

DID A LASER CREATE THE "DEVIL'S FOOTPRINTS"?

By George Lyall

Our contributor, whose identity is guarded by a *nom-de-plume*, is an ophthalmic surgeon. In his covering letter he writes: "The connection of ideas occurred to me one day whilst I was busy making a nice line of neat little burns on a patient's retina with our laser ophthalmoscope." He sent the idea to a scientist who is a reader of *Flying Saucer Review* and who suggested we might be interested in it—as indeed we are, for the subject of the "Devil's Footprints" was considered in an article, published in 1966, about a mysterious and unidentified cog-like wheel which was observed perambulating about the French countryside.*

THIS is an exercise in applying new knowledge towards the solution of an old mystery. It can be seen to have a strong connection with the problem of flying saucers, and indeed may be said to adduce strong evidence of their mechanisms and activities.

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The recent development in scientific expertise which is to be considered is the *Laser*.

First demonstrated in 1960, it was shown possible to produce a new form of radiation. This became known, from the initial letters of the process (*Light Amplification by Stimulated Emission of Radiation*) as the *Laser*.

The *Laser* beam has some unique properties:

- (a) It contains energy of a very high power density.
- (b) This energy can be concentrated into a beam of very small area.
- (c) The beam is a parallel one so that its energy content does not diverge over a wide area.
- (d) The radiation content of the beam has a uniform wavelength.
- (e) The radiation can be emitted in short, powerful pulses.

Because of (a), (b), and (c), one can see that a laser beam can be aimed very accurately in any desired direction or at any desired target. Should any physical obstacle interrupt the beam, the light in accordance with natural laws will be either reflected or absorbed. If light is absorbed, its energy content becomes converted to heat. The laser beam contains immensely concentrated radiation and so is capable of producing intense heat and very high temperatures when it is interrupted.

The properties (d) and (e) are also of value. It enables the beam to be used as a very accurate distance measurer, or range finder. This can be done by timing the travel of single pulses, by using the constant wavelength of the beam to produce interference patterns in emitted and reflected beams, or by using frequency modulation of the beam.

The laser, then, provides a narrow, manoeuvrable, parallel beam of intense light of uniform wavelength which, on meeting a solid surface, will release its energy as reflected light, or heat, or usually in a mixture of these two ways.

It remains only to note that the cross-section of the beam may be modified by suitable screening.

The mysterious phenomena to be considered in reference to laser beams are:

- (a) The marks seen in the snow in Devon in February 1855, which came to be known as the "Devil's Footprints."
- (b) Those other horse-shoe shaped marks on rock which have from time to time been reported.

The "Devil's footprints"

The "Devil's Footprints" of Devon are well known to students of the mysterious. The best account is in Commander Gould's book *Oddities*.

Briefly, on the morning of February 8, 1855, on the fresh surface of snow fallen in the night, were seen marks which were quite unfamiliar in appearance to all who saw them. Resembling horseshoe prints, the marks were evenly spaced in a single line, making a trail which crossed fields and walled gardens, to leave marks on the tops of houses and walls, making in all a track which crossed two large river estuaries and was estimated to be at least forty and possibly one hundred miles long. Each print was about four inches by two and a half across, and the regular interval between them eight inches.

Nobody knows what made them. Many speculations have been made, all unsatisfactory. The prints suggested irresistibly those of a donkey's hooves, and the concept of an animal origin became obsessive. Badgers, mice, a rare arctic bird, kangaroos and a strange monster from the sea are amongst the suggestions put forward. The unnatural shape and regularity of the prints, together with the eccentricity of the antics which any of these beasts would have had to perform, seem however to rule out natural history from the story.

Perhaps the correspondent with the clearest vision was he who wrote at the time: "It was quite inexplicable that the animal, considering the scale of the foot, should leave, in single file, one print only, and as has already been observed, with intervals as exactly preserved as if the prints had been made by a drill or any other mechanical frame." The relentless progress of the tracks over all obstacles, its regular spacing and the tremendous distance covered all point indeed to a mechanical origin of the phenomenon.

Bearing in mind the unique properties of the laser, it will be seen that here is a mechanical device capable of producing exactly the trail seen on the snow in Devon. A travelling pulsed laser beam leaving little melted,

* *Cross-country cog wheels*, by Charles Bowen, FSR Vol. 12, No. 5 (September/October 1966).

indeed vapourised, areas. There are several points in the contemporary accounts which seem to lend support to such a theory.

"The most singular circumstances connected with it was that this particular mark removed the snow, whenever it appeared, clear, as if cut with a diamond, or branded with a hot iron . . ." No better description could be given of a laser burn!

An eye-witness writes: "The marks which appeared on the snow (which lay very thinly on the ground at the time) . . ." Contemporary articles emphasise the extremity of cold of the preceding months. There had been long hard frost; both the Thames and Exe rivers were covered with thick ice. The thin snow on cold earth in an icy atmosphere would provide an ideal medium for the production of clear-cut laser burns. The beam would absorb into the earth immediately beneath the snow, liberating its contained energy as local heat which could vapourise the contiguous snow, leaving the surrounding crisp snow intact.

"The footprints were to be seen in all kinds of inaccessible places—on the tops of houses and narrow walls, in gardens and courtyards enclosed by high walls and palings, as well as in open fields." None of these places, in fact, is inaccessible to a beam from above.

"A scientific acquaintance of mine informed me of his having traced the same prints across a field up to a haystack. The surface of the stack was wholly free from marks of any kind, but on the opposite side of the stack, in a direction exactly corresponding with the tracks thus traced, the prints began again!" The relatively loosely packed and non-pigmented texture of the stack may very well transmit a laser beam of a particular wavelength without translating it into heat in the manner of the harder darker soil. The beam would pass through snow and haystack, liberating heat only on reaching the ground, and so leaving no marks in the snow on the haystack. The same characteristic of the laser beam might account for marks being found "under gooseberry-bushes and espalier fruit-trees." A similar effect occurs in treatment of the retina of the eye, where the ruby laser beam passes unaltered through transparent tissues to "explode" and produce the required burn in the deeper pigmented layers of tissue.

A laser-produced phenomenon?

Much of the evidence concerning the "Devil's Footprints" would support the concept of a laser-produced phenomenon.

But supposing such a beam to have been the cause, there must have been a laser supported above the countryside, emitting regular pulses of laser light and moving steadily to and fro over the villages ("There was hardly a garden in Lympstone where the footsteps were not observed") and then across country and river, to the extent of a hundred miles or so. Whatever may have made the marks, the time factor is relevant and must be considered.

The marks were reported as being some eight inches apart. Commander Gould calculates that even allowing a time of fourteen hours for the production of the trail, a minimum of six steps per second is required. And as he says, six steps a second for fourteen hours by any one animal is unthinkable.

Let us assume an arbitrary speed over ground of sixty miles an hour. To produce eight-inch intervals a laser would have to pulse at one hundred and thirty-two discharges per second. This is not beyond the powers of contemporary lasers. Brown writes of a system designed to operate at repetition rates between 50 and 120 per second, and of a gas laser from which pulse rates of five thousand per second are expected. Pulsed laser light in fact appears to be the most reasonable method so far suggested of achieving the high frequency which this trail implies.

It is interesting to note that an Air to Ground Laser Range Finder has been developed for use in helicopters. Operating indefinitely at one pulse per second, it is said to measure ranges between 200 metres and 5 kilometres with an accuracy of 5 metres. (Whether this machine produces "Devil's Footprints" is not recorded.)

A discussion on the use of laser in aircraft automatic landing systems mentions the use of a laser with a pulse capability of up to 10 per second. These applications show that the use of laser as a range-finder is a very practical proposition.

This then is the case for the "Devil's Footprints" having been produced by pulses of laser light. On their meaning and function it may be pointless to speculate, but it may be relevant to remember that the fresh fall of snow on to the frozen ground and ice-covered rivers would surely confuse landmarks and make navigation by visual means almost impossible.

Rock markings

Horseshoe-shaped marks on rocks have been reported. Relevant to these is the fact that mining engineers have shown that rocks of various species are considerably weakened by laser applications. Removal of rock from a tunnel face can be facilitated by subjecting it first to laser radiation, and laboratory tests show a very great reduction in the load required to fracture granite and marble specimens. The weakening effect of the beam extends to four or five inches below the surface of the rock.

It follows that the impact of a laser beam of horseshoe cross-section such as has been considered with reference to marks in the snow could also cause marks on rock surfaces—in time. Time would enable the normal weathering and erosion processes to act selectively on the area softened by the beam, and so gradually form a relative depression.

References

The "Devil's Footprints"

Oddities. A Book of Unexplained Facts by Lt.-Cdr. R. T. Gould. Geoffrey Bles, London, 1944.

Great World Mysteries by Eric Frank Russell. Dobson Books Ltd., and Mayflower Books, 1962.

Lasers

Lasers by Ronald Brown. Business Books Limited, London, 1969. (Almost all the information contained above is gleaned from this useful book.)

New Scientist, Vol. 42, No. 645, p. 123.

Editor's comment: In his correspondence with me Mr. Lyall states that he does not know to what extent lasers have been discussed in connection with our subject. He suggests that both the flashes of light reported from UFOs, and the burns stated to have been sustained by some observers, could be laser effects.

A NEW FSR CATALOGUE

The effects of UFOs on animals, birds and smaller creatures Part 11

HERE is another instalment of our catalogue, prepared by Gordon Creighton, who tells us that the list has grown considerably since the last instalment was published in our number for July/August 1971.

The Catalogue—(xi) January/September 1969

169. Childers, Queensland, Australia (January 17, 1969). George Vas, a Rumanian immigrant, claimed that at 4.30 a.m. he and his wife and two teenage daughters, who were asleep in a caravan trailer at the side of the road, were awakened by the barking of their dog, Ica. They heard a loud buzzing noise, "like a swarm of wasps" and, looking out, saw a machine of a brilliant violet and iridescent colour, about 25-30 yards in diameter, from which there descended three entities, with "blocky arms and legs and shapeless bodies, giving off a purple-yellowish glow, and three times the size of humans." For ten minutes they watched the creatures gathering sugar cane and other plant specimens.

The News, Adelaide, January 17, 1969; FSR, May/June 1969.

170. Saint-Martin-de-Londres, Montpellier, France (1.00 a.m., February 9, 1969).

The owner of a restaurant and a small goat farm, and his assistant, were driving past when they saw a large disc which remained stationary for some time above the field where the goats were. The goat farmer told investigators:

"My goats, which were beneath the stationary disc, or very near to it, do not seem to have suffered by it, although the nannies are now 'coming on heat' much more often than is natural. But one was a billy-goat, an excellent breeder, and, as a result of it, I had to have him slaughtered, for he no longer performed his job."

He added that there had been all sorts of other strange phenomena on his farm. For example, ever since the night in question, his dogs always started barking furiously precisely at 2.00 o'clock every morning, as though there were something abnormal going on outside.

Lumières Dans La Nuit, No. 100 bis. (July 1969).

Also, *Near-Landing in Hérault*, in FSR for January/February 1970.

171. Pirassununga, State of São Paulo, Brazil (5.40 a.m., February 12, 1969).

The farm worker Luiz Flozino de Oliveira was on his way to work when he was approached and attacked by two strange beings, 1.5 metres in height, with darkish skins and beards down to their waists. His dog rolled up in a ball on the ground for protection and was not harmed.

SBEDV Bulletin No. 72/73 (January/April 1970, and FSR Case Histories, Supp. 5 (June 1971), p. 10.

172. Château des Martins, Bignoux, Poitiers, France (on a moonless night, about February 16, 1969).

Five horses in a paddock in the grounds of the Château were thrown into a tremendous panic by "something shining," with a pair of intensely bright eyes . . . of a very pale and particularly brilliant green," according to the witness, Monsieur Meingault. Going out into the grounds on hearing the horses stampeding past he caught sight of the eyes situated behind a clump of bushes (and at a height from the ground, so he was able to estimate next day, of about

1 m. 15 cm.). He re-entered the Château to get his gun, and on coming out again, glimpsed what appeared to be a "flying shadow" pursuing the horses. Examination of the premises next morning showed that much material damage had been done by the terrified animals.

Jean-Claude Baillon: *Eerie Night at the Château des Martins*, FSR, July/August 1970.

173. Belo Horizonte, Minas Gerais, Brazil (February 20, 1969).

The boy Helder Souza Lima, living at rua Jundiá No. 205, heard the dog barking as though frightened and saw, touching the outer wall of the house, an object which was flattened on top and oval below. He called his brother Egler, and they watched the object for two minutes. Its upper portion was intensely bright and had balls of various colours attached to it.

Correio da Manhã, Rio de Janeiro, February 22, 1969, also Dr. W. Buhler: "Brazilian Cases in 1968 and 1969" (Part 4), FSR Case Histories, Supp. 5 (June 1971), p. 10.

174. Pirassununga, Brazil (night, on or about February 20, 1969).

Hearing his pigs grunting rather strangely in their sties, the manager of the Bela Aliança Fazenda went outside to investigate, and observed the landing of a UFO approximately 5 metres high and 4 metres wide, supported by a wide-footed tripod about 1½ m. high. Three crew members emerged on a cat-walk around the machine and busied themselves with instruments for two or three minutes.

O Globo, Rio de Janeiro, April 5, 1969, and Dr. W. Buhler, "Brazilian Cases in 1968 and 1969" (Part 4), FSR Case Histories, Supp. 5 (June 1971).

175. Lancaster, U.S.A. (10.30 p.m., March 10, 1969).

A housewife was driving in her car when she saw a bright beam of light on the road, and a charcoal-grey disc in the sky, emitting the light beam from a bulge on its underside. The beam fell upon the car and at once her speed dropped from 50 m.p.h. to 8 m.p.h. Meanwhile, her dog jumped from the back seat to the front of the car and appeared "highly agitated and fearful."

NICAP, *UFO Investigator*, Vol. IV, No. 11 (May 1969), p. 3.

176. Ibiuna, State of São Paulo, Brazil (March and April 1969).

From 9.00 p.m. onwards "balls of orange light" would appear frequently and dance about over a dry spring on the Fazenda Bonanza farm. Usually two in number and of the apparent size of car headlamps (approximately 18 cms. in diameter), the "egotistical lights," as local people called them, would remain for about one hour and then vanish as suddenly as they had come. Just before their arrival, all the pigs, dogs, geese, and fowls on the farm would always begin to make a loud disturbance, giving the witnesses the impression that these animals and birds were experiencing fear and pain of some sort.

Hans Bemelmans: *Reports From Ibiuna*. In FSR, January/February 1970.

177. Itauçu, State of Goiás, Brazil (evening of April 20, 1969).