

MORE ON THE SIBERIAN METEORITE OF SEPTEMBER 2002, BY PHILIP CREIGHTON.

In the last issue of FSR (page 23) we reported on the claim by Valery Uvarov, of Russia's National Security Academy, that on September 24/25, 2002, a meteorite was "shot down" over Siberia by an unknown installation which acts to protect this planet from such cosmic invaders which, if large enough, could cause devastating damage.

We have now gathered much more information about this event. We'll start with a recent report in *The Times*, very kindly sent to us by FSR reader, Mr. A. Calvert, along with his comments.

Siberia meteorite flattens 40 sq. miles

From Robin Shepherd in Moscow.

(*The Times*, 7th June, 2003, page 18.)

IF IT had hit Central London, Britain would no longer

have a capital city. The force of the meteorite that hit eastern Siberia last September destroyed 40 square miles of forest and caused earth tremors felt 60 miles away.

An expedition from Russia's Kosmopoisk institute has only recently reached the site in a remote area of Lake Baikal because of the bad weather and difficult terrain, the Interfax news agency said yesterday.

Fragments of the meteorite had apparently exploded into shrapnel 18 miles above the Earth with the force of at least 200 tonnes of TNT.

At the time, Russian media reported that villagers 60 miles away had witnessed a gigantic fireball screeching down from the sky, causing windows to rattle and house lights to swing as they were hit by blast waves on September 25. There were no reported casualties. ■

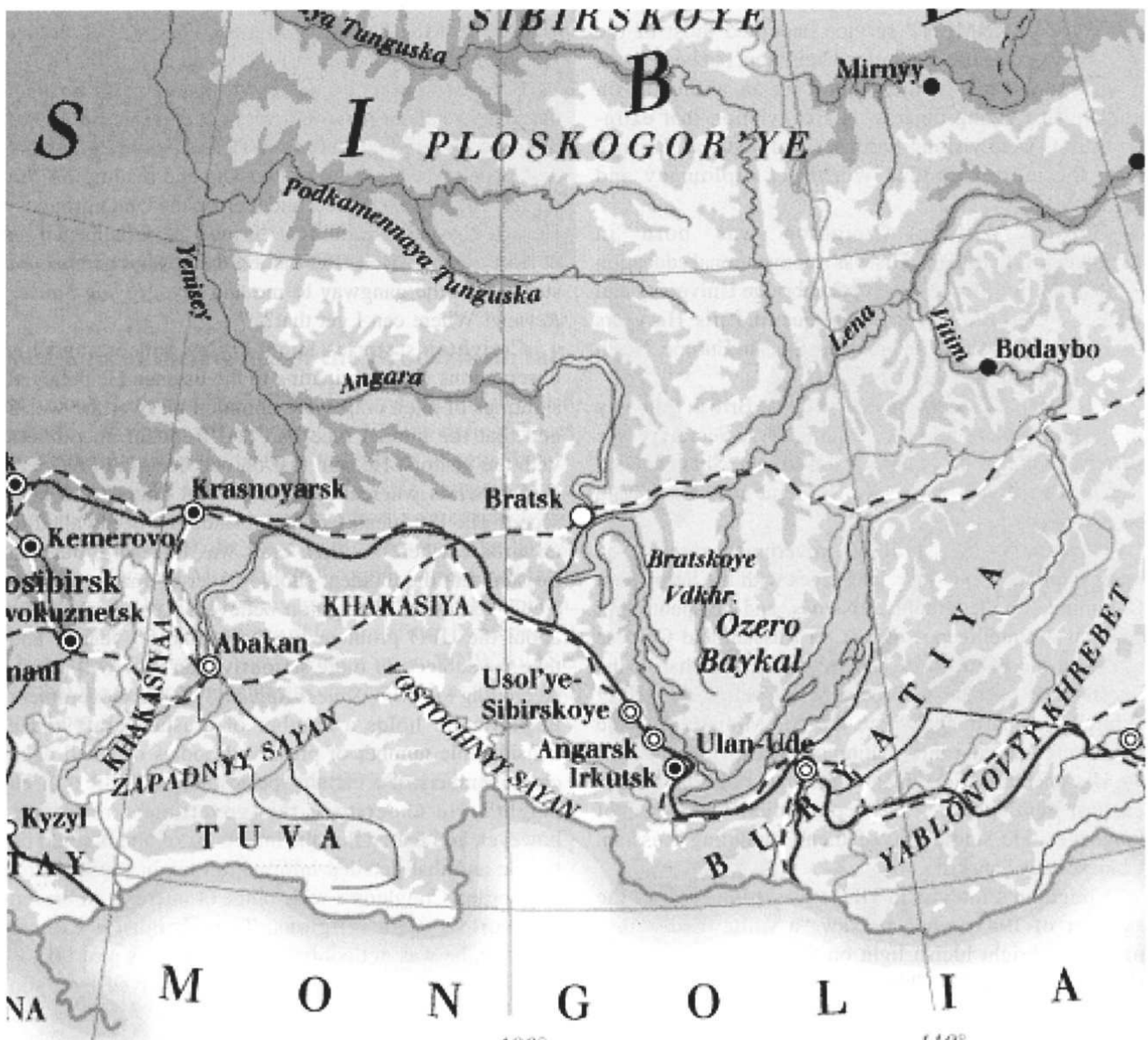


Fig. 1. Bodaibo is located in the above right-middle.

Mr Calvert makes the following observations:

In *UFO Magazine*, April 2003, there was an interview with Valery Uvarov of the "Department of UFO Research, Science and Technical, National Security Academy", St. Petersburg, Russia, who said that there was an Alien system deep in the tundra to protect Earth from meteorite impacts, etc. This is something hard to believe, but the above story lends a hint of credibility to it being true.

First, there is the fact that this appears to be a repetition of a "Tunguska Meteorite" like episode, something that must be considered as an unlikely coincidence. The implication is that this meteorite was drawn to this largely uninhabited area, and then destroyed harmlessly for planet Earth.

Next, the meteorite did not crash into Earth, as would have been expected under typical circumstances, but exploded 18 miles above the Earth; it must be said, showing remarkable similarity to being struck by an anti-ballistic missile, and being totally smashed in the process.

And finally, what is to be made of the statement, 'witnessed a gigantic fireball *screeching* down', that is in all probability simply journalese, but may indicate something much more important did happen on September 25th, 2002, over that deep Russian forest?

Let us now look at some other reports about this event.

***Pravda*, October 3rd, 2002**

Locals say that it was huge

Residents of the town of Bodaibo in the Irkutsk region witnessed the fall of a large celestial body. Scientists suggest that it might have been a meteorite.

This was reported by the regional department of the Russian EMERCOM. They added that they received the information from the Institute of Solar and Earth Physics of the Siberian division of the Russian Academy of Sciences.

Scientists said that Bodaibo residents could see the fall of a very large luminous body, which looked like a huge stone. The unidentified object fell in the woods. The site of the fall is situated very far from any settlements, but locals felt a strong shock, which could be comparable to an earthquake. In addition to that, the people also heard a thunder-like sound. Flashes of bright light could be seen above the site of the meteorite's fall.

Russian news service, *Interfax*, October 4th, 2002

Quotes a Russian academic official as saying there was "no doubt" that a meteorite "fell into the taiga on Thursday." The report doesn't say whether that was Thursday the previous day (the 3rd) or Thursday the previous week (the 26th). "He cited hunters as saying the supposed meteorite had left a large crater surrounded by burned forest." This brief article ends with, "scientists were fearing the meteorite was a lump of ice that would melt away before an expedition came."

Ananova, October 4th, 2002

Asteroid 'hit northern Russia'

A large meteorite is thought to have smashed into a forest in a remote area of Russia. Residents in the town of Bodaibo, in the Irkutsk region of Siberia, saw a large

luminous body fall from the sky. They say the impact caused the ground to shake and made a sound like thunder.

Flashes of bright light could be seen above the impact site, which was a long way from any settlements according to the Russian newspaper *Pravda*.

"Locals felt a strong shock, which could be comparable to an earthquake," said the report. "In addition to that, the people also heard a thunder-like sound."

Asteroid expert, Dr Benny Peiser, from Liverpool John Moore's University, said: "If the eyewitness accounts are confirmed, this fact of an earth tremor together with thunder-like explosive sounds would indicate a rather significant impact event."

He said the incident occurred on the same day as the US House of Representatives debated the need to search for smaller asteroids and the danger of mistaking impacts for nuclear attacks.

At least 30 times a year, asteroids smash into the Earth's atmosphere and explode with the force of a nuclear bomb. These smaller asteroids, between 200 and 500 metres wide, could potentially demolish a city with a direct hit or cause tsunamis - giant waves - capable of wiping out entire coastal areas if they land in the ocean.

Astronomers estimate there could be between 900 and 1,300 large asteroids measuring one kilometre or more in our part of the solar system, while the number of smaller bodies could amount to 50,000.

news.bbc.co.uk , October 8th, 2002

Cash plea for space impact study

Scientists investigating what is believed to be a "significant" fresh meteoroid impact crater in a remote part of Siberia are begging for funds to mount an expedition. A British meteorite expert has called on the international community to help Russian researchers get to the impact site, which may be of major scientific importance.

Hunters in the region say they have seen a large crater surrounded by burned forest. Vladimir Polyakov, of the Institute of Solar and Terrestrial Physics in Moscow, said: "Specialists have no doubt that it is a meteorite that fell into the taiga on Thursday."

Polyakov says there were more than 100 eyewitnesses to the event. He added that scientists believed them. He said instruments rarely recorded the impacts of meteoroids and so eyewitnesses were practically the only source of information for such events.

Kirill Levi, vice-director of the Earth Crust Institute in Siberia, said: "The seismic monitoring station located near the event site recorded the moment of impact recording seismic waves comparable to a middle-power earthquake."

Vladimir Polyakov added that it was impossible to send a state-funded expedition to the site, which lies in Bodaibo district, Irkutsk region, without approval from the Meteorite Studies Center in Moscow.

Bodaibo residents say they witnessed the fall of a very large, luminous body, which looked like a huge boulder.

Scientists in Irkutsk have sent a report to Moscow along with a request for funds to mount an expedition

but have had no reply.

Benny Peiser, of Liverpool John Moores University, UK, said: "We appear to be dealing with a significant impact event." He told BBC News Online: "It is imperative that US and UK funding bodies support our Russian colleagues in their investigation of the Siberian impact. "The resources required for sending a scientific expedition to the epicentre of the event would be very moderate but could yield vital information about the impact threat that concerns every citizen of the world."

Cambridge Conference Correspondence, October 14th, 2002

Duncan Steel's analysis is that this would have been an atmospheric event of around *0.2 kilotons* and not a significant ground impact. That seems to be affirmed in the same edition by Russian scientist Mikhail Nazarov, whose report of a 25 Sept. fireball at 1:50am local time is that seismic stations in the area did not register an event, with the possible exception of the station at Bodaibo.

www.space.com , October 14th, 2002

The U.S. Department of Defense has confirmed an apparent space rock that lit a fire in the night sky above a remote region of Siberia last month. Meanwhile, scientists struggle to pin down whether or not the object slammed into the planet.

Eyewitnesses in the Bodaibo district reported seeing a fireball race across the sky Sept. 24. Hunters later said they found a crater surrounded by burned forest. A seismic monitor in the region, according to the British NEO Information Center possibly recorded the event.

Evidence for an actual impact near Bodaibo has not been verified by scientists.

"Unfortunately, at present we do not know exactly what happen there," said Michael Nazarov of the Laboratory of Meteoritics Vernadsky Institute of Geochemistry and Analytical Chemistry. "The Bodaibo [seismic] station recorded a signal which cannot be easily interpreted."

Other seismic recorders farther from the event recorded nothing, indicating that if the rock did survive its heated plunge through the atmosphere to hit the ground, the impact was relatively small.

Nazarov said it would be difficult to find any possible Bodaibo crater in the remote region, since the event occurred at night and there are few witnesses to help scientists pin down the object's trajectory and possible impact location.

Russian news agency Novosti, October 21st, 2002

Brief update that there is seismological data from the 25 Sept. event, and that it has helped better determine the most likely location of any object remnants, which an expedition is preparing to go look for.

Russian news agency Novosti, October 28th, 2002

Sergey Yazev, director of the observatory at Irkutsk State University, had reported that there was indeed a 25 Sept. meteor impact, found 37 km. (23 miles) from the settlement of Mama in the northern Irkutsk region. The indication was damaged trees, and any search for

fragments will have to await Spring, since the area is now covered in deep snow.

Russian news agency Novosti, March 9th, 2003

Reports of a scientific team preparing to visit the site, and on 6 April of its departure: "six men from three institutes of the Irkutsk Research Center of the Russian Academy of Sciences' Siberian Division" have left on an expedition to where they believe they can collect dust, if not pieces.

New Scientist, 14th June, 2003

Giant meteor claim sparks skepticism

The salient points of this article are:-

A Russian scientific expedition claims that a gigantic meteor, large enough to destroy a small city, exploded over Siberia last year.

According to Russian news agency Interfax, a search team has found an impact area covering about 100 square kilometres of remote Siberian woodland. This would make it the second-largest meteor strike since the enormous one at Tunguska in 1908, which was estimated to have had an energy of about 10 megatons of TNT.

However, there is severe discrepancy between reports [and this is what is especially interesting in relation to the claim that the meteor was "zapped" by some unknown agency – editor].

American satellites spotted the object as it entered the Earth's atmosphere, but lost track of it below 30,000 metres. Most meteors explode at high altitude, when they are broken up by heat and the decelerating force of the atmosphere.

A second American satellite picked up the actual explosion of the object, at a height of about 18 miles. The energy dissipated was estimated at around 2.2 kilotons of TNT – a tiny fraction of the 10 megatons released in the Tunguska explosion. If it hit the ground, "at most it would form a crater of about 30 metres in diameter", says Mikhail Nazarov, deputy director of Sciences meteorite committee at the Verdansky Institute in Moscow.

In October two Scientists from the academy, accompanied by four journalists, attempted to find the impact site with the help of satellite data. They found only minor tree damage. Heavy snowfall prevented further searching until the Spring.

A second expedition has now been mounted by members of Kosmopoisk, an organisation of 300 volunteers who coordinate searches for space debris. They claim to have found an extensive area of burnt trees and meteorite fragments 60 kilometres from the village of Mama, near the Irkutsk border.

The Mystery Remains

Thus, we are left with conflicting data, and one wonders what may transpire next. Certainly the inconsistent data is suspicious, and suggests that something unusual happened with regard to that meteor.

Meteor "sounds" and electromagnetic effects

It is an extraordinary fact that some, but not all, people can hear sounds associated with meteors, and we are not

talking of sound in the ordinary sense, because these sounds can be heard when the meteor is well out of earshot, and they are not subject to the delay one would expect from the relatively low speed of ordinary sound transmission.

These sounds have come to be referred to as “electro-phonetic”, on the basis of the belief that they are due to electromagnetic effects, possibly caused by radiation generated by the plasma of intensely heated, ionised air accompanying the passage of the meteor through the upper atmosphere. (Meteors typically cease to glow once they have been slowed to their terminal velocity, and enter the lower atmosphere, if they have not already burned up or broken up.) So, the hot plasma exists only while the meteor is at high altitude.

So, aside from the mystery about how the associated electro-phonetic sounds are generated, one can also see that, if meteors create electromagnetic radiation, say at some radio wavelength, this also provides a means whereby they can be *detected* – as well as visually (not always possible – in daytime or with cloud cover) – and this would be indispensable to any mechanism trying to “shoot them down” or zap them.

More on electro-phonetic meteor sounds

Neil Davis who is a seismologist at the University of Alaska Fairbanks, says:

People sometimes report a slight whistling, crackling or sizzling sound before hearing anything else, and usually while the meteor fireball is in sight. The cause of these noises is not known. Some authorities think the sounds are illusory even though the sensation of hearing them is genuine, the idea being that the sound may be a trick of the brain since human experience suggests that anything bright and fast-moving should whistle or sizzle.

Here is a recent study from the *New Scientist* of 06 February 02:

Meteors’ popping recorded for first time

Researchers have recorded sounds picked up as meteors blaze through the atmosphere for the first time. However their recordings could undermine the leading theory of why they make a noise.

For centuries, people claim to have heard pops, crackles, whooshes and sizzles coinciding with meteor falls. One mystery is why there is no time delay, as it should take several minutes for the sound to travel many kilometres to the ground.

In an attempt to nail down the phenomenon, a team from the Croatian Physical Society and the University of Kentucky set out in November 1998 to observe that year’s rich Leonid meteor shower. In the quiet of a frozen, lifeless plain in central Mongolia, the team set up a sensitive digital video camera to watch the sky, along with two microphones to capture any sounds, and radio receivers to monitor electromagnetic signals.

In an article accepted for publication by the *Journal of Geophysical Research - Space Physics*, they report that at least two deep, popping sounds coincided with bright fireballs tearing across the sky. But the radio equipment,

which was tuned to very low frequencies (VLFs), failed to pick up any signals. It’s the very first time anyone has picked up these sounds under controlled conditions, says Dejan Vinković of the University of Kentucky. “We proved it is possible.”

But an explanation of the phenomenon seems as far away as ever. According to Australian meteor researcher Colin Keay, very low frequency radio waves produced when the turbulent ionised wakes of meteors tangle with the Earth’s magnetic field could generate sounds on the ground by making plants or other objects vibrate. The lack of such radio signals puts this theory in doubt. The work has got people taking notice. “It’s certainly a step in the right direction,” says meteor specialist Martin Beech of the University of Regina in Canada.

Colin Keay of the Herzberg Institute of Astrophysics, run by the Canadian National Research Council in Ottawa, has however, conducted extensive research into the matter. The following is extracted from the website at <http://users.hunterlink.net.au/~ddcsk/nswfirbl.htm>

The Great New South Wales Fireball

The entry into the atmosphere of a large (but not too large!) meteor fireball, or bolide, is one of the most awesome natural phenomena that a human being may witness without being greatly endangered. They are very rare events, occurring about once every fifty years at any given location, and few people ever see one during their entire lifetime. For around ten percent of those who strike it lucky the mental impression is heightened by hearing strange electro-phonetic sounds accompanying the event.

Such was the case when a bolide turned night into day in the skies above the cities of Sydney and Newcastle in the State of New South Wales, Australia, on April 7, 1978. It burst into view from the southwest at 4.44 am AEST on a moonless night, ninety minutes before sunrise. Its magnitude was around -16, or in other words about forty times brighter than a full moon.

Observations from the Newcastle region indicated that any resulting meteorite would have fallen into the sea, but by the time that conclusion emerged the many clear reports of simultaneous hissing, rushing, swishing and crackling sounds had captured my interest. Some of the witnesses heard sounds only when the bolide flared or exploded. Others heard sounds from shortly before the time of the explosions until the light of the bolide was finally extinguished about ten seconds or more later. The fireball was luminous for upwards of twenty seconds, with its greatest brilliance commencing at the time of several explosive fragmentations about midway along its trajectory.

The following six sample reports are arranged in order of locations along the ground track of the fireball:

“Heard a noise like an express train or bus travelling at high speed. Next an electrical crackling sound, then our backyard was as light as day.” A. Hayes, Edgecliff.

“A noise could be heard. A low moaning, swooshing transcribable on a tape recorder. It lasted 2 or 3 seconds.”

"I heard a sound like an approaching vehicle and saw a flash of light as everything was lit up like daylight." J. Ireland, Vales Point.

"It was a loud swishing noise" J. Wright, Swansea.

"..heard a noise like a 'phut' or 'shower cracker' at the time of the flare. It was not loud enough to wake anyone." N. Jones, Kotara. (Mrs Jones' friend standing nearby heard nothing!)

"I heard a sound like steam hissing out of a railway engine for a count of about ten." H Drayton, Hawks Nest.

Those and other reports convinced me that there had to be some physical explanation for the sounds, regardless of their apparent inconsistencies.

I formed only one firm conclusion: the energy had to be transmitted by electromagnetic means. The other three known fundamental physical forces were unable to do so. Yet no meteor fireball had ever been found to generate its own radiation anywhere in the radio region of the electromagnetic spectrum. Excitation of sounds by heat and light was soon ruled out creating a real dilemma which required extensive scientific detective work to resolve.

Having concluded that the transfer of energy from a meteor fireball (bolide) to create the anomalous sounds had to be by means of electromagnetic radiation, my primary task was to locate its spectral region. There were no known instances of radio signals originating from a bolide, however large. Previous searches had failed.

The only recourse was to eliminate prospective regions of the spectrum one by one. Only for frequencies from approximately 1 hz to 100 khz was there an absence of proof that no radiation was emitted. (This. Of course, covers the audio frequency range.)

The search for possible mechanisms for generating such radiation led me to consideration of processes occurring in nuclear explosions, where an intense burst

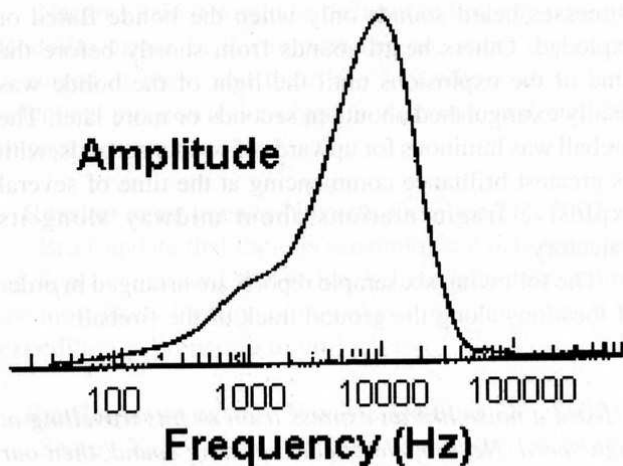


Fig. 2. Spectrum of EMP from a nuclear explosion

of radio emission is produced of sufficient intensity to burn out electronic equipment. Reportedly it may be heard as a "click" by soldiers in bunkers near such a blast.

A 1965 paper by J.R. Johler and J.C. Morganstern revealed its amplitude peaking at 12 khz (see amplitude/frequency graph, Fig. 2). A perturbation of the geomagnetic field by the blast is one of the mechanisms producing the electromagnetic radiation, and this parallels what happens when a meteor explodes and gives rise to an electrophonic "pop", "phut" or "crack" heard by some witnesses.

At this stage mention should be made of the work of two Russians, V.V. Ivanov and Yu. A. Medvedev, who in 1965 published a paper on the electric field effect of large meteors. If meteors enter the atmosphere at a fairly steep angle they disturb the normal geoelectric field, giving rise to a purely electrostatic discharge whose effects may be audible. Brief "swishes" heard from meteors seen directly overhead have occasionally been reported. This too is a matter meriting careful investigation.

However the knotty problem of how a bolide could generate sustained electromagnetic radiation remained. No processes in the plasma surrounding the bolide or the ionization in its trail were known that could do it. Some new mechanism had to be found.

Inspiration arose from Fred Hoyle's sunspot theory in which energy is trapped in twisted magnetic fields to create the spots. What if the Earth's magnetic field was similarly trapped in the turbulent plasma trail behind the bolide, and released when the plasma cooled and the ionisation neutralised itself?

Calculations indicated that such a "magnetic spaghetti" could arise in a turbulent bolide trail. Turbulent conditions only exist when the trail is below a certain height in the atmosphere. And for the effect to be sustained for up to ten or more seconds the bolide must arrive in a shallow trajectory. These restrictions provide the underlying basis for Astapovich's empirical conclusions many decades ago that only bolides in low trajectories give rise to reports of electrophonic sounds.

Confirmation that I was on the right track followed soon after publication of this work in the journal SCIENCE in 1980. Three years later another Russian, a noted expert on the subject, V.A. Bronshten, endorsed the concepts in his treatise *Physics of Meteoric Phenomena*, and in a paper expanding my calculations he showed that a bolide twice as bright as a full moon could generate well over a megawatt of radio power by my "magnetic spaghetti" process.

It was not until 1990 that in Japan I learned of the first recognised detection of radio waves from a meteor fireball. At Nagoya University Dr T Watanabe showed me the records which proved it: his VLF chart recording, a radio spectrogram by Dr T Okada and the photometry from a carefully timed fireball photograph obtained by K Suzuki and his students.

Not long afterwards the feat was duplicated by a Canadian team using a video camera. Both teams were fortunate to capture such rare events. Observational proof that large meteors may produce audio frequency electromagnetic radiation has given vital support to the

concepts that I earlier developed and, together with essential laboratory studies, has set the emerging science of Geophysical Electrophonics on a secure foundation.

Lab experiments

The magnetic field tests were inconclusive. The electric field results for the most part verified Sommer and von Giercke's findings, except for three of the volunteers who were markedly more sensitive than most, the best one able to detect electric field variations of only 160 volts peak-to-peak at 4 kHz frequency. The common factor proved to be their hair. Two females with the fashionable Afro hair styles and a male with very long soft hair showed the lowest threshold of sensitivity. Obviously their hair was acting as a transducer.

As well, there was a serendipitous discovery. Naturally I acted as the first test subject, and underwent the same test again as a check just prior to dismantling the equipment. My threshold for detection had risen 3 to 4 decibels! Luckily the answer was found: I was not wearing my glasses. When they were replaced my test results reverted to the same as they were initially. Clearly the glass frames were responding to the imposition of the varying electric field. This finding indicated that mundane objects in the immediate vicinity of observers may assist their perception of electrophonic sounds from bolides.

Later, in Newcastle, Australia, graduate student Trish Ostwald and I gained access to an anechoic chamber for tests of the transduction efficiencies of a variety of objects and common materials, including various types of vegetation. It was a brute force approach. We kept raising the voltage until an acoustic response was detected from the samples under test. This verified that there is an extremely wide variability of response and fully explained why whole groups of witnesses at appropriate locations may hear electrophonic bolide sounds and not at less suitable places.

These experiments amply explain the capriciousness

of electrophonic sounds. One or two people in a group may hear the sounds, while others do not. Or one entire group may report the sounds while other people in less favourable surroundings hear nothing. The experiments described above which have settled this conundrum are not difficult to perform yet I have found no evidence of them being performed by any other researchers.

CONCLUSION

Thanks to the pioneering work of Colin Keay, it is clear that it is possible to detect a meteor coursing through the sky, from its low-frequency electromagnetic radiation alone. It remains an open question what really happened with the Siberian meteor of September 25th, 2002. Hopefully we may learn more about the latest expedition by Kosmopisk in due course. ■

SOME PHYSICS -Editor

The fall of a body through the atmosphere is governed by essentially three factors:

- 1) The strength of the Earth's gravitational field.
- 2) The surface-area-to-mass ratio of the body.
- 3) The density of the atmosphere.

In practice the surface-area-to-mass ratio of a body is related to its absolute mass. Thus, a small insect suffers no harm when dropped from a height without a parachute, but something considerably larger does. In another area of consideration, it would also mean that, despite being "cold-blooded", dinosaurs probably ran a higher body temperature than our own: their surface-area-to-mass ratio was much smaller.

The density of the atmosphere falls off drastically with distance from the Earth's surface, so the outer regions are very tenuous; the friction generated as an object falls to Earth will increase as it slows, and so smaller objects will long have ceased to glow if they reach Earth without burning up. ■

A PARTICULARLY WEIRD "ALIEN" REPORT. © BY JORGE MARTÍN, Editor of *EVIDENCIA OVNI* (Puerto Rico), and FSR Consultant. Precis translation from Spanish. G. C. *Evidencia OVNI* No. 19 (1998)

While out fishing late one night in the middle of the 1970s off Parguera Beach at the south-western tip of the Island of Puerto Rico, a French-born engineer named Charles le Breton, long resident in Puerto Rico, claims that he had a UFO experience of an altogether strange and unique kind. Le Breton is very well known and very respected, and I have interviewed him, and here is his fantastic story:

He was on Cayo Margarita, one of many little islands scarcely above sea-level. [N.B. "Cayo" is the Spanish word which the Americans in Florida translate as "key" - as in the name *Key West*. G.C.]

The *Cayo Margarita* lies a few miles off La Parqueta Beach, and there was a full moon on the night in question. Le Breton says there was a long luminous "cloud" overhead at the time, and that powerful beams of light from it were sweeping the terrain and sea below. [He himself seems to have thought this genuinely *was* a cloud, and the beams of light were 'lightning flashes', but it seems far more likely it was a UFO, and that the weird beings seen by him were *not* denizens of the ocean-depths, as he seems to have thought, but UFO entities of some species or other; possibly with special connections with the sea.]