

## The significance of the invisible millionaire

*Peter J. Smith investigates Mr. Hughes's increasing interest in the ocean floor.*

HOWARD HUGHES, invisible millionaire and founder of Trans World Airlines and much else besides, is a celebrity; his comings and goings, his doings and undoings, and his deeds and alleged misdeeds seem to be a source of fascination to many in the western world. But earth scientists in general, and oceanographers in particular, should be taking a much more serious interest in the activities of Mr Hughes, some of which are likely to have severe repercussions for everyone who values the freedom to pursue research on, in and under the world's oceans. That such interest is apparently nil, or at least remains unexpressed, must be counted as one of the most remarkable examples of scientific hypocrisy since the hearts of the physicists who had worked on the Manhattan Project bled over the annihilation of Hiroshima.

The problem arises because Mr Hughes has recently sent to sea the most advanced marine mining vessel in the world, the *Glomar Explorer*, designed and built in secrecy in Los Angeles by the firm of Global Marine Inc. And joining this ship off the coast of Nicaragua will be a large submersible barge constructed in equal secrecy by the Ocean Systems Division of Lockheed. Naturally, few details of these craft are available, although the submersible is known to be a 90 m x 30 m roofed structure which will be held in place beneath *Glomar Explorer* by docking legs and tubular stability controls 45-m long. A steel pipe passing through the ship's bottom will then be connected by divers to a dredgehead 15 m wide on the barge, whence a dredge pipe weighing about  $4 \times 10^6$  kg will be lowered several thousand metres to the ocean floor. At the bottom of the dredge pipe will be equipment to skim the material off the surface of the ocean floor rather like a giant vacuum cleaner.

The object of this paraphernalia is,



*Glomar Challenger: played a part in the discovery of minerals.*

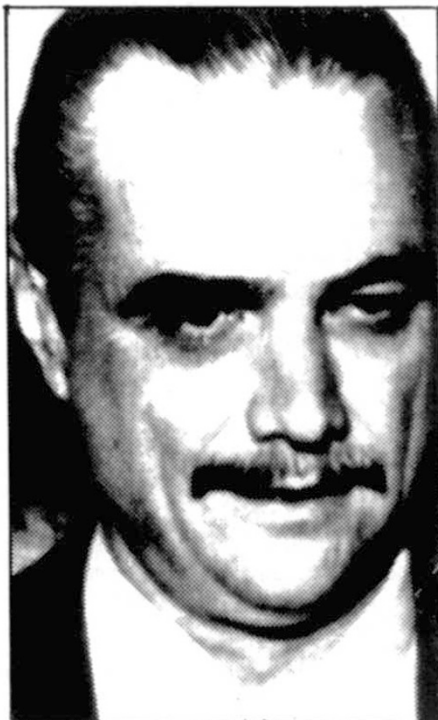
of course, to collect the copper, manganese, nickel and cobalt-rich nodules which lie on the floor of the Pacific; and although the Hughes equipment is still at the trial stage, this particular project is believed to be the most advanced of several undergoing development with similar aims. The rewards of success are likely to be high, which is presumably why Mr Hughes has been willing to invest so much hard cash in what seems at first sight to be such a risky venture. But the rewards of being first in the field will be what a rival of Mr Hughes has described as

“phenomenal”, for first-comers will have the joy of being able to undercut (some believe drastically) the high and ever-rising world prices for minerals.

It must be recognised, however, that any success that Mr Hughes might have in mining the ocean floor has important implications for anyone whose interest in the oceans is purely scientific. For one thing, it is already clear that Mr Hughes must have profited greatly from Global Marine's experience in the building, equipping and operating of the *Glomar Challenger*, the research vessel that has been used extensively by oceanographers to drill the oceanic crust in the search for evidence to support the new global tectonics. This is true not only of the technology involved but also insofar as the *Glomar Challenger* has played some part in the discovery of the minerals themselves. So one question which needs to be asked is whether it is right that an individual or company with purely commercial interests should benefit so directly and obviously from a project financed from public funds. The issue is an important one, even though it may not be possible in the end to reach a consensus on the right policy to adopt.

To the extent that the principal participants are American, it may also be thought to be an issue with political ramifications largely internal to the United States. But it is not quite as simple as that. The fact is that much of the mineral wealth of the ocean floor that is likely to be mined lies below what, for want of a better phrase, are called international waters; and some companies with interests in this field have been reported as saying that they will move into such waters whatever

*Hughes: first in the field*



anyone else may think, say or do. One of the practical advantages of so doing, of course, is that profits will be enhanced by the lack of mining taxes payable. But more important, any such move into international waters by a private company, or even by a single nation for that matter, would be contrary to a United Nations resolution declaring the riches of the ocean a common heritage to be shared by all mankind. If this resolution is contravened, and if the forthcoming Law of the Sea Conference fails to agree on a policy to control ocean exploration for the common good (or even if the conference agrees a policy which is later contravened), then as Lord Ritchie-Calder has pointed out, "it isn't hard to see armed conflicts between nations as a result". Moreover, Ritchie-Calder notes that "Hughes may have found a new place to hide—the bottom of the sea—but he won't long be there alone. These industrial privateers are going in for a system much like opencast [strip] mining. Some will do their primary refining at sea, dumping acid and alkali

line wastes and tailings overboard. Nobody knows what effect this will have on ocean ecology".

None of this may come to pass, of course; but it affects earth scientists and oceanographers nonetheless, simply because it is possible. And this is where

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the hypocrisy comes in. During the past year or so several oceanographers have gone out of their way to deplore publicly the threat to basic research from ever expanding national claims to sovereignty over what are now regarded as international waters. The threat is real, but those writers who publicise it disingenuously avoid saying anything

about why it exists. One of the reasons is precisely the fear and suspicion of being exploited by more powerful nations—fear and suspicion which are fed by the activities of Howard Hughes and those with similar aims. Oceanographers, and oceanographers in the United States in particular, really should not underestimate the strength of feeling on this issue, not only in the so-called underdeveloped countries but also in those industrialised nations unable to afford the technology for undersea mining.

There is no doubt a real danger that certain countries will seek to prevent or restrict basic research work by outsiders within several hundred kilometres of their shores, and this may be a blow to science. But if this is to be avoided, these oceanographers who deplore the danger must be equally outspoken against those who feed the fear of exploitation; and the earth science community as a whole must make it clear where it stands on the "common good" resolution passed by the United Nations.

OCEAN drilling routes. For 30 months during the extension period of the Deep Sea Drilling Project, the Glomar Challenger followed the routes indicated below in three oceans and the Mediterranean Sea. The extension drilling was planned for 15 legs of duration two months each, starting in the Gulf of Mexico in February 1970. Other legs followed in the Atlantic Ocean, Mediterranean Sea, the Pacific Ocean,

Indian Ocean and ending again in the Atlantic Ocean. These routes followed closely areas expected to yield information concerning the interactions of the movements of continental and oceanic crustal areas. Scripps Institution of Oceanography was managing institution for the project under contract to the National Science Foundation. Builders of the vessel were Global Marine Inc., of Los Angeles.

