

correspondence

The Loch Ness Monster

SIR,—In their recent article entitled "Naming the Loch Ness Monster" (*Nature*, December 11) Scott and Rines propose formal generic and specific names for a rhomboidal object photographed in Loch Ness. They fail, however, to demonstrate with any conviction that the object is animate, that it shares anything with the later photograph showing two very differently shaped images, or that there is any basis whatever for their suggestion that it represents a species of reptile.

One of the great achievements of eighteenth century zoologists was to devise a disciplined system for the description and naming of animals, one result of which was effectively to distinguish between the real and the mythical animals of earlier writings. The code of nomenclature that has been developed over the succeeding years has been very carefully designed to adjudicate only with regard to the choice of names, thereby avoiding any restriction of freedom in the interpretation of zoological evidence. The onus is therefore on authors and editors to maintain standards of description and rational argument to prevent a return to the days of uncritical mythology.

Readers of *Nature* might reasonably expect an article presenting and interpreting original taxonomic data to have been subjected to the normal refereeing process. The evidence presented for the existence of *Nessiteras rhombopteryx* as a new species of animal falls far short of any normal standards expected in taxonomic zoology, even allowing for the preliminary nature of the report. No details are given of the 'optical data' by which the sizes of the objects were determined, nor of the technique by which the first two photographs were determined, nor of the technique by which the first two photographs were 'computer-enhanced'. No mention is made of controls showing how familiar objects appear on film and sonar traces under the same conditions. These will presumably be included when the observations are published in more detail, but meanwhile it is inconceivable that the application of a name in these circumstances can serve the authors' objective of promoting the conservation of any large animal that might subsequently be found in Loch Ness.

Biologists daily encounter pheno-

mena that they cannot identify or explain. It happens every time a field ornithologist fails to identify a distant bird. He will normally prefer to explain his failure in terms of the limitations of his expertise, the poor atmospheric conditions or the extreme distance, rather than jump to the conclusion that it must be an undescribed species of bird. This analogy is very relevant to a great diversity of so-called unexplained phenomena in Loch Ness.

Zoological taxonomy and scientific publication in Britain have both achieved high reputations. It is a pity to jeopardise these reputations for no good cause. It would be an exciting day for all zoologists if convincing proof were to be produced of a new large animal in the zoologically best explored country on Earth. This paper is unlikely to persuade the scientific community that that day has arrived although it may well serve to mislead the layman into believing that it has.

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Sir Peter Scott replies:

G. B. Corbet, referring to a rhomboidal object shown in two photographs in the article "Naming the Loch Ness Monster", claims that its authors "fail to demonstrate with any conviction that the object is animate" by which no doubt he means that he is not convinced. Others with equal claims to scientific objectivity have expressed an opposite view, being impressed by the slight difference in the configuration and the orientation of the flipper shown by the pictures, taken one minute apart by a fixed camera on the bottom, which clearly shows that the structure cannot be rigid.

Dr Corbet chooses to ignore the simultaneous sonar evidence with its clear indication that moving objects of large size were present at the time the photographs were taken. He says we have failed to demonstrate "that there is any basis whatever for the suggestion that it represents a species of reptile". We explain that we believe the flipper belongs to a vertebrate animal and that no known aquatic mammal has such a limb. It has not been possible to attribute the shape to any known fish or amphibian; on the other hand, the shape conforms rather closely with the limbs of certain fossil reptiles. In spite

of his analogy which refers to "an undescribed species of bird", it seems unlikely that Dr Corbet would prefer to attribute the Loch Ness Monster to that class. The actual quote from the article is "the inclination is to view it as reptilean".

The objective of the paper was quite clearly stated in the preamble: "Better to be safe than sorry; a name for a species whose existence is still a matter of controversy among many scientists is preferable to none if its protection is to be assured". I do not know what particular expertise Dr Corbet may have for asserting that the objective will not be achieved. Meanwhile it seems sad that he is working so hard to prevent it.

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SIR,—The publication of Scott and Rines and the photographs in the national press indicate that there may be a plesiosaur-like reptile inhabiting Loch Ness. It is exceedingly difficult to envisage how a former tropical marine reptile could endure the cold waters and harsh environment provided by a small lake in Scotland. Since Loch Ness did not exist until some 12,000 years ago, one is faced with the problem of the survival of 'Nessiteras' for a period of 64 million years in a world where its former ecological niche had been occupied by modern cetaceans and pinnipeds.

A certain amount of research on the functional anatomy of plesiosaurs has been undertaken and the results widely reported*. There were two major types: the long-necked which fed on fish in the surface waters, and the streamlined large-headed forms which fed on cephalopods and were capable of diving to depths of 300 m. The postulated shape of 'Nessiteras' is reminiscent of the non-diving surface living variety; the postulated behaviour is of the large-headed short-necked forms. The evolutionary history of both groups of plesiosaurs can be traced for a period of 150 million years with very minor changes being recorded. It is inherently improbable that from such a stock this strange mixture of both groups would suddenly emerge.

The three key pieces of photographic evidence, which purport to show the neck and part of the body, the right hind flipper and the head, deserve to be analysed in the context of the accumulated knowledge of both living