COMMENTS ON "HYDROCEANOGRAPHY"

by Rear Admiral W. LANGERAAR
Hydrographer of the Royal Netherlands Navy

It is with great interest and admiration that I read the article by C. F. ALBINI, called "Hydroceanography", in the July 1966 issue of the *International Hydrographic Review*. This article is very well suited to stimulate the discussions that will take place at the next International Hydrographic Conference on the subject of establishing an oceanographic section within the IHB. It also corroborates the views of all those who will, undoubtedly, be a bit wary to introduce such a section within the Bureau.

It cannot be denied — and has not been denied by me in the article quoted by ALBINI — that a number of hydrographers or hydrographic surveyors are narrowly eyeing the growing influence of oceanography on their survey work, feeling all the time a faint trace of suspicion that their own progress may thus be hampered. Some of the foremost hydrographers of our time may well be amongst this number.

It remains to be seen, however, whether these hydrographic segregationists are right — in other words whether the indubitable disadvantages of a closer union between hydrography and oceanography will outweigh the apparent advantages. Even if such a closer union should develop into a symbiosis — a permanent union between the two systems of oceanic research, each depending for its existence on the other — and if the advantages were greater for oceanographers than for hydrographers it would still be an open question as to whether hydrographers should withstand or promote such a development.

If it is stated that the future of hydrography is dependent on the results of oceanographic research, then the answer to the above question is simple, i.e. let us hang together, lest we be hung separately. It this statement is considered to be only partially true, the answer should be to retain what unites us lest we isolate ourselves. If it is considered that the future of hydrography is independent of the results of oceanographic research the advice might be not to tamper with it so as not be hampered by it.

It is my firm belief that the future of hydrography will benefit highly from the results obtained in several branches of oceanographic research. Of course the results in physical oceanography will be more important to hydrography than those in fisheries biology. I am convinced that the marine research of today will result in the navigational systems of tomorrow : betters sonars or echosounders; better tidegauges and more reliable currentmeters for all depths; better tidal current predictions; new

concepts of data processing; a better insight into the genesis and development of the seafloor, especially in shallow seas; and many more new concepts that may be inconceivable at this moment.

In effect this is the only objection that might be raised to Mr. ALBINI's article, i.e. that it looks at the state of the art of hydrography of today only and that it gives the opinion of hydrographers of ten years ago, our predecessors. This is not meant as an oblique attack on those eminent men who held our offices ten years ago, on the contrary they were quite right to uphold the opinion that hydrography and oceanography belonged to two different spheres of interest. Hydrography is the older and the applied science of the sea used for navigational purposes, oceanography at that time belonging to the sphere of pure science. The change of ideas that Mr. ALBINI reports on page 92 has been caused not by the coming to power of a younger generation of hydrographers but by a complex of major changes in the concept of oceanography. It is the oceanographers who have changed, and not the hydrographers.

Many hydrographic offices have existed for more than a century already, and the heads of these offices have always been keen on any new developments which might it easier for them to provide the international navigator with more, better and quicker information necessary for better and safer navigation. Now that a part of oceanography (notably physical oceanography) is not restricted any more to the domain of pure science only but has also moved into the realm of applied science, and moreover that it is developing instruments of high quality which for a large part could also be used by hydrographic surveyors, it seems to be a natural development that hydrographers should become more and more interested in what oceanographers do at sea; and also how they do it. New techniques of measurement, data collection, exchange and processing have been introduced that occasionally run contrary to established hydrographic practice.

Small wonder that many of us would like to learn from what others do, or contemplate doing, at sea and that we would be perfectly willing to do it together, provided every branch of research retains its own predominant responsibility. It should not be forgotten that the great majority of States Members are financially unable to fit out a hydrographic survey fleet as well as an oceanographic research vessel or vessels. From this viewpoint alone, pooling of the available resources is a necessity for many of us. Seen from a scientific or operational point of view such pooling would have beneficial results as well.

Finally, some words about the five points laid down by Mr. ALBINI on pages 94 and 95. Point 1 in its general sense is incorrect so long as it is not stated what sort of oceanographer we are talking about. If Mr. ALBINI has the fisheries biologist in mind, he is right. If he refers to the physical oceanographer or to the marine geologist he is wrong.

As regards point 2, I think that many of us have some serious doubts as to the effectiveness of a cooperation that is based on the exchange of information and data only, or on the appointment of a liaison offer on board each other's ships. We should never learn from each other, even though such exchanges might be carried out perfectly. Both branches of

marine research would develop independently without influencing each other, only supplying each other with information. Not only would such development be retarded, it would also be warped.

The solution given in point 5 may look opportune, but experience in this field has taught many of us otherwise. Hydrography, since its inception, has been operational; oceanography has been scientific. Hydrographers are doers, oceanographers were contemplators. The hydrographic surveyor has been taught his art the hard way, on board ocean-going vessels. As many of them are naval officers they have also been trained to make split-second decisions to " do something ", and he whose split-second decisions have the greater percentage of proving the right ones is considered to be the better officer.

Nowadays the scientific investigator has normally been trained at universities where the first maxim that is given to the future scientist is that he should never accept anything at its face value, nor should he accept anything on the authority of someone else unless its validity is proved beyond doubt. This scientific doubt can be considered as the foundation on which rests the building of scientific progress, and as the soul of the scientific investigator. Scientists, consequently, are badly trained to be in charge of operational work, and naval officers are trained about as badly to arrive at scientific results that are beyond scientific doubt.

Many of our combined problems would end if Mr. ALBINI were right in assuming that it would be sufficient to send scientists for instruction within the hydrographic offices where they would receive a professional and psychological training to fit them for the (operational) task. It might be even more advantageous to work the other way round and to send naval officers and hydrographic surveyors to universities to train them in some of the disciplines considered essential to scientific investigation. This, indeed, is exactly my opinion, and is what is now being done in my country.