THE INDIAN OCEAN BUBBLE

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The following is a letter from Mr. Martin J. Pollak, Comision Interamericana del Atun Tropical, La Jolla, California

My thoughts about an Indian Ocean survey may be somewhat vague since all the material I had used in my Deep-Sea Research paper is out of reach at Johns Hopkins. Rather than starting over again with the cruise data, I shall rely on my memory.

Probably the primary need is to fill in some of the large gaps in the geographical distribution of hydrographic stations. If you look at the station chart in my paper (Deep-Sea Research) you will find those blank areas staring you in the face. In addition to such obvious "holidays" some of the stations on the chart are completely inadequate due to insufficient number of sampling depths. This group consists largely of the CHARCOT, INVESTIGATOR, and MABAHISS stations. On the other hand, since the completion of my paper, a substantial number of stations have been occupied by Russian ships. I do not know whether any of these data have become available. Neither do I have any information on recent ATLANTIS and VEMA work in the area.

It seems to me that it should be possible to combine some of the required reconnaissance surveys with special studies of the circulation patterns. For instance, a seasonal study of the monsoon regimes in the Arabian Sea and Bay of Bengal would serve a dual purpose: these twoareas are virtually untouched by sub-surface thermometers.

In the zone between 10°N and 20°S a number of north-south profiles might be most profitable, especially if sufficient ships are available to run them simultaneously. I consider a quasi-synoptic observational program particularly important in this latitude belt, where seasonal north-south shifts of the Equatorial current system are highly probable. The combining of data from different seasons is apt to give a badly distorted picture of the circulation -- one that contains artificial convolutions of isopleths in addition to their natural ones.

As a final remark I would like to suggest that the overall program be planned by the people who will take the ships to sea and then use the data.

The editor has received a note from Messrs. Fuglister and Stommel to the effect that they have examined some manuscript rolls of bathythermogram profiles obtained across the Equator in the Atlantic at four different places during 1952 by the ATLANTIS and the ALBATROSS (U.S.F.&W.L.S.) and that they think they see features similar to those reported in the Cromwell Current in the Pacific. If such a current exists in the Atlantic, as this evidence suggests, there will even be more interest in trying to find out whether the Indian Ocean is an exception.

Mr. David McGill of the Woods Hole Oceanographic Institution reports that the ATLANTIS made several stations just outside the Gulf of Aden in May 1958, but that most of the stations were made in the Red Sea and in the Straits of Bab-el-Mandeb. The insert chart shows the approximate locations of these stations.

ATLANTIS 5609 07°59.oN 58°59 E Sounding 0035 GMT
3020 m May 28 58

meters	temp	sal	oxygen
1	29.50	35.39	3.91
10	29.49	35.40	3.91
19	29.49	35.39	3.93
48	28.98	35.44	4.08
96	25.12	35.615	3.18
144	19.20	35.40	1.54
192	16.37	35.34	1.05
288	12.66	35.19	1.31
385	11.76	35.18	1.02
578	10.41	35.255	0.53
771	9.43	35.29	0.42
966	8.35	35.23	0.55
1162	6.66	35.06	0.89
1455	4.87	34.91	1.43
1582	4.14	34.89	1.74
1978	2.83	34.75	2.43
2374	2.19	34.75	2.84
2769	1.88	34.75	3.02

ATLANTIS 5610 10°14.0N
57°15 E 3757m 1730 GMT
May 30 1958

meters	tempr	sal	oxygen
1	29.40	36.05	3.91
9	29.42	36.06	3.99
19	29.22	36.06	3.88
47	27.32	36.21	4.36
95	24.21	36.01	2.92

Atlantis 5610 continued

meters	temp	sal	oxygen
143	18.39	35.50	0.70
190	15.42	35.42	0.58
286	13.10	35.32	0.97
382	11.84	35.32	0.80
575	10.93	35.28	0.62
770	9.41	35.28	0.45
965	8.44	35.21	0.54
1163	7.13	35.13	0.72
1463	5.20	34.96	1.23
1764	3.67	34.84	1.86
2171	2.67	34.71	2.38

ATLANTIS 5611 13°16.0N
55°00.0 E 3634m 1730GMT
June 1 1958
shallow temps missing

200	18.74	35.66	0.72
300	15.79	35.57	0.36
500	13.16	35.67	0.36
700	12.21	35.705	0.23
1000	10.83	35.68	0.25
1500	7.56	35.33	0.54
1000	8.97	35.45	0.44
1500	5.49	35.03	1.04
2000	3.53	34.91	1.66
2500	---	34.765	2.44
3000	1.89	34.79	2.78
3500	1.75	34.71	2.90