebook Idea

With the objectives presented above and the constraint that anything I did had to be financially self-sufficient, I could have done several useful things with the material at hand and in the large libraries within 75 miles of my office. Fortean data could have been collected and manipulated to create one or more of the following:

1. A comprehensive Fortean encyclopedia
2. A series of books written in a philosophical, stream-of-consciousness style, taking up where Fort left off
3. A large annotated bibliography
4. Regurgitations of the data in popular books
5. A Fortean handbook, organized by category rather than alphabetically, as in the encyclopedia approach
6. Sourcebooks that reproduced, organized, and indexed the essential Fortean literature.

I immediately eliminated possibilities 2 and 4 on the basis that they would be unlikely to influence the scientific community. The annotated bibliography held promise but was discarded because it would not provide researchers with raw material but only with annotations based on my personal prejudices. The encyclopedia idea was especially intriguing for I worked on McGraw-Hill's Encyclopedia of Science and Technology for many years. But who would provide the authoritative articles—on mistpuffers, say? In addition, a comprehensive encyclopedia would entail many volumes and would present a risky investment for a publisher. The handbook was discarded for identical reasons. (I believe that some day a handbook and/or encyclopedia of Forteana will be

economically viable.) This process of elimination left me with the sourcebook approach.

It was a good choice. It was financially acceptable because I could start with a limited field, such as geophysics, and, with the ring-binder and categorized format, take a modest bite of that field. With some modicum of market success, additional volumes could be published and combined category-by-category with preceding material. Since most sourcebook material came from scientifically reputable sources, scientists could not object strenuously no matter how anomalous the data. (As it turned out, both Nature and Science recommended Strange Phenomena highly.) Perhaps most important of all, the sourcebook approach rescues and preserves those tidbits that Fort considered forever "damned".

The relatively favorable reception of Strange Phenomena across the entire spectrum from serious science to the occult suggests that Fortean data may not be damned forever. I hope that the sourcebooks will be a common denominator. In any event, the sourcebooks are fun to research and produce. And if I read Fort correctly, he enjoyed his researches, too. In fact, I am coming to believe that if you take Fort, the sourcebooks, or even organized science too seriously, their real import may vanish into thin air like the UFO and Loch Ness monster.

CHAOS AND CONFUSION

TERMITES AND 'ITF'

In his book "Things", Ivan T. Sanderson recounted evidence of ITF (instant transference) or "teleportation" among the Atta (leaf-cutter) ants. In completely re-organizing the biology files, we have come across a reference to nearly identical 'goings-on' among termites. This is an unidentified and undated newspaper clipping, apparently part of a regular column, and probably British (possibly South African).

[Teleportation (Charles Fort's term) or ITF (Ivan Sanderson's) is the instantaneous transport of a solid body, whether animal, vegetable, or mineral, from one site to another, ordinarily "through" equally solid barriers. In earlier issues of Pursuit we have recorded several cases of apparent ITF in animals, e.g. pets that escape from escape-proof cages without unfastening the door or finding a hole to crawl through.]

Deleting extraneous matter, the clipping we found reads as follows:

"The queen is originally one of what we call flying ants. She must fly, even if it is only an inch, before she can reproduce. But when she has flown, and discarded her wings in a flash, queen and king begin to build a home which out in the veld [of South Africa] becomes an ant heap.

"Eventually the thousands of termite children

build her a palace, a hollowed-out cell in which, while her head stays the same size, her body grows bigger and bigger each year. She cannot move it.

"When she is getting too big for the palace, the termites build another one next door, half as big again.

"Mystery: 1, The queen cannot move; 2, The doors of the cell are far too small for her to pass through; 3, She is too gigantic for the insects to lift her BUT she vanishes from one cell and reappears in the new one.

"In case it wasn't the same queen, scientists have marked them and there is no room for doubt...."

The source of this account is given as Eugene Marais' book The Soul of the White Ant.

Now, quoting from "Things":

"To protect the (Atta) queen (an enormous creature that does nothing but eat and lay eggs), the workers build a chamber of concrete so hard that a heavy pick is necessary to crack it open. This chamber completely fences her in and has only a number of small ports around its lower level for feeders to come in and go out at the front of her, excrement-removers to come in and go out at the end, and nurses to get in and out along the sides to remove eggs. These royal chambers are often as big as coconuts, though flattened and a bit elongated, and their walls may be

about three inches thick. The approaches to them, in some cities at least, are also concrete.

"Now here is the problem.

"It has been observed that, if you do get to a queen-chamber, and very carefully slice a side off it, you may observe the tightfitting insect within and can mark it carefully with a squirt of dye. As long as the chamber is left open, or resealed only by a piece of glass, nothing happens. Often the queen dies or is taken apart by the workers. Sometimes she just goes on egg-laying—dye and all. However, if you cover her up even for a few minutes, something happens. She vanishes.

"This could well be explained, and was originally thought to have been so and adequately, by the notion that her workers killed her and removed the remains. But don't forget the dye, which was in some cases sprayed on in very complex patterns.

"Further digging in some cities within hours brought to light, to the dumbfoundment of everybody, apparently the same queen, all duly dyed with intricate identifying marks, dozens of feet away in another super-concrete-hard cell, happily eating, excreting, and producing eggs! This has been observed time and time again."

Work on the Atta ants was done by Dr. D. C. Geijskes in Surinam where they are a serious agricultural pest (as elsewhere!) Ivan and Alma Sanderson assisted in this work for a time, and it was directly from Dr. Geijskes that this 'horror story' was obtained.

Termites, popularly called white ants or flying ants, are only remotely related to Ants—both belong to the same Class (Insecta) but not even the same Order of animals—though there are a number of parallels in their behavior. And there is no reason why both could not use the same method for protecting the queen, who is absolutely essential for the survival of the nest. However, Dr. Martin Kruskal, our advisor on math, some time ago wrote to Ivan to make a splendid suggestion concerning the Atta, to wit:

"I must confess that, while I like to think of myself as open-minded and (in an excessively graphic metaphor) find no difficulty in swallowing ABSM's, my mind rather boggles at teleportation. And I feel that I can offer a much more plausible hypothesis than that for the remarkable observations on the Atta queens,...

"I suggest that the queen is not intrinsically as gigantic as she appears, but is chockfull of food-stuffs, the raw materials of her egg manufacturing. When her chamber is damaged, by you the experimenter or by natural accidents, if she is not hurt herself the workers 'unload' her, relieve her of her stores, permitting her extended skin (or swollen belly or what-have-you) to collapse to an extent that permits her to crawl or (more likely) be dragged or pushed through the narrow passages to another chamber, where she is 'given the works' back to start up in business again.

"It seems to me that this explains all the observations as neatly as could be desired. Not only does the dye persist and re-identify her, but your offhand remark appears suddenly significant: 'Often the queen dies or is taken apart by the workers.' I submit that you have actually observed, without realizing it, the workers unburdening their queen preparatory to transporting her to her new chamber. An amazing adaptation—but less fantastic than many well established mechanisms in nature."

To this, Ivan replied:

"Don't boggle at teleportation—go chide the nuclear physicists! BUT, when you come to the Atta, absolutely HURRAY and HURRAH for your side. This, my dear Sir, is the sort of thing I live for; to wit, a possible, logical explanation of something that previously appeared 'unexplained'. May I say that I am as doubtful as anybody of the verity of ITF but, in the absence of any realistic or sensible explanation, all I can do is infer—repeat, infer. Now you come along with a possibility that does my biological soul more good than a dose of tertian malaria. We still have problems, namely can the head and thorax of the queen go through the little holes around her chamber; but these are minor points. 'Deflating' the old bag and hauling her off, and then reinflating her would seem to be not only possible but logical and practical, from the point of view of a bunch of Nazi-ants. Queen is even more gigantic that she appears but she's mostly just egg-making machinery and eggs, in situ. Rip her up (and maybe even in five minutes) and all that mess would fall out; then tow the wretched thing away, stitch up (as ants can do), and start feeding her."

We can only agree that this seems a very probable explanation of this particular case of apparent ITF. Experimental proof of either assertion will be difficult to obtain. Dr. Geijskes has died, and we do not know who may be working on Atta ants (or termites) at the moment. However, we will see what might be done.

S.W.S.

SOME MORE NOTES UPON "AGDY"

by "X"

In addition to the micro-barograms made in England, the author has been able to obtain reproductions of other micro-barograms from Copenhagen, Zagreb (Croatia), Batavia, Washington (DC), and Slutsk (Siberia), all of which register the series of disturbances from the Tunguska blast and fail to register any corresponding disturbance that would have resulted from the exiting of a 'black hole' elsewhere from our planet as has been suggested by Jackson and Ryan. F. J. W. Whipple was able to examine micro-barograms made in Moscow and Leningrad, (which were not reproduced), and discovered upon careful examination that even the

regular recording barograph at the Greenwich Observatory recorded the series of atmospheric disturbances, as did fifteen other regular barographs in Siberia.

For those interested in trying to identify the object in astrophysical terms, the author believes the following to be of considerable use:

"It has been established that the flight of the meteorite at 00.16 (UT) on June 30th, 1908, followed a very sloping trajectory from SSW. to NNE. at a speed of 50 to 100 km/sec. The radiant of the meteorite lay in the constellation Cetus to the south of the ecliptic, not far from the earth's apex; the meteorite had passed perihelion and met the earth at the ascending node of its orbit, which was slightly inclined to the ecliptic and possibly was hyperbolic. ...The length of the meteorite's path in the atmosphere was not less than 500 km....The meteorite itself in flight had a gaseous aura of .5 to 2 km. in diameter (ordinary bolides have a few hundred metres) pale blue in colour (the upper degree of incandescence with a correspondingly high geocentric velocity), which appeared spherical in shape to distant observers, and left behind it a vanishing trail of thermally ionized air."

Quarterly Journal of the Royal Meteorological Society (1934: pp. 493-494)

It may be suggested, and was, that the "sky glows" of Europe on the night of June 30th and the dates following were caused by meteoric dust; but there remains the question of why such clouds would be widely observed across Europe with their estimated height of 80 km. and not be observed in the Americas. There is a mention of the "sky glows" in Europe in the Monthly Weather Review (1908: 219), but nothing of a similar nature was reported by American stations. Wolf suggested that the dust settled into the lower layers of the atmosphere after a few days, but even so, the clouds of "dust" were apparently carried to Europe at 200 km/hr. at 80 km. altitude. Why wouldn't the clouds proceed further to cause an effect of a general nature as did the dust from the Krakatoan explosion in which the dust travelled at 130 km./hr. at 30 km. altitude and twice circled the globe. Even greater speeds of the "dust" clouds were observed in its travel from Siberia to Christiana at 400 km./hr.; this was remarked on by Whipple in 1934, as being improbable and accentuating the problem of the absence of dust clouds in America.

The author would like to hear any suggestions upon these points or references that might help to solve them.

And Still More Notes:

Member #770 has dug up for us another original report of odd events possibly connected with the

Tunguska blast. This comes from Symon's Meteorological Magazine (?vol. 43, p. 154) and is as follows:

"Large Hail in Sunshine

About 2 p.m. on July 2nd, while thunder was rumbling all round about, but none overhead, all at once there began to drop large particles of ice, and then broad pieces about half-an inch across and about a quarter of an inch thick in the centre. The centre was very white sharp out to the edge and clear. About five minutes later down came large round pieces of ice about the size of marbles, an inch in diameter and very clear. These continued to fall for a few minutes, the whole occurrence not lasting more than from 10 to 15 minutes, during which time the sun was shining brightly and the day very hot. The fall of ice came while the thunder was in a north-east direction; the thunder went right round from north-east, through the east to south-west, and finished in the north-west. We had no rain. I have never seen anything of the kind a quarter of the size of the ice-balls.

D. A. Fraser.

Derry Lodge, Braemar, July 6th, 1908."

TUNGUSKA WAS A COMET

by Daniel H. Harris

Regarding the article on the Tunguska event by "X", I noted some errors of fact. Being an astronomer I am not fooled by the statement that comets have inadequate mass to explain the Tunguska event. The mass range of comets as determined by their gravitational effect on the outer moons of Jupiter, on asteroids, and by their behavior on disruption by solar tides, extends up to a thousand billion tons! The large mass is why Whipple calls the Tunguska object a small comet. A minute, perhaps undetectable part of a comet, weighing only five million tons, if entering the atmosphere at ten kilometers per second, would have an explosive yield of twenty megatons of TNT.

As to the micro-barograph records, the presence of four main excursions of the pen does not indicate four separate events. This can be seen from the record of the nuclear explosion presented on page 65 where there are also four main excursions of the pen. This behavior is due to a kind of ringing of the atmosphere in the vicinity of the explosion. The record of the Tunguska event strongly suggests a single event. The presence of a major seismic disturbance at the same time suggests a ground impact, not an elevated explosion. A comparison of the air-wave and ground-wave energies supports this. The complex behavior of the air-wave in a stratified atmosphere over irregular terrain and interacting with the already present shock has not been adequately modeled. Consequently the inference of elevated explosion is not justified in the light of the presence of the numerous ground craters.

Those of us who have read the reports of the various expeditions are generally agreed that the event was nothing more exotic than a collision between the Earth and a very small comet.

(Editor's Note: It has, of course, been pointed out to Mr. Harris that if the cause of the Tunguska event is as clear-cut as he suggests, there should be no argument about it. Mr. Harris stands by his statement, however, and notes that "As a scientist I hold to the philosophical concept of the least exotic hypothesis. The great success of modern science is in large measure due to the application of this concept in an effort to find direct connections between diverse phenomena. If we apply this concept to the Tunguska event it becomes manifest that the simplest hypothesis is the comet hypothesis...." This may well be true, but it still may not be the final answer. We are still trying to track down some of the original reports, and particularly those concerning alleged radiation effects. Some of these, if valid, may finally eliminate certain of the hypotheses concerning the Tunguska event.)

And just to make the record as complete as possible, still another explanation was proposed by a Soviet magazine called Star, as reported in the New York Journal-American on 22 March 1964 under the by-line of Alton Blakeslee, Associated Press Science Writer.

The article in Star claimed that people on an invisible planet were trying to "talk" with people on Earth and mistook the explosion of the volcano Krakatoa for the answering signal. Their "reply" to this was too powerful and "smashed down trees and tore holes in the ground over a 2,000 square mile in Siberia." To quote Mr. Blakeslee,

"The account in the Leningrad magazine, says that in 1882, astronomers noted a greenish, lumi-

nescent disc in the sky which they couldn't explain. The story explains this was the first signaling effort from the invisible 'star,' which is, supposedly, in the area of the constellation Cygnus, the swan. The existence of this body, which may be a planet rather than a hot star, has been demonstrated mathematically. The Soviet writers say they believe it has intelligent people on it, whom they call the 'Signal People.'

"On Aug. 27, 1883, just a year after the greenish disc was seen, the volcano Krakatoa blew up off Indonesia (sic), drowning 35,000 people with tidal waves and blowing most of an island into the air.

"The star is so far away that it took just a bit longer than 11 years for the light flash from the volcano to reach there (assuming there was such a visible flash). But, according to the story, the 'Signal People' saw it, took it to be an acknowledging signal from Earth and promptly replied with another signal.

"Sure enough, they continue, another greenish disc was viewed by astronomers on Earth 11 years after the Krakatoa explosion—again, just the time it would take for such a signal to reach earth. But since they received no reply to this signal, the Cygnus people sent a real whizzer next time, one they hoped to see visually. This signal was a beam of laser light, the kind of focused light only recently discovered by scientists here. That light beam, they say, created the enormous explosion in a Siberian forest on June 30, 1908.

"An error in the magazine's calculations: It neglects to take account of the roundtrip time for light to travel between Earth and Cygnus. So, their third signal wouldn't be sent until 1916 or 1917. And it wouldn't reach Earth until 1928—20 years after the great Siberian blast."

Obviously this is not the explanation for the Tunguska event, but some of our members may like to check on the greenish discs.

II. ONTOLOGY

SPACE PROBE FROM EPSILON BOÖTIS

by Duncan A. Lunan

[The January 1974 Pursuit (Vol. 7, No. 1) contained some introductory remarks concerning the discovery of radio signals apparently emanating from a satellite orbiting the Earth. We feel that this is a matter of sufficient importance to warrant the reproduction in Pursuit of the entire paper detailing the discovery. We are indebted to the British Interplanetary Society, 12 Bessborough Gardens, London, SW 1 V 2JJ, for permission to reprint the paper which first appeared in the April 1973 issue of their magazine Spaceflight. Our publication of Mr. Lunan's paper also has the

blessing of Bantam Books, Inc., publishers of his excellent review of modern concepts of space travel entitled Man and the Stars. Because of the length of the paper we are presenting it in two sections. The second part will appear in the January 1975 Pursuit, together with additional material prepared by Mr. Lunan specifically for Pursuit. Editor.]

The astonishing idea that our Solar System had been visited by a space probe from another civilization was widely reported in December. The theory stems from original work by Mr. D. A. Lunan, a graduate of Glasgow University, who found that certain long delayed echoes of equally spaced radio signals transmitted from Earth could be interpreted in

the form of a code. The data used by Mr. Lunan are those recorded in the 1920's by Norwegian, Dutch and French experimenters, who noted that delay times of the echoes varied from one signal to the next. This paper, which attempts to interpret the patterns so formed, suggests that a space probe in the vicinity of the Earth may have been trying to make contact by returning our own signals. It is suggested that the signals of October 1928 were star maps, identifying the probe's origin as the double star Epsilon Boötis and putting its arrival here at 13,000 years in the past. Although more evidence is required to support this hypothesis, the logic of Mr. Lunan's work is of interest in its own right as a contribution to the problem of interstellar communication. We leave the reader to decide for himself: (a) the reality of the long-delayed echoes as anything but a purely natural phenomenon: and (b) the validity of the interpretation that has been placed upon them.

Kenneth W. Gatland

The space probe hypothesis was first advanced by R. N. Bracewell of the Radio Astronomy Institute, Stanford University, USA, in a paper published in Nature in 1960 (1). He suggested that if advanced communities were spread through the Galaxy at distances of 100 light-years or more, unmanned space probes might be the most effective means of communication between them. On entering our Solar System such a probe might listen for our radio signals and repeat them back to us. The returned signals would appear to be 'echoes' with delays of several seconds or minutes, such as those reported in the 1920's. If we returned the signals to it again, it would know it had established contact with intelligence. 'Should we be surprised,' Bracewell wrote, 'if the beginning of its message were a TV image of a constellation?' The space probe hypothesis was taken further by James Strong (Flight to the Stars [2]), who suggested that the probe might still be here, orbiting the Earth in a Moon Equilateral position.

It appears that the first announcement of long-delayed echoes came from the American experimenters Taylor and Young (3). They reported that in 1927, while listening for ionosphere echoes from around the world, they had detected echoes apparently coming from distances of 2900 to 10,000 km. The delay times were of hundredths of a second and the distances agree well enough with the dimensions of the inner Van Allen belt to suggest that the echoes had some natural explanation. In December 1927, however, Professor Carl Störmer of Oslo happened to meet by chance one engineer Hals, and mentioned the Taylor-Young results in conversation. Hals told him that he had heard echoes of 3 seconds' delay on signals from the Philips experimental station PCJJ, at Eindhoven in Holland. Hals suggested that these echoes came from the moon (4).

Störmer believed that the echoes came from

toroidal surfaces formed by electrons moving within the Earth's magnetic field. He arranged a series of experiments in early 1928, but no conclusive results were obtained. With the help of Van der Pol in Eindhoven more tests were arranged, starting on 25 September 1928, and on 11 October Hals telephoned Störmer and announced that he was receiving 3-second echoes on signals of 31.4 metres wavelength. Störmer at once went to Hals' home, about 10 minutes away, and soon after he arrived the echo times began to vary. Caught by surprise, Störmer was not able to time the echoes accurately (see later) but noted delay times over the next 15 minutes ranging from 3 seconds all the way to 15 seconds. By arrangement with Van der Pol, the signal pulses were being transmitted at 20 second intervals so that the echoes belonging to a particular signal could be identified (5).

Störmer immediately informed Van der Pol, by telegram, that long-delayed echoes had been heard. Van der Pol repeated the test transmissions the same evening, sending 3 dots in rapid succession at 30 second intervals. He heard a sequence of echoes with the following delays: 8 seconds, 11,15,8,13,3, 8,8,8,12,15,13,8,8. In 2 cases 2 echoes were heard, 4 seconds apart, and the 3 dots of the original signal were blurred into a dash in every case except that of the 3 second echo, when they came through very clearly. The frequency of the echoes was always exactly that of the signal. (6).

If these echoes were returned to Earth by a space probe, it seems incredibly unlucky that it should have happened at a time when they were assumed without question to be natural phenomena. It seems still more unfortunate, as Morrison pointed out (7) in 1962, that the hypothetical probe did not send back 'something unmistakably meant to attract attention'.

Perhaps —probably, even— it would not occur to a probe's designers that anyone would take 'echoes' with a 3 second delay for a natural phenomenon. The return of the 1927 signals, without variation, could have been a mere announcement of the spacecraft's presence: 3 second echoes, without Doppler shift, constitute a statement: 'Here I am in the orbit of your Moon'. If all the echoes ranging from 3 to 15 seconds were returned by the same object, therefore, the statement made has to be something more elaborate: the variation of delay time should surely carry some kind of meaning.

The sequence of delay times reported by Van der Pol does not show any numerical pattern. Bracewell's remark about constellation figures, however, gave me the idea of graphing the delay time of a particular echo against its position in the sequence. I first tried a graph with delay time on the y-axis (the system used by all the 1920's experimenters who presented their results graphically) and found nothing of any significance.

When delay time is used as the x-axis of the

graph, however, the result is very different (Fig. 1). There are 2 possible ways to represent the double echoes, on the same horizontal line or on consecutive lines; the former system appears to be correct and I have followed it with all the other signals I have been able to trace. On looking at the graph, it is immediately clear that the 8 second echoes form a vertical barrier; the 3 second point is isolated on the left. To the right of the barrier there is a figure with a striking, but incomplete, resemblance to the constellation Boötes. When the 3 second point is transferred from the left of the barrier to a corresponding position on the right at X, it completes the constellation figure by marking the position of the star Epsilon Boötis. It seems clear that if this interpretation is correct, then Epsilon Boötis was the origin star of the probe, and had we returned the map to it with the puzzle completed, the probe's full contact programme would have been initiated.

It might seem absurd to make up a signal of delay times—like a telegram containing only the word 'stop', at varying intervals—but, once thought of, the system has certain advantages for interstellar communication by proxy. It is a more efficient way to send pictures than, for example, a dot-dash

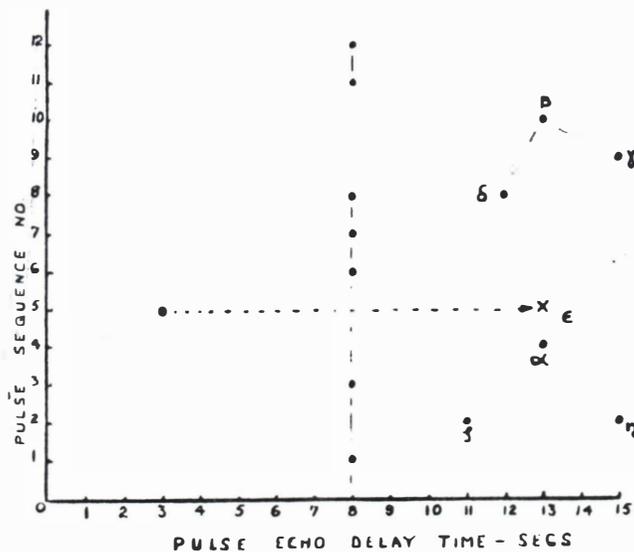


Fig. 1. First Van der Pol Sequence, evening 11 Oct. 1928; tentatively identified as an incomplete map of Boötes. This diagram can be interpreted as demanding an intelligent reply. By moving the 5th pulse (delayed 3 sec.) to a position where it is delayed by 13 sec. (marked X) the constellation Boötes is completed. This is the required answer and if transmitted back the probe should transmit further information. Note the 8 sec. 'barrier' dividing the diagram into two parts. The position of α Boötis—'Arcturus'—can be interpreted as tentatively identifying the map as compiled some 13,000 years ago.

All diagrams copyright D. A. Lunan.

sequence in which every dash, or every dot, is to represent a blank square on a grid; and the message carried by variable delay time is less likely to be garbled in transmission. As a way of turning a given set of evenly spaced pulses into a message, varying the reply time might even seem obvious to the designers of the probe. Mr. Tom Renwick has suggested that the repetition of the 3 pulses of the original signal, in the 3 second echo and none of the others, may have been to help identify Epsilon Boötis by reference to the 3 evenly spaced 6th-magnitude stars, W, R and A570, nearby in the constellation.

One or two objections might be raised to the identification of the Boötes figure. The most serious appears to be that α Boötis (Arcturus) appears well above and to the left of its true position. At first I thought the displacement of Arcturus might be due to a stopwatch error during the Eindhoven experiment, but soon a more significant possibility occurred to me. Arcturus has one of the largest known Proper Motions, 2.29 seconds of arc per year (the apparent diameter of the full Moon in 800 years) directed to the southwest. It seems then that the probe arrived here some thousands of years ago, compiling its star map at the time; with its mission programme completed, it then became quiescent until re-activated by the ionosphere reflection test transmissions after the invention of radio on Earth.

(It would be difficult to date the probe's arrival accurately by the displacement of Arcturus. As well as its angular Proper Motion, Arcturus has a large radial velocity component directed towards the Earth, with the result that its angular motion each year is greater than the year before. In 1881, Flammarion gave its Proper Motion as 2."25 p.a. (8). The displacement of Arcturus in the diagram is 6 or 7 degrees from its present position, and the limited accuracy of the diagram makes it hard to estimate more accurately. Assuming a mean Proper Motion of 2" p.a. over the period, a 7 degree displacement would put the probe's arrival 12,600 years in the past—and the next map received gives reason to think that value is approximately correct).

The apparent age of the map may have a bearing on another point: of 10 fourth-magnitude stars within the confines of the diagram, ζ Boötis is the only one shown. Most historical observers over the centuries since Hipparchus have noted the apparent magnitude of ζ as 3, though in 960 and 1430 A.D. it was given as fourth magnitude, as it is today. We must also ask why α and β Coronae, at magnitudes 2 and 2½, were not included in the diagram: the most likely explanation is that to include those stars, without obscuring the function of the vertical 8 second barrier, would have involved prolonging the delay times to beyond the maximum of 20 seconds imposed by the signals from Earth.

The use of the second as a unit of time, by a space probe from a remote star, certainly required some explanation, but in this particular context an

explanation is not hard to find. The first transmissions from Eindhoven were of 3 pulses, spaced over 2 seconds, and broadcast at 5 second intervals—too short for the probe to do anything with them other than announce its presence. When the spacing was increased to 20 seconds to make identification of the echoes easier, the probe was then able to select suitable material to transmit by the varying-delay method. In preparing that material for transmission, it had to select some suitable fraction of 20 seconds as the unit of time for the x-axis; and the unit chosen was the second, or one near enough to be taken for a second as the echoes were timed by ear and stopwatch. It is very interesting that when the separation between pulses was increased to 30 seconds, on the evening of 11 October 1928, the probe did not respond immediately to the broadened time-base but continued to use delay times ranging from 3 to 15 seconds. Eindhoven continued to transmit pulses at 30 second intervals, however, and in the probe's next transmission, on 24 October, echoes ranged over the full time-base from 3 to 30 seconds.

On 24 October, 48 echoes were received at Oslo, some of which were heard almost simultaneously on 2 receivers at Eindhoven, so confirming the reality of the phenomenon. These results too were announced by Van der Pol in *Nature* (6), but only part of the sequence was published, 21 echoes in all. The diagram in question, with delay time on the y-axis, was reproduced in many scientific publications at the time and in Störmer's book *Polar Aurora* (Fig. 2), but nowhere, alas, was the sequence given in full.

When the 21 echoes are redrawn with delay time on the x-axis, it seems clear at once that the map, if it is a map, covers a much larger area of sky than

that of 11 October (Fig. 3). The distinctive figure which first catches the eye resembles the 'keystone' of the constellation Hercules, represented by the dots from 13 to 21 seconds. Two nearby fourth-magnitude stars appear, namely Xi and Omicron Herculis, apparently to aid the identification; and with that help, it becomes possible to identify the first, second and third-magnitude stars within the boundaries of the map. Once again, all the first, second and third-magnitude stars are shown. One other fourth-magnitude star appears, Omega Herculis, which helps to identify α and β Serpentis Capitis.

When a tracing of the constellations is laid over the diagram, it proves necessary to rotate it to bring all the star-points successively into alignment (making some allowance for Proper Motion). Since the probe was trying to represent a large area of the curved heavens with straight reference lines, some device such as rotation would have to be employed. Four points marked A, B, C and D cannot be identified with any stars; it turns out, however, that A is the point about which the rotation must be performed. The vertical line through B and the line CD mark the limits of rotation required; and the point A proves to be the position of the North Celestial Pole, near Vega, about 13,000 years ago. Most impressive of all, perhaps, the line AB points towards Epsilon Boötis. If we had the complete map, assuming that the 21 published echoes are the first part of the sequence, Epsilon Boötis would be represented by the 25th of the 48 echoes, signal No. 60 in Van der Pol's notation.

My attempts to obtain the rest of the 24 October sequence have so far been unsuccessful. If the records can be traced, however, they will provide an

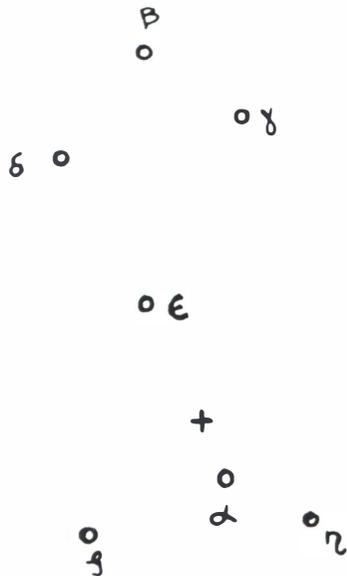


Fig. 2. (a) is the constellation Boötes from Norton's *Atlas Epoch 1950*. + marks the position of Arcturus (α Boötis) approximately 13,000 years ago.

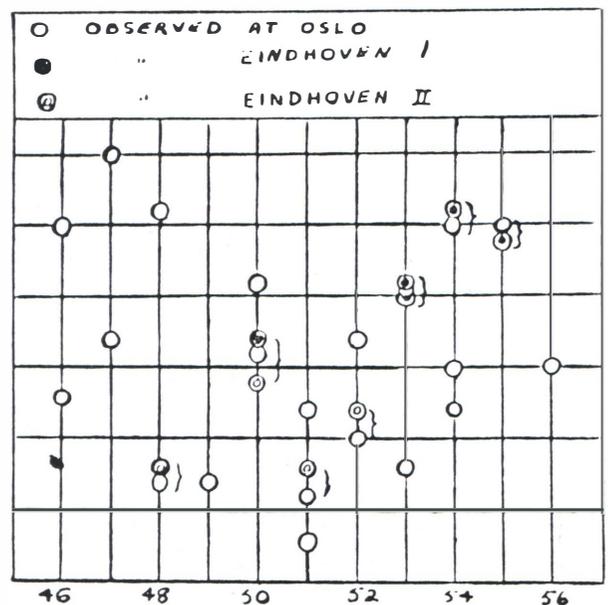


Fig. 2. (b) is a reproduction of the published part of the 24 Oct. 1928 sequence from *Polar Aurora*.

important test for the interpretation of the signals. The remainder of the sequence should represent the stars of Boötes, Ursa Major and Canes Venacti, plus more reference points or, depending on the amount of further rotation involved, some of the major stars of Leo.

With the information we now have, a very tentative attempt can be made to interpret the echoes heard on the afternoon of 11 October. Störmer recorded 3 sets of echoes over a period of 15 minutes, as follows: 15 seconds, 9, 4, 8, 13, 8, 12, 10, 9, 5, 8, 7, 6; 12, 14, 14, 12, 8; 12, 5, 8; 12, 8, 14, 14, 15, 12, 7, 5, 5, 13, 8, 8, 8, 13, 9, 10, 7, 14, 6, 9, 5, 9. Störmer wrote "The times noted by me can lay no claim to great accuracy, because I was not adequately prepared, but in any case they give a qualitative idea of the phenomenon". He also remarked that some of these times relate to multiple echoes, but did not say which.

Only a few changes are required in the sequences as reported in order to construct reasonable star maps from them. It can just as well be argued, of course, that any other changes would make the figures meaningless, so the 11.10.28 afternoon sequence cannot be quoted in support of the above interpretation of the later signals. If that interpretation is correct, however, then the afternoon signals were test transmissions of constellation figures, intended to lead up to the important Boötes figure which was to be completed by us and re-transmitted. (The cessation of Eindhoven signals until the evening

meant that it could not be transmitted until then). For example, the first sequence could be a map of the Plough, along with Canes Venacti, α Draconis (Thurban) and Psi Ursae Majoris. It is necessary to assume 2 timing errors, as shown in Fig. 4(a), to get a good agreement with the stars. The displacement of Dubhe and Merak, the Pointers, is in rough agreement with a time interval of 13,000 years — Fig. 4(b) shows the configuration of the Plough 100,000 years ago, according to the Larousse Encyclopedia of Astronomy, and the reference line AB, formed by the first and last echoes of the group, points towards Epsilon Boötis.

The 5-dot and 3-dot groups can be identified, again very tentatively, with segments of Draco. The last sequence of dots is least impressive of all, but may represent the strip of sky from Delta and Epsilon Boötis to β Librarum and μ Virginis. Rotation of the star map tracing is again required to obtain a fit in both upper and lower halves of the diagram, but this time the rotation is about the mid-point of the signal, not about anything of astronomical significance. A timing error has to be assumed to include Epsilon Serpentis Capitis (mag. 3); 7 fourth-magnitude stars appear, 6 others do not. However, reference lines again point to Epsilon Boötis and give the limits of rotation of the star chart. Perhaps if the signal had been timed accurately, than the above objections could be overcome.

One last point, fairly striking, can be derived from the 11 and 24 October signals. Considered together,

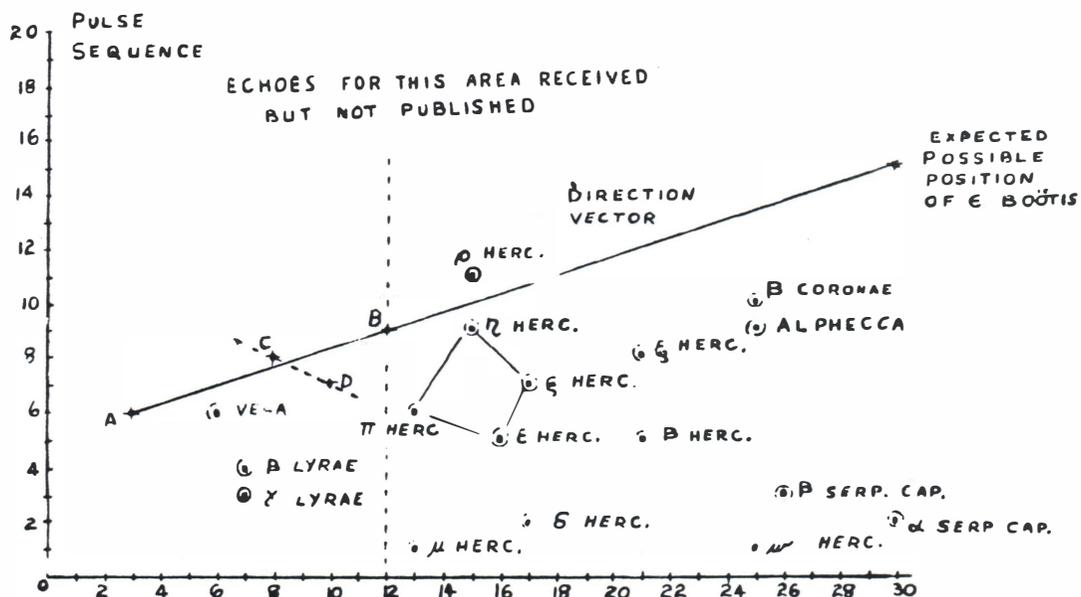


Fig. 3. The published part of 24 Oct. sequence with tentative star identifications. In this hypothesis Epsilon Boötis ϵ should be pulse number 15 with an echo delay of 30 sec. Star pulses are marked \odot and vector pulses \rightarrow . Point A is the north celestial pole 13,000 years ago; the line through A — B points to Epsilon Boötis. The vertical line B at 12 sec. and the vector CD mark the rotation limits to align the curved celestial area with a straight line map. The unpublished sequences should cover areas of Boötes, Ursa Major, Canes Venacti, Leo and possibly include further reference sequences and vectors.

they chart an area of the sky containing Ursa Major, Canes Venacti, Coma Berenices, Boötes, Corona Borealis, Serpens Caput, Hercules, Draco, Lyra, β Librarum, μ Virginis, and possibly some stars from Ursa Minor and Leo. Not having the 24 October sequence in full, we cannot set the exact limits of this area at present: but there seems to be a definite possibility, from Fig. 6, that the frame of reference will be oriented about Epsilon Boötis.

Epsilon Boötis (common names Izar, Pulcherrima) is a double star. Its distance is, incredibly, 103 light-years—presumably a coincidence, since Bracewell's article considered the different implications if intelligent communities in the Galaxy are on average 10, 100 or 1000 light-years apart. The angular separation of the 2 stars is 2.8", so they are about 88.5 Astronomical Units apart, well over 8,200 million miles—quite enough for both stars to have planetary systems. However, both stars appear to have left the Main Sequence. Epsilon A is an orange giant, Type K1, absolute magnitude 0.00. It

might be that the departure of the major sun from the Main Sequence, with a consequent rise in the background radiation during the blue star phase, brought about the appearance of intelligence in the planetary system—perhaps as a mutation which the continuing rise in temperature made advantageous. The rise of man on Earth would have been sufficiently rapid, over the last 2,000,000 years, say, to have achieved space travel before similar changes in our Sun made the entire Solar System uninhabitable. It seems clear, however, that in sending probes to possible habitable systems out to 100 light years, and programming them to seek out habitable worlds and listen for intelligent life, the inhabitants of the Epsilon Boötis system were not making Bracewell's dispassionate attempt, motivated by scientific curiosity, at interstellar communication. They were looking for new homes; probably the space programme was the total commitment of their race, and by 13,000 years later we may suppose that their efforts have met with final success or failure.

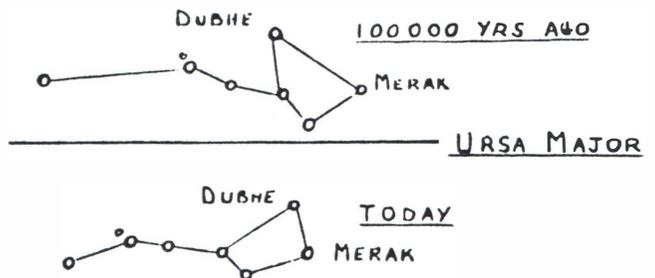
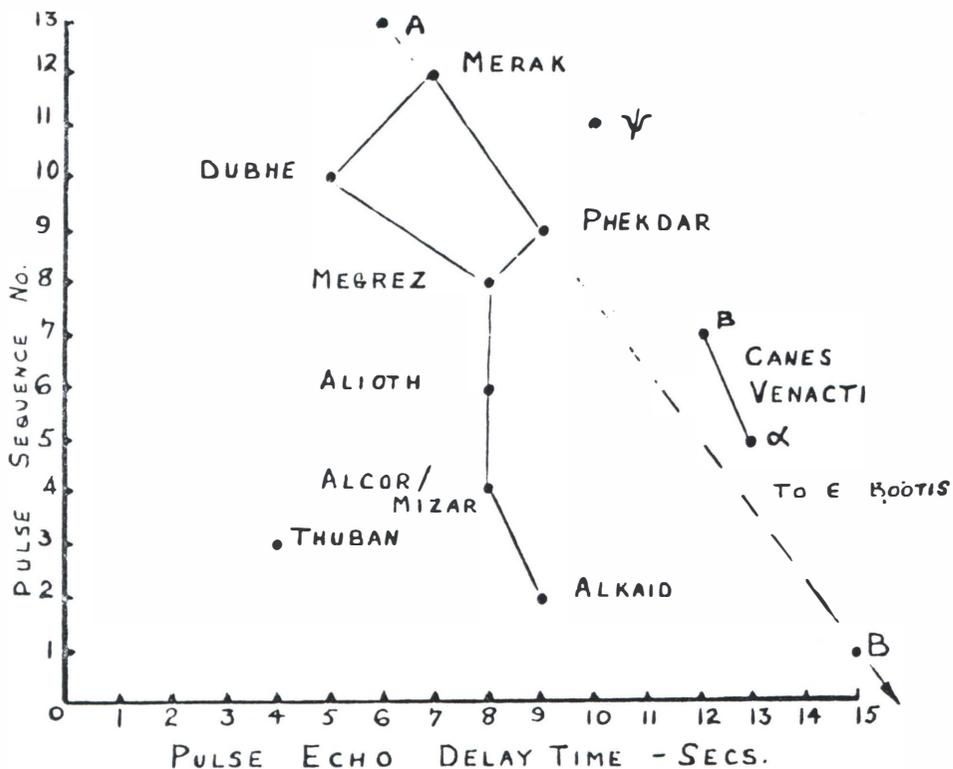


Fig. 4. The Störmer Sequence of 11 Oct. 1928. This is interpreted as a possible map of Ursa Major by assuming that the delay times for echoes 8 and 11 are in reverse order to that reported by Störmer. A and B, the first and last pulses, form a reference vector pointing to Epsilon Boötis.

If space travel and environmental conditions were so important to them, we would expect to find information on their planetary system in the signals at some early stage. That prediction was indeed fulfilled; but first, alas, there is a frustrating gap in the published records. Hals heard echoes again on 14 February 1929, 15.2.29, 18.2.29 and 19.2.29 (N.B. The statement by Strong that echoes were never heard again is not correct).

On 18 February 1929 Andreas Kleve, at the telegraph administration receiving station at Bodo, near the Arctic Circle, heard 5 echoes during a 30-minute transmission from Eindhoven, of 12 or 13 seconds delay, on the 44th, 45th and 60th pulses of the transmission, 'also of the last 30-sec. dash' (9). Evidently

the Eindhoven transmissions had been changed in some way, but no further details were given.

On 19 February 1929, Appleton and Barrow at King's College, London, heard very distinct echoes, of length more than 2 seconds and delays up to 25 seconds, during an Eindhoven transmission lasting one hour. On 20 February 1929 Hals, 'alerted by Eindhoven' heard 2 echoes of 8 and 18 seconds on the 23rd signal of transmissions lasting one hour. Hals heard echoes again on 28 February 1929, 4 April 1929, 9 April 1929, 11 April 1929 and 23 April 1929. Apart from the transmission times in each case, and the 2 fragments quoted above, no further details were published at the time and so far they have proved impossible to trace. Professor Störmer

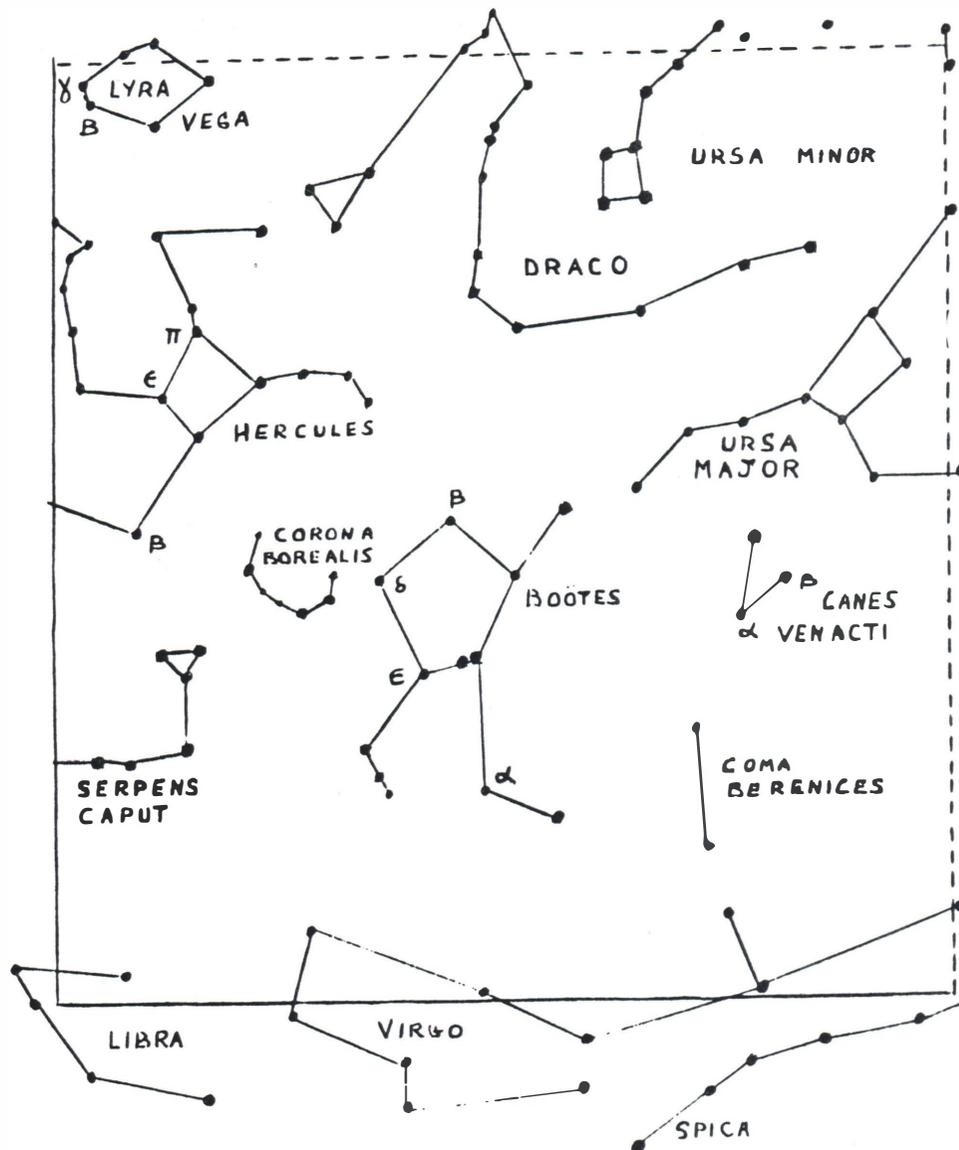


Fig. 5. A tracing of a star map, showing the approximate area of sky covered by 11 and 24 Oct. 1928 sequences. The boundaries are approximate because the sequence of 24 Oct. is incomplete.

is dead, and his colleagues have no records of his experiments; Kings' College are unable to trace Barrow, and have no records of his work; and so far Philips at Eindhoven have not been able to help. From 1928, to the present day, scientists of many nationalities have attempted to explain the phenomenon of long-delayed echoes; I have checked 26 references to date, but in every case where echo sequence are quoted, those of 11 October 1928 and the same 21 of 24 October 1928 are quoted as typical. There seems little possibility of bridging the gap between the signals of October 1928, and those heard in May 1929.

To be continued.

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VII. BIOLOGY

THE DIRE WOLF

Ivan T. Sanderson

Some years ago, an old friend of mine, Tex Zeigler, initially a professional cameraman but since then an independent producer-director out on the Coast, made an extended trip to Alaska. At heart, Tex was always a naturalist, having for years tottered around New York with the most beautiful white Samoyed dog anybody had ever seen. And perhaps it was this that led him somewhat inexorably to wolves. While in Alaska, he met several people who had local wolves as pets or who were breeding them or cross-breeding them with Huskies and so forth; and he brought back some magnificent film. But one thing puzzled him; and when he told me about this, I must admit to having been a bit sceptical. It sounded like mere 'exaggeration' and, having seen those Golden Eagles and Ravens in the northwest, I was quite prepared to accept the possibility of truly giant wolves and other animals in Alaska. They really grow big up there. However, Tex made a few points about what he called the "great white wolf" that I jotted down at the time.

Some fifteen years later, another friend —whom I shall identify only as Frank— who had just returned from the (in)famous Nahanni Valley in the Canadian Northwest Territories, rather sheepishly gave out with just the same thing. This chap was a professional truck mechanic and a pretty hard-boiled 'cook', and had just returned from getting five other people into and out of that rather dangerous valley. He is not given either to exaggeration or more especially to any kind of speculation upon wild life. He'd been up there in charge of transport;

and he had only stumbled upon this item when out hunting for his daily food with an Amerindian friend. His firsthand account comes in a moment, but I should put on record now that almost all of the details he offered jibe exactly with what Tex Zeigler had told me long before.

Pondering this matter, I wrote to several other friends who have spent time on Amerindian myth, legend, and folklore; and, sure enough, Loren Coleman came through with an extract from an old historical record in the files of the University of Indiana. This was a report of a group of three trappers, possibly Amerinds, who had a camp on the side of a lake in northern Michigan and, according to an early colonial record, had encountered a "Waheela". One retired precipitately to the nearest settlement, the other two following it with their guns. Their mangled remains, surrounded by "wolf" tracks, were found the next morning. This story was typical of many we had heard over the years from all across forested Canada. And, before we go any further, we'd better get the bit about Canada straight.

Canada is the second largest country in the world, with a total land area of 3,851,800 square miles. It contains the second largest forest in the world, some 4000 miles longitudinally; which is beaten only by the so-called 'Taiga' forest of Russia and Siberia. Canada also stretches from north to south some 3000 miles. The northern 20-odd degrees, above the Arctic Circle, is mostly tundra, barrenlands, and ice-fields on the great Islands. The strip between this and the U. S. border, covering some 24 degrees of latitude, is mostly an unending forest of small conifers with some scattered hardwood trees. Only a narrow strip, on an average about a hundred miles wide, along the southern edge of

this great forest, is inhabited; and, even then, there are great gaps as one travels from the western provinces to the eastern. There is an awful lot of room in Canada, and if anybody insists that “something” can not exist therein, he is just a plain idiot.

What Tex Zeigler first told me, and then Frank came up with, was as follows.

There are still an awful lot of wolves in Canada, and they vary greatly in size and color, just as they do elsewhere; but most of them are either white all the time, or seem to turn white in the winter when they change their coats. However, some wolves grow exceptionally big, and it seems that some of these leave the tribe and go off by themselves. At this point Tex took a different line from Frank. It was his expressed belief that these huge loners were just that —i.e. huge, old wolves that lived alone. Frank, however, came up with something quite else; and, believe me, he had never heard of a “Dire Wolf” or the Wahella legend. What he said had happened to him was as follows.

He had gone up the Nahanni River with an Amerind, whom he had befriended, leaving his American pals at a camp down below the Virginia Falls. The Amerind and his family were on their way home way up-river. They paddled all day and then made camp for a time on flats at the mouths of one of the river torrents coming down from the high mountains that enclose the Nahanni Valley. As occasion arose, they went hunting for meat; the whole area being literally crawling with game, such as grouse. Frank carried a 12-gauge with birdshot and heavy ball; his local pal used a single barrel with buckshot.

One day, they went up a small valley onto a little plateau covered with grass and small bushes but surrounded by massed forest below a steep bank. The local hunter told Frank to stand out on this little plateau to take anything that he could drive out of the woods. He was aided by a nondescript dog that was definitely not a trained hunter! In due course, Frank heard some noises at the edge of the forest but, thinking that it was either the idiot dog or the hunter coming back, he did not —as the saying goes— “come to the ready”. Thus, when some bushes at the border of the plateau began to move about, and in a manner that could not have been caused either by the little dog or the hunter, he called out, but got no response. Then, suddenly, Frank found himself confronted by what he at first took for the grand-daddy of all wolves.

He described it —and he said that it was, by this time, no more than 20 paces away— as an enormous white wolf, with very long, rather shaggy hair, but with a very wide hear; and standing about three feet, six inches at the shoulder.

Instinctively, he fired both barrels, and he says that he is sure that he hit it on the left flank, but it just looked at him, and then turned around and ambled back toward

the bushes. He reloaded almost automatically, and fired at the place where the creature had entered the bushes; but the thing just went away. At this point Frank’s local friend called out to him from nearby in the forest and asked what the heck was going on; and, in a few moments, he appeared with his little dog from somewhat to the left. Frank told him what he had seen and what he had done. The Amerind looked at him for a moment, and then took off for the river without a further word.

Frank is a tactful man. That is why he got on so well with both the oldtime “Whites” in the area and with the local Amerinds. He did not press the point, but eventually his local friend loosened up a bit and told him that they had met an animal that is not a wolf and which is, in point of fact, probably the cause of the now age-old legend of the Nahanni Valley which has for many years been called “The Headless Valley” because a number of prospectors and others known to have gone up it have either failed to return, or have been found in their cabins or sleeping bags with their heads bitten or torn off. (This is not some fairy tale, as the Canadian ‘Mounties’ can affirm from their police blotters.) There are bears in this area but “head-chopping” is not their way of doing things. Nor is it that of wolves which, as a matter of fact, very seldom attack people; despite the old saying of the north that: “When they smell the bacon they come around”.

Frank’s Amerindian friend said that these animals were much larger than any wolf; were ‘loners’; avoided real wolves; had smaller ears and much wider heads, and rather short legs, with splayed feet. Their tails, he said, were very thick and more like those of otters, while they were scavengers rather than predaceous animals. He also said that they were comparatively rare and lived up near the tundra, but that they sometimes came down in winter. Yet, he also affirmed that they were to be found all the time in this valley, and in some others to the west. So what could this animal be?

For over a century now, palaeontologists have been unearthing the bones of enormous dog-like creatures. The biggest of all was named Andrewsarchus, which had a skull over a yard long, and which was originally found in Mongolia by the famous collector Roy Chapman Andrews. This, however, was neither a dog nor a bear but what is called a Creodont —possibly an ancestor of both, but much more primitive. This monster was found in what are called Eocene deposits, currently dated at some 60,000,000 years ago. Dr. Alfred S. Romer, in his classic Vertebrate Paleontology remarks that this animal was “By far the largest predaceous (land) mammal ever discovered. Beside this monster, a Kodiak Bear would look like a puppy”. Bears, dogs, and raccoons appear to have a common ancestry but, along the line, a group of animals that are popularly called “bear-dogs”, the Amphicyonidae (or “dogs of doubtful origin”),

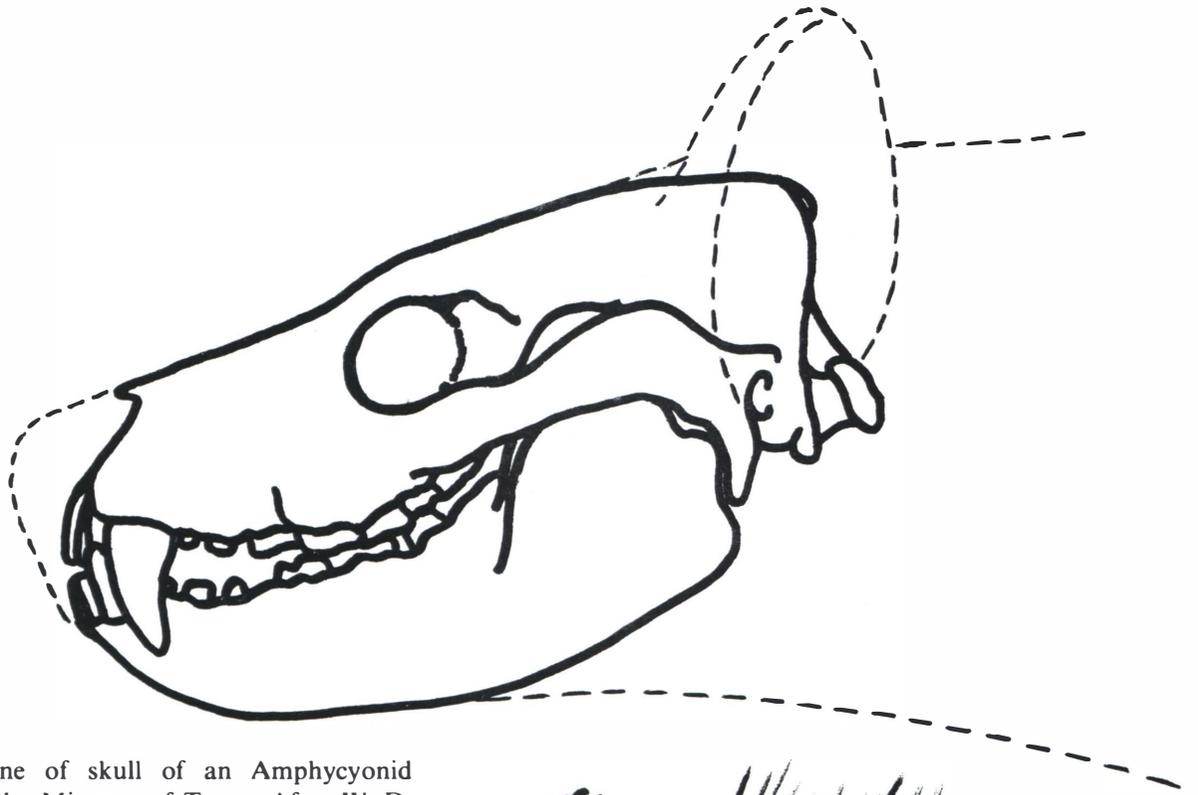


Figure 1. Outline of skull of an Amphicyonid (Dinocyon) from the Miocene of Texas. After W. D. Matthew, 1902. Broken line indicates fleshing-out by Ivan T. Sanderson x $\frac{1}{4}$.

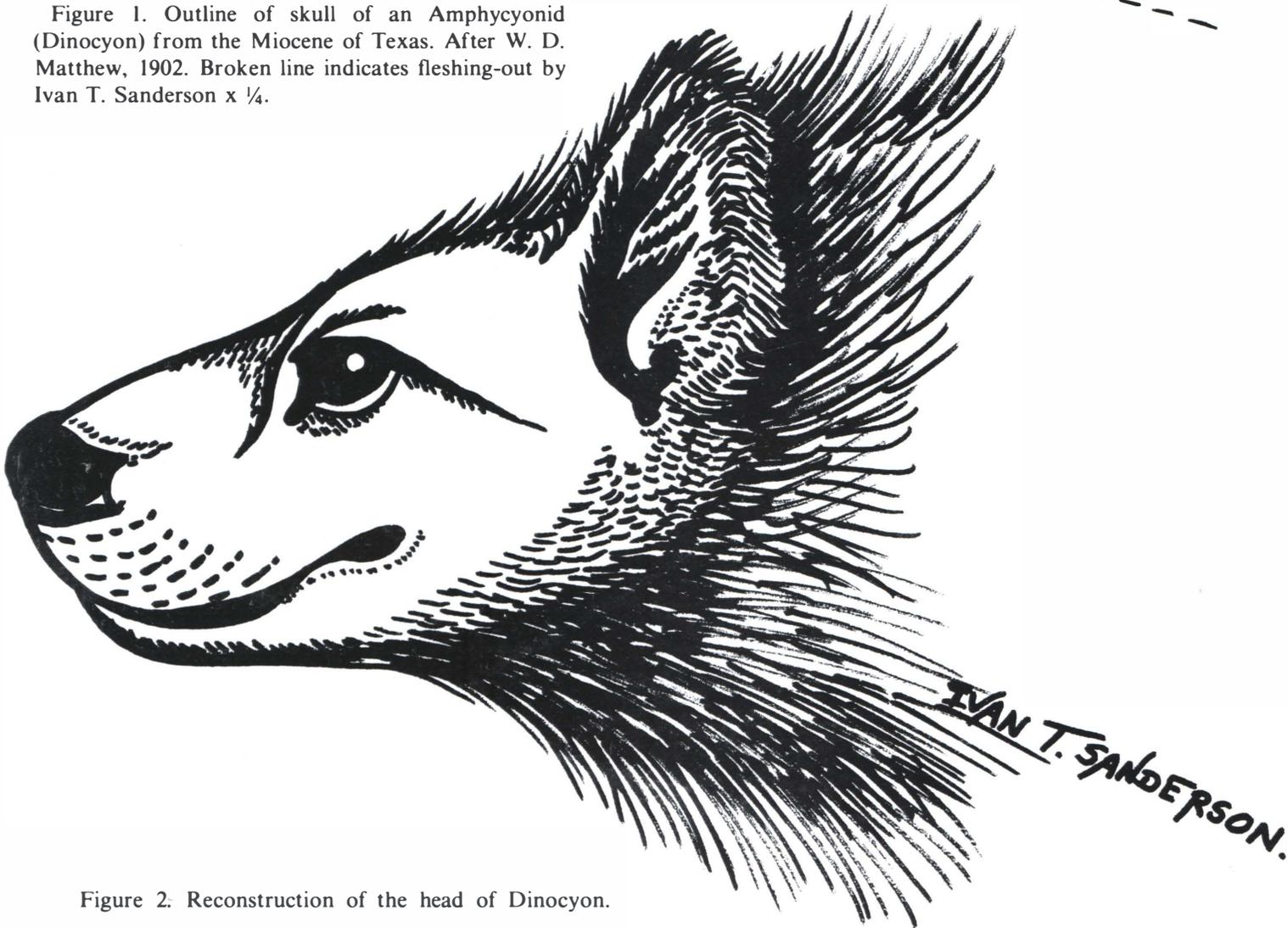


Figure 2. Reconstruction of the head of Dinocyon.

flourished all around the northern hemisphere. These were neither dogs nor bears, but a number of them were of the size of the largest living bears, and some had dog-like features. Some of these huge creatures are known to have lived on until the end of what is called the Pliocene period, and were thus contemporary with some animals that still live, like the muskox and the bison, and they could well have survived into the age of man, called the Pleistocene; and even into the post-glacial period on this continent. These Amphicyonids appear to have sort of "popped about" between the New and the Old Worlds.

There are three types known from North America; all with long Latin names, but one of which is called Amphicyon, (per se, or, in plain English, the "Ambiguous Doglike Creature") that is of particular interest to us. This is because it is known (from discoveries of its bones) to have been around on this continent until at least the end of the Pliocene period and could, therefore, quite well have lived on into the Pleistocene, and even until the present day —along with animals like the Muskox.

This appalling creature probably looked more like a vast wolf than anything else; though it had rather short and more massive limbs, and a very long and thick tail. Its head seems to have been both massive and rather wide, and its ears were probably rather small compared to those of a dog of equal proportions. But most singular of all was the fact that its feet were all five toed; and these toes were widely splayed, and armed with long sharp claws. It would seem, in fact, to have been more nearly what is called plantigrade (like a bear) than digitigrade (like a dog). The skull of one measures some 20 inches. [see Fig. 1]

These strange monsters were not, apparently and according to experts such as Romer, predaceous, but more likely scavengers, and probably omnivorous like bears. They doubtless found a good living all over this continent when it was inhabited by countless millions of vegetarian animals such as bison, deer, and sheep; and they, no doubt, found plenty to eat in the kills of these great carnivores. However, when the climate changed, and then Man arrived, the whole balance of nature was upset, and many of the larger animals retired into the forests, and particularly into those up north. We now know that the Forest Bison has survived there, so it is quite possible that one of these so-called Bear-Dogs has done likewise.

The Amerinds know nothing of fossil bones, but they persist in their stories of the Waheela; and they insist that it is indeed a 'dire' wolf of some kind. It will be many

years before the oil-drillers and the road-builders get around to the wildlife of the Canadian NWT. So, meantime, let us contemplate this suggestion without cavil. How many of you have ever seen a weasel? Even huge animals have a habit of just moving back a bit to watch our clanking machines as they chew their way into the wilds. Twenty paces back would utterly conceal a mammoth. So what's so unbelievable about a Dire Wolf?

PENNSYLVANIA ABSMERY

As promised, we publish here the full report on hair samples and feces analyzed by Frederick A. Ulmer, Jr., formerly with the Philadelphia Zoological Gardens.

"Here is the report about the hair and feces samples of the Western Pennsylvania 'monster.' I regret that it is not more conclusive, but these things are not easy to work with and present no end of knotty problems.

Hair Sample #1 — 24 Aug. 1973 — Monongahela, Penna. — Tentatively identified as human hair.

Hair Sample #2 — 3 Sept. 1973 — Glassport, Penna. — Positively identified as human hair.

Hair Sample #3 — 26 Aug. 1973 — Latrobe, Penna. — Found near mine shaft. This bunch of hairs intrigued me no end and I spent much time on them. Result — They are the hair of a cow, probably Holstein. Not much luck on immuno-techniques.

Hair Sample #4 — 21 Sept. 1973 — St. Anne's Home, Greensburg, Penna. — This matted mass of light colored hairs had a strong fecal odor about it and I am certain that it was part of some feces. I positively identified it as cat and suspect that it was a domestic cat, for the pigment was too light for a bobcat. A serum protein test was tried on cat anti-serum but there was no reaction. A positive reaction would have made it cat beyond the shadow of a doubt. However, I still feel that it is cat and the cellular structure strongly resembles that of the domestic cat.

Feces Sample #3 — This highly comminuted [pulverized, powdery] sample contained a claw bone and some meta-tarsal bones that I tentatively identified as coming from a chicken or a pheasant. There were also a great many chitinous remains of unidentified insects. The stool suggested that of a skunk or a racoon.

Other Fecal Samples were inconclusive.."

Though these reports are disappointing in that none of the specimens proved to be from an unknown animal, this should not deter our members from send-

ing to us samples obtained in circumstances that strongly suggest the possibility that the specimen is from an unknown animal. Obviously this does not mean that every piece of hair found on a bush or a barbed-wire fence should be submitted for analysis, and any specimen should be accompanied by a full report indicating where and when found and the reasons for believing that it is worthy of further investigation. The identification of hairs is not an easy job, and we are most grateful to Fred Ulmer for taking the time to perform this very tedious operation.

IVAN T. SANDERSON'S RECONSTRUCTION OF THE SASQUATCH

The drawing opposite and that of the Yeti or Meh-teh, which will be printed in our January 1975 issue, were done by Ivan Sanderson in 1970. We are sorry we cannot reproduce these in color, but the cost is prohibitive. The notes that follow were written by Mr. Sanderson to accompany color Polaroid photographs of the two drawings which were sent to several of his scientific colleagues for their comments and were also made available to the designers of the Strange, Strange World pavillion at Man and His World (formerly EXPO) in Montreal.

Composite Reconstructions of Sasquatch and Yeti.

by Ivan T. Sanderson

These drawings, done to scale in color, represent a compendium of all the reports that we know of by alleged eye witnesses of both of these creatures, plus the brief film footage disseminated by Mr. Roger Patterson of a Sasquatch in California, and facts obtained by Dr. Bernard Heuvelmans and myself during the examination of the specimen preserved in ice, which was for several years exhibited by Mr. Frank Hansen of Minnesota. These sketches were developed from scale drawings of the bodies, without hair and/or fur covering.

There is, to me, something very extraordinary about these reconstructions; but quite apart from the now no longer deniable fact that there are several types of what we have called generally "abominable snowmen" (or ABSMs for short) but that the original ABSM (now commonly mis-called the Yeti, which is actually the Meh-teh) is a rock-climbing ape, while all the others appear to be primitive hominids. The really strange thing, however, is as follows.

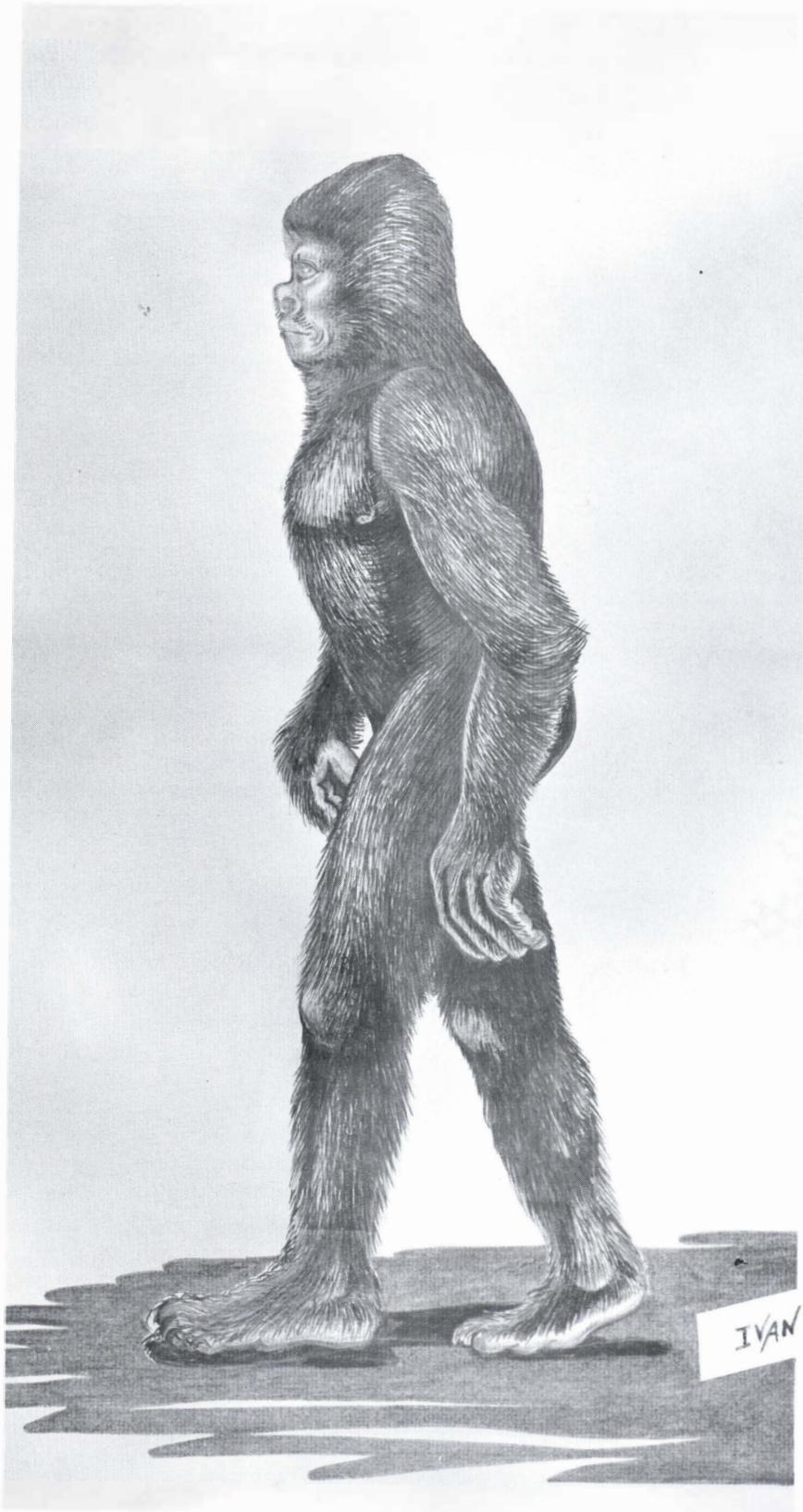
Whatever I do by way of reconstruction—and staying strictly with what the people who allege they have encountered these creatures say, plus what we have in the form of alleged physical evidence—these creatures come out as shown. Frankly, while the composite of the Yeti seems to make good zoological sense, that of the Sasquatch (i.e. Bigfoot, Hunguressu, or Dzu-teh) looks to me utterly 'ridiculous'. No wonder not only sceptics but those anthropologists

sincerely interested in the matter said that Roger Patterson's film looked like "a man in a monkey suit" [no one has ever come up with any proof that the film is not genuine]. There have been those who have drawn or modeled their conceptions of this Sasquatch but all appear to have made it much too bestial and much more like the Yeti. It now transpires that the Sasquatch is in every way a hominid but that (as seen in the original specimen that was exhibited by Hansen [not the model exhibited after April 1969]) it has some very specialized characteristics. Most notable among these are facial. First, the face is naked and there is no beard, but a thick submandibular fringe [under, not on, the chin]. Second, there is no brow ridge; third, the nose is excessively retroussée and the nares (nostrils) point straight forward; fourth, in place of a mustache there appear to be a few sparse, stiff hairs on either side above the angle of the jaw and then a vertical line of much smaller but more profuse bristle-like hairs running up the septum from the top of the upper lip almost to the tip of the nose.

The other extraordinary feature described by everybody is that while there appear to be no eyebrows, the hair across the forehead forms a forward, upward, and backward curling fringe. Upon this point old Mr. Ostman [kidnapped by a Sasquatch] was most insistent and we have his original sketches. While the torso is extraordinarily massive, its dimensions can be matched by modern human beings of all races but in particular professions such as wrestling, freight moving, and so forth. It turns out further that neither the arms nor the legs are either excessively long nor excessively short, though it does appear that the hands are very large. The final and perhaps most interesting fact that emerges from this analysis is that the feet of the Sasquatch would appear to be exactly in proportion to their stature. However, there is now cumulative evidence that their feet are short but very broad but that their toes are extremely long and webbed up to the proximal end of each phalange.

I cannot refrain from stating once more that I think the poor Sasquatch looks utterly 'ridiculous', and as two professional artists, one an ex-Walt Disney cartoonist, said on viewing it: "It's altogether too theatrical". I agree; but in any endeavour such as this one cannot deviate either way from what facts we have. It would be very easy to, on the one hand, dramatize this reconstruction, or on the other hand to make it look even more human than it is. However, I am afraid we are stuck with this, even if it does look like a huge and robust Mongol wearing a peaked cap and a fur coat!

Incidentally, the outline of the head of the Sasquatch, fully furred or haired, is quite different from the outline of its skull without any hair. John Napier was the most insistent on the incongruity of the sort of peak on the top of the head of whatever it was that was shown in Roger Patterson's film, pointing out that as the thing had very large breasts it would appear to be a female but that no known female ape



IVAN T. SANDERSON.
1970.

SASQUATCH - CANADA.
"BIGFOOT" - CALIFORNIA.
HUN-GURESU - CHINA.
DZU-TEH - - - TIBET.

or monkey has a sagittal crest on its occiput. However, several of the African Mangabeys have such crests in both sexes but consisting of hair without a bony ridge beneath. We must therefore assume that if the creature in Mr. Patterson's film and the sketches made by Mr. Ostman represent reality, the curious peaked form of the head of the Sasquatch as seen in profile is due to the way in which the head hair grows.

THE PATTERSON FILM: AN ANALYSIS

(The following is the official report on the 1967 (Gimlin-Patterson) film footage of a Sasquatch/Big-foot, compiled and written by Dmitri D. Donskoy, Chief of the Chair of Biomechanics, Physical Culture Institute of the USSR, Moscow, USSR.)

As a result of the repeated viewings of the walk of the two footed creature in the 1967 film and detailed examination of the successive stills from it, one is left with the impression of a fully spontaneous and highly efficient pattern of locomotion shown therein, with all the particular movements combined in an integral whole which presents a smoothly operating and coherent system.

In all the strides the movements of the upper limbs (they can be called arms) and of the lower limbs (legs) are well coordinated. A forward swing of the right arm, for example, is accompanied with that of the left leg, which is called cross-limb coordination, which is a must for man and natural for many patterns of locomotion in quadrupeds. (In walking and trotting, for instance.)

The strides are energetic and big, with the leg swung far forward. When man extends his leg that far he walks very fast and thus overcomes by momentum the "breaking effect" of the virtual prop that is provided by the leg put forward. Momentum is proportional to mass and speed, so, the more massive the biped the less speed (and vice versa) is needed to overcome the breaking effect of legs in striding.

The arms move in swinging motions. This means that the muscles are exerted at the beginning of each cycle after which they relax and the movement continues by momentum. The character of arm movements indicates that the arms are massive and the muscles strong.

After each heel strike the creature's leg bends, taking on the full weight of the body and smoothing over the impact of the step, acting as a shock absorber. During this "phase" certain muscles of the leg are extended and become tense in preparation for the subsequent toe-off. In normal human walk such considerable knee flexion as exhibited by the creature (in the film) is not observed and is practised only in cross-country skiing. This characteristic makes one think that the creature is very heavy. Its toe-off is powerful and this contributes to rapid progression.

In the swinging of the leg considerable flexion is observed in the joints, with different parts of the

limb lagging behind each other. The movement of the foot is behind that of the shank, which in turn is behind that of the hip. This kind of movement is peculiar to massive limbs with well relaxing muscles. In the case of massive limbs the movements look fluid and easy, with no breaks or jerks in the extreme points of each cycle. The creature (in the film) uses to great advantage the effect of muscle resilience. This is not normally used by modern men under normal conditions.

The gait of the creature (in the footage) is confident and the strides are regular. There is no sign of any loss of balance or any wavering. No redundant movements are visible. In the two strides during which the creature makes a turn to the right, in the direction of the camera, the movement is accomplished with a turn of the torso. This reveals alertness and, possibly, a somewhat limited mobility of the head. (In certain critical situations man also turns his whole torso and not just his head alone.) During the turn (to the right) the creature (in the footage) spreads the arms widely to increase stability.

In the toe-off phase the sole of the creature's foot is visible. By human standards it is large for the height of the creature. No longitudinal arch typical of the human foot is in view. The hind part of the foot formed by the heel bone (calcaneous) protrudes considerably back. Such anatomical proportions (of the foot) facilitate the work of the muscles that make standing postures possible and increase the force of propulsion in walking. Lack of an arch may be caused by the great weight of the creature.

Since the creature is manlike and bipedal its gait resembles in principle the gait of modern man. But all of its movements indicate that its weight is much greater, its muscles (especially) much stronger and its walk swifter than that of man. The movements (of the filmed creature) are harmonious and repeated uniformly from step to step, a provision of "synergy", i.e., the combined operation of a whole group of muscles.

Lastly we can observe certain characteristics of the creature's walk which defy actual description. These could be described as "expressiveness of movements". In man this quality is manifest in a goal-oriented sporting or labour activity which impresses one with an economy (and accuracy) of movement. This characteristic can be noted by an experienced observer even if he does not know the specific given activity. "What needs to be done is neatly done" (with economy and efficiency) is another way of describing "expressiveness of movement." In the particular case (the creature in the footage) the motor system characterized by this quality is well adapted to the task that it is called upon to perform. In other words neat perfection is typical of those movements which through regular use have become habitual and automatic.

On the whole the most important thing (in the footage) is the consistency of all of the above-

mentioned characteristics. They not only simply concur with but interact in many ways. And all these factors taken together allow us to evaluate the walk of the creature as a natural movement, without any signs of "artfulness" which would be seen in an imitation.

Taking into consideration all of the known diversity of human gait, the walk that is demonstrated by the creature in the footage is absolutely non-typical of man.

(Editor's Note: It is this consistent and 'accurate' action of the muscles, visible in the film, that has impressed all anthropologists who have had a chance to really study the film. This, and the fact that the gait is "absolutely non-typical of man", make it virtually impossible that the creature shown in the Patterson film is a "man in a monkey suit". The manufacturer of the "monkey suit" would have to have (in addition to a great deal of money and time) a rather phenomenal knowledge of biomechanics and an incredibly adept actor to wear the suit and maintain a non-human gait with such finesse that it fools a sceptical expert.)

NOT ALL QUIET ON THE WESTERN FRONT

by John Green

Readers of Pursuit who are interested in what is happening in the Sasquatch investigation in the Pacific Northwest would be well advised to disregard the report on the subject in the April issue of the magazine, as the writer apparently knows very little about it, either regarding the reports of the creatures themselves or the activities of those looking for them.

He seems to be aware of only 13 reports in the years 1971, '72, '73 and up to March of this year. Since this includes "a footprint" he claims to have found in B.C. last year and presumably two other reports of his own that he mentioned in an article in another publication, he has apparently learned of only 10 of the reports generally known to people seriously involved in the investigation. On this basis he states that things are quiet.

In fact, there were 13 sighting reports in the state of Washington alone in just the year 1972, plus a couple of track reports. For the years 1971 through '73 there were 39 reports from that one state, nearly 100 from the whole Pacific Northwest—plus another 10 so far this year.

That is just the reports in my files. A survey of all the active investigators would turn up many more, and I would never claim to know who all these people are.

There are a few individuals who use the Sasquatch as a means of raising money and to this end devote much of their "full-time" activities to the task of publicizing themselves so that they will be able to line up new sources of support when the current

contributors find out some of the facts of the situation. Of course there are probably as many potential contributors around as there were in Barnum's day, but something is needed to attract their attention.

The people who do the real digging for information and the real hunting are seldom publicized, as is usual in most lines of activity, and most of them spend their "full time" in working for their living.

Of course there are quite a few people searching just for the satisfaction of seeing one of the creatures, a pastime with which one would hardly quarrel. It seems rather disrespectful to Ivan Sanderson's memory, however, to publish disparaging comments on those who would shoot a Sasquatch—especially such comments from a man who made a business of helping exterminate the tiger.

Anyone with the slightest experience with the branches of science that would be involved knows that the principal study of the Sasquatch, no matter how its existence is proven, will be conducted on dissecting tables. And no one with any knowledge of tranquilizer guns would consider such equipment suitable for hunting a creature of unknown species and unknown weight—however useful they may be in a sales pitch for financing.

Having been taken to task once in Pursuit for publishing a "seed catalogue", there is no way that I am going to even try to summarize more than 100 reports, but if we take 1971 and 1972 to be ancient history, here are a few of the highlights of the very active year 1973 (32 reports in so far) and the beginnings of the 1974 crop:

The first major report in 1973 was the one by three (not four) fishermen in Bute Inlet in March. Bob Titmus and I talked to the men and made a boat trip to the site immediately, but could confirm only that some heavy creature had indeed walked on the rocky beach where they described seeing at dawn from their fishboat a beige-colored manlike thing at least 10 feet tall.

The next month, near Estacada, Oregon, a local resident reported watching a brown, erect creature, only about five feet tall but very heavy, tear apart an old stump near the road. In May, near Sitkum, Oregon, an engaged couple encountered a 10-foot, very heavy and dark creature in a mountain park about 1:30 a.m.

A B.C. logger, near Selma Park in June, watched a grey-furred, erect creature larger than a man jump up and down on some logs cut the day before and then apparently somersault off a log and down the hill. A footprint was photographed. The same month, again near Estacada, Oregon, an Oregon City man saw a huge upright form walk by his campfire on the bank of the Collowash River at a distance of about 20 feet. He shot a .22 pistol and it screamed and stepped over a log and vanished into the trees. The log it stepped over was waist-high to the man.

July was a really busy month, with a fisheries patrolman watching a six-foot, grey-furred creature rooting in tide-flat vegetation in bright daylight on

the shore of remote Roscoe Inlet, B.C.; a Carson, Washington woman and her daughter encountering a six-foot, ape-like animal on the road near Bonneville; an Aumsville, Oregon, naturalist watching an eight-foot tall, dark, hairy creature with a humanlike face for 45 minutes at 6,000-foot elevation in the Castle Craggie Mountains in California, and two Murray, Utah, couples reporting an upright black animal, seven feet tall and "flat faced like a Gorilla" near Lake Tahoe.

In September a Woodinville, Washington, man had the interesting experience of meeting on a road at night, a dark-haired six-to-seven-foot creature running towards him with its forearms held high. Fortunately, since he was also on foot, it was on the opposite side of the road and took to the bush before it reached him.

Early in October, in the "Bigfoot" country of northwestern California, a Smith River, Oregon, hunter resting quietly by a creek at 7:30 a.m. heard a "sneeze" behind him and then watched a dark, "barrel-like" erect creature more than six feet tall walk slowly by. It left tracks much bigger than a bear's tracks.

Track reports are not so interesting, but not to leave them out altogether, two Washington State University students found the tracks of the famous Bossburg cripple-foot southwest of Colville late in November. Until someone produces an actual specimen, one could hardly ask for a more active and interesting year.

Aside from the Florence, Oregon, report in March, I am not yet aware of anything special in the early part of this year, but there were substantial sighting reports by motorists near the B.C.—Alberta border and

near Lassen Park, California, in May, both in daylight, with the Alberta report involving two creatures estimated to be 12 feet tall just standing around in the middle of the highway.

Another sighting by a motorist, at night, took place in Maple Valley, Washington, providing a little excitement for the Morgan expedition, and a youth camp director reported seeing a Sasquatch 50 feet away from the campfire at night in mid-July, at Stokke Creek on Harrison Lake, B.C. This one was not only almost in my backyard, my son Jim, working on forest inventory for the B.C. government, was sleeping in a tent about 100 yards away at the time. Since the director failed to mention the incident to the forestry crew either that night or the following day, Jim is rather sceptical about it.

As to tracks, at least three people studied a series of prints nearly two-feet long in sand patches along Sucker Creek near Cave Junction in Oregon in June. Despite their immense size they did not exhibit a very long stride, but sank twice the depth of a human print.

On the serious scientific side of the investigation, some 300 detailed reports are now the subject of computer study at the University of B.C.—more with a view to determining whether this approach would be useful on a long-term, intensive basis than with any hope of really valuable information at this time. Also the first steps have been taken towards having details of the Patterson film "computer enhanced" by the same processes, and the same people, responsible for doing this work on space photos.

So things aren't really all that dull out west, if you know what's going on.

Modern English

As most people have probably noticed, there is an increasing use of euphemisms of all types: toilet paper becomes 'bathroom tissue'; automobile manufacturers recall 4000 cars, announcing that they forgot several nuts and bolts with the result that the front axle may fall off and that "this may adversely affect the car's performance" (they refrain from pointing out that you may get killed); janitors become 'custodians and electrical maintenance engineers' (they change light bulbs). But we believe the grand prize for such nonsense goes to a firm that advertises on a Philadelphia UHF channel. They specialize in home remodeling and have come up with a new name for the bathroom: the "family hygiene center."

It's That Time Again

Members are reminded that their dues are payable before the end of the year. Despite skyrocketing costs, our Board has decided that there will be no increase in dues for next year — still \$10 per annum. We would also suggest that you consider gift memberships for special people for Christmas (or birthdays); a number of our members find this a happy solution to a sometimes perplexing problem.

Also bear in mind that the Ivan T. Sanderson Memorial Fund is still open and will remain so. At the time of writing the Fort Notes are uppermost in our minds; we must have funds to complete this project as it should be completed.

MEMBERS' FORUM

RESEARCH REQUESTS

Can someone find the original reports of the 1924 Doheny expedition to Hava Supai Canyon, Arizona? It has been stated in a number of places that these contain an account of petroglyphs representing "dinosaurs" in this canyon.

Member 1590 is interested in getting in touch with other members who are interested in investigating such phenomena as the Great Pyramid of Gizeh and the sites of possible ancient visitation by extraterrestrials, etc. This young man appears to have the time and the funds to explore these fields, perhaps with other member(s) of SITU. We will forward bona-fide inquiries from members who might have the interest, time, and means to join him.

Member 1615 wants to contact other members in California who are interested in a "Bigfoot" expedition; he is also interested in extraterrestrial visitors, pre-Columbian explorations, etc.

AN APOLOGY

We have learned that the article "The Population Density of Monsters in Loch Ness" published in our July 1974 issue (p.69) and attributed to the Department of Zoology Newsletter, University of Maryland, was in fact first published in Limnology and Oceanography, volume 17, 1972, p. 796-798. This was not indicated in the Newsletter, but we nevertheless regret our failure to properly credit the article.

BOOK REVIEWS

by Sabina W. Sanderson

THE "BERMUDA TRIANGLE"

There are several new books on this subject, and I frankly cannot bring myself to read them in full though I have skimmed them to get a general impression of their value. All seem to include the standard cases but vary in their overall interpretation of events and in their speculations concerning the cause(s). The two 'major' books are:

Charles Berlitz. The Bermuda Triangle. New York: Doubleday & Company. 1974. \$7.95. 52 illustrations, bibliography.

Richard Winer. The Devil's Triangle. New York: Bantam Books. 1974. Paper, \$1.50.

A lesser effort is a paperback booklet by Adi-Kent Thomas Jeffrey, also called The Bermuda Triangle, available from the New Hope Publishing Co., 37 N. Main St., New Hope, Pa. 18938, for \$2.00 including postage and handling. It isn't worth that.

"ABOMINABLE SNOWMEN"

I have also read as many books as I care to read on this topic, but two deserve mention here. The first, On the Track of Bigfoot by Marian T. Place (Dodd, Mead & Co., 1974, \$4.25), is specifically for young people. It does not include any new information but does provide a good introduction to the subject. There is some (forgiveable) literary license, but the basic information is factual. The book is illustrated, has an index and a short but useful bibliography.

The second is Michael Grumley's There Are Giants in the Earth, Doubleday & Company, 1974,

\$6.95. Much of this is a re-hashing of old material, some of it dubious (e.g. Loy's American Ape", a decomposed spider monkey), but there is some new information, and in particular from areas other than North America, which makes the book probably worth having. Astonishingly enough, the author apparently has never heard of Ivan T. Sanderson and does not include his book in the bibliography, though he quotes from authors who have and do.

MISCELLANEOUS BOOKS

We have in the past indicated that certain books should be avoided by all sensible readers. Apparently some people have bought these to find out why we consider them so awful. For those who like to waste their money in this way, here are some more examples.

Richard E. Mooney, Colony: Earth. New York: Stein and Day. 1974. Paperback \$1.95. A Fundamental approach to the "ancient astronauts" theme, with little attention to factual material.

Eric and Craig Umland. Mystery of the Ancients. New York: Walker & Company, 1974. A more than dubious account of the Mayas and their origins; if it weren't so appalling it would be funny.

Peter Kolosimo. Timeless Earth. (Translated by Paul Stevenson). New Hyde Park, New York: University Books. 1973. \$7.95. Some of his material is all right, but he apparently accepts as gospel the works of Robert Charroux and James Churchward, neither of whom is a reliable source of information; and he rarely manages to make clear the difference between fact and speculation. The book does have an index

and a (rather dubious) bibliography. If you must have this book, wait for a paperback edition.

Jacques Bergier. Extraterrestrial Visitations from Prehistoric Times to the Present. New York: Signet. Paper \$1.50. First printing 1974. (Hardcover edition, Henry Regnery Co. 1973.) If you want a really awful book, this is it.

Green Silence, Ivan T. Sanderson's last book, edited and completed by Sabina Sanderson, will be

published by the David McKay Company on the 11th November 1974 and should be available in bookstores thereafter. (Please do not try to order it through us; we don't sell books.) This is not a fortune book, but Ivan's fans should find it enjoyable. It tells the story of his "one-boy expedition" to the jungles of what is now Indonesia at the age of 17, and is rather fun and much the same style as his "Treasure Books" (Animal Treasure, Caribbean Treasure, and Living Treasure). The price will be \$9.95.

Andrija Puharich. Uri: A Journal of the Mystery of Uri Geller. Garden City, N.Y.: Doubleday & Company, Inc. (Anchor Press). 1974. \$7.95. (London: W. H. Allen. £2.95)

Uri (pronounced Oori) Geller, for the benefit of those who have been in a coma for the past year or so, is a young Israeli who apparently possesses rather extraordinary 'psychic' abilities and has demonstrated his talents both for the public (on stage and TV) and for the Stanford Research Institute. This is his 'authorized' biography.

The book is really in two parts, though these are intermingled. One deals with Geller's abilities as such, and the investigation of his alleged powers of telepathy, psychokinesis, etc. There has been a great deal of controversy over this, some investigators claiming the he is a charlatan doing "tricks" that any good magician can do, others insisting that his powers are genuine. The truth may lie somewhere between these two extremes, but it certainly seems that he does have some abilities which must be considered paranormal. On the basis of the information in Dr. Puharich's book it is impossible to draw any final conclusions here, but it must be pointed out that if even 1% of the deeds attributed to him are genuine paranormal phenomena, he is worth further investigation.

The other part of the book deals with Andrija Puharich's ideas on the nature of Geller's powers and the way in which he acquired them. To put it mildly, this makes rather extraordinary reading. In the Epilogue Puharich says, "The reader must be the judge of whether or not I have succeeded" (in convincing you that my story is true); to which I must reply, "Sorry, chum, but I don't believe a word of it."

It should be put on record here that Andrija Puharich has in the past done some very solid work in the field of the paranormal, and his two previous books (Beyond Telepathy and The Sacred Mushroom) are straightforward and at least relatively discerning. He was responsible for bringing Peter Hurkos to this country and performed carefully controlled experiments with him and with Harry Stone. He also has over fifty papers in scientific and professional journals to his credit. In short, one would expect a reasonably scientific approach to a study of Uri Geller and his abilities. This is far from being the case. In fact, Puharich sounds like a classic "contactee" though, despite what follows, he more or less denies being one. Also, Puharich claims that all his journals, films, and such concerning Geller were confiscated by Israeli Intelligence when he left Israel, and there is no indication that they were returned to him later. This does not prevent him from quoting long conversations and giving names, dates, places, and times down to the exact second. At the very least one must credit him with a phenomenal memory (he states that he started writing the book without the journal in February 1972).

He first met Uri in Israel in 1971 and conducted a number of experiments with him, and initially these seem to have been as well controlled as was possible in the circumstances. This happy state of affairs does not appear to have lasted very long.

Puharich's principal thesis is that Uri Geller is "the ambassador for an advanced [extraterrestrial] civilization" and that he, Puharich, has been chosen as the "principal witness ... and chief scribe". It is not clear how Uri came to be chosen for this role, particularly inasmuch as he does not impress even Puharich very much as a person. Puharich calls him an "unabashed egomaniac" (p. 87) and though he grants him "honesty and boyish charm" he also notes his "small-minded approach to life, an almost desperate hunger for security and recognition" (p. 208) and quotes an Israeli friend who says they have "a word in Hebrew for a kid like Uri; puscht, which means 'a punk' in English. He is really insufferable". Nevertheless, another friend considers him an "early stage of Old Testament prophet", and Puharich clearly has no doubts about the roles they have been called on to play, while admitting freely that he has not one iota of evidence to back him up.

In what seems to have been a kind of pseudo-psychiatry designed to wean Geller from his blatant materialism and introduce him to his own soul, Puharich asked permission to hypnotize him. Uri's answer (p.89) was "That's easier said than done. I'm in show business, and many hypnotists have tried to hypnotize me and nobody can....it just won't work." However, he gave Puharich permission to try and was told (p. 93) "that even though he was going to be hypnotized, he would remember everything that happened

in this first session". Geller was asked to count backward from twenty-five and by the time he reached eighteen "he was in a deep hypnotic trance". When he awakened, "he could scarcely believe that he had been under hypnosis for an hour and a half. He had no memory of what had occurred,...." (p. 95). It was during this hypnosis session that the extraterrestrials first made themselves known to Puharich—who told Geller all about it. Their message was that they (the extraterrestrials, given various designations such as Hoova, IS, Rhombus 4D, etc. depending on the particular branch of the civilization doing the talking) had found Uri in a garden when he was three years old and had "programmed him...for many years to come, but he was also programmed not to remember. On this day his work begins. Andrija, you are to take care of him". The message was recorded on a cassette tape, which vanished from Uri's hand when he grabbed it while it was being played back for him. From this time on his paranormal powers were even more remarkable than before. Unfortunately, all the most spectacular feats were witnessed only by Geller and Puharich and, in a few cases, by others who can legitimately be called Geller's 'disciples'. This hardly constitutes evidence.

As for the messages from the ETs, every single tape on which a message was recorded either vanished completely or was mysteriously and instantly erased. This is either frightfully significant or frightfully convenient. The messages have, however, been transcribed from memory by Messrs. Puharich and Geller. Like all other communications from 'space people', these are not very helpful; in fact they are seldom intelligible, and occasionally contradictory. After informing Puharich that e.g. they will "silence the atomic weapons of the world", they show a distinct tendency to urge him to pray for peace. They also note that they "can command any communication system man has devised" (p. 124) but "cannot contact you directly" (p. 174), but there is a reason for this (I think):

The Universe is controlled (so says Puharich) by The Nine, under whom are the Controllers of the Universe. Then there are the Messengers, some of which take the form of UFOs; and finally, as the intermediary with Earth people (the only one for the next fifty years) is Uri Geller. The problem is that either The Nine or the Controllers (I forget which) is/are a computer. It is not clear where this computer (or bank of computers) is/are located, but it exists some millions of years in the future. One of their ways of making themselves known and impressing Puharich and Geller is to indulge in such constructive acts as moving old 7-Up glasses around. How they have managed to program this (to be triggered by Uri) from millions of years in the future is, again, not clear, and even Uri on one occasion exclaims: "... But look at the foolish things they are doing....To us it looks like they are not stable, goddammit...." To which one can only add, amen.

Uri, by the way, is to help not just Earth but the universe (p. 124), and Spectra (another of their names) has told Puharich that "There are some books on your planet left by our people. Uri will find them in the years to come. Your questions will be answered.... They [the books] will materialize themselves away after they have done their work." (p. 114). This is going to be awfully convenient too!

Now, I am probably guilty of a certain facetiousness along the way, and I must make it clear that I have not the slightest doubt that Dr. Puharich is utterly sincere* and believes every word in the book. I have been told by a very reliable informant that approximately 30% of the original manuscript was deleted by the publisher because it concerned Andrija Puharich and they wanted a book on Uri Geller. This is understandable but unfortunate, since one would like to know a great deal more about Puharich and his 'conversion', and particularly in view of some rather disturbing elements here.

It is stated (p. 284) that Puharich founded Intelectron Corporation "to develop electronic systems for aiding hearing in nerve deafness....and holds fifty-six United States and foreign patents for his inventions. He has also applied for patents on his systems to enhance ESP,...." At one time he was under contract to the Air Force to develop a miniaturized radio receiver that would fit in a tooth (it is not known whether or not he succeeded, and there is no evidence at all that he ever took Uri to a dentist). He seems to have (or have had) an extraordinary influence on Uri: (p. 66) "We met Geller after the show....He readily agreed to meet me at my apartment the next day at 1 P.M. to discuss my research interests and find out what I wanted to do. I did not realize then how lucky I was. Later I found out that Uri had steadfastly resisted all offers by research people to do experiments. He, too, was surprised at how readily he had consented, especially since I was a total stranger." Add to this the ease with which Puharich hypnotized the 'un-

*Dr. Christopher Evans, writing in the New Scientist, 25 April 1974, notes: "He's also a broad-minded tolerant and sincere chap who, in my humble opinion, believes with the most blazing sincerity, every word in the book. This must be true, for no one prepared to sit patiently listening to mediums relaying information from extraterrestrial scientists who make remarks like 'Peace is the integral fruitage of personality' and 'copper is a phenomenon which succeeds in giving half of seven resultant to human body particular', could be anything but broad-minded and sincere—particularly when they write about it afterwards with such enthusiasm." I agree.

hypnotizeable' Geller, and the implications are rather interesting. There is, of course, no proof that any of this is applicable, but one cannot help wondering, as follows:

Andrija Puharich is undeniably sincere and convinced that Uri is an intermediary between an advanced 'civilization' and us and is nearly paranoid about it when others fail to recognize Uri's "genius" —he says (p. 228) that Uri "felt the full weight of the lynch that was being organized against him in the United States....My goal was simple—to keep the human race from talking itself into a 'crucifixion' state of mind" This is out of context, of course, but on reading the entire section, I gain the impression that Puharich fears a literal crucifixion rather than a figurative one.

Geller knew nothing of his 'mission' until Puharich told him about it, and at least the early messages from 'them' all arrived while Geller was in a hypnotic trance. Is Puharich in fact a perhaps unwitting contactee who is 'using' the apparently sometimes naive and pliable Geller. If he is, he could even be using his electronic expertise without being consciously aware of it. As Puharich freely admits, there is not a shred of evidence for the extraterrestrial contact; and, as he does not seem to admit, there is no good evidence for Geller's most spectacular feats (Puharich claims that these latter, and even many of his standard acts are not Geller's at all but are the extraterrestrials acting through Geller). Certainly the message being transmitted via Puharich-Geller is typical of messages from "space people"—and typically unhelpful at that. If there really are "space people" who are contacting certain persons on Earth, they must be as immature sociologically as they are (presumably) advanced technologically, and I personally believe we can do without their "help". In the case of Puharich, perhaps he is a contactee, or perhaps he has, for reasons unknown to us, developed a kind of messiah complex which he is indulging vicariously through Uri Geller.

I have spent a perhaps inordinate amount of space on this book, but in view of the intensive campaign being carried on by Dr. Puharich and the nature of his claims, I think a rather full exposition is needed. There are a number of points made in the book which are not even touched on here, but I believe I have given you fair warning.

Colin Renfrew. Before Civilization. New York: Alfred A. Knopf. 1973. \$8.95

The standard archaeological theory has long been that "culture" originated in the Near East and from there spread to continental Europe and the British Isles. This seemed to be confirmed by radiocarbon dating of various artefacts, which in some cases are "obviously" derived from Near Eastern "ancestors". It has always been recognized that radiocarbon dates are not absolute, and they are always published with a 'plus or minus' figure attached. This indicates the standard deviation which results from background radiation which cannot be eliminated and which varies in a completely unpredictable way. There are other factors that affect the amount of radiocarbon in a particular sample, but the most important of these is the variation in the atmospheric concentration of radiocarbon with time. This was discovered only recently but is most significant: before about 1000 B.C. the deviations from the present level are such that they produce very significant errors in dating, amounting to as much as, for example, 800 years circa 3000 B.C. The procedure by which tree-ring dating is being used to correct radiocarbon dating is fully described in Colin Renfrew's book, but we may quote a short passage here:

"...using distinctive sequences, one can link tree with tree, and build up a continuous sequence of tree-rings extending just as far back as there is wood available from trees long dead. This dendrochronology, of course, gives dates for the wood expressed in solar or calendar years, since the rings on the tree are caused by variations in climate linked to the annual rotation of the earth round the sun.

"The next step is to exploit this long chronology to help solve the problems of radiocarbon. Samples of wood from rings of known age are taken, and radiocarbon determinations for them are performed in the laboratory in the usual way. In this way straightforward ages, in what we may call radiocarbon years, are obtained for wood samples whose true age in calendar years is already known....

"By performing large numbers of radiocarbon determinators upon tree-ring samples of known age from the bristlecone pine, Professor (Hans E.) Suess has constructed a graph which may be used to convert radiocarbon dates (in radiocarbon years) to true or tree-ring dates (in calendar years)...."

Renfrew discusses the problems of dating in great detail and also presents considerable material on other evidence and the processes of cultural change (and exchange) concerning this really rather dramatic and fundamental change in the whole approach to European prehistory. It is not "light reading", but neither is it written only for the specialist, and it should be considered "must" reading for anyone with any interest in this field of enquiry. The author makes no exaggerated claims of a 'final answer' and is careful to point out remaining questions concerning the validity of the tree-ring 'calibration' of radiocarbon dates. However, he does present a very strong case for an almost complete reversal of the accepted theory—and some of his evidence concerns things that have always made archaeologists 'nervous'. The book is well worth reading.

There are quite a number of illustrations and diagrams, notes and a bibliography, and a good index.

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