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The Sea and the A. E. C.

It is gradually becoming apparent that the oceans represent the last great frontier on earth. They are the frontier of exploration for man's curiosity and of development for man's needs.

Sea water can be demineralized by vapor compression or multiple-effect evaporation, freezing, electrodialysis, and extraction. This can be done, thanks to good engineering, with certain of these processes at costs which are now competitive with those of municipal water in many places. As our more usual supplies of fresh water are progressively damaged and made more costly through continuing abuse, fresh water from the sea probably will soon be a recognized source of industrial water. The opportunities for high-quality engineering work and skillful engineers are almost unlimited in this field.

The sea may also be used for growing food. As our world populations skyrocket, as our misuses of land multiply, and as our land becomes more and more enriched in strontium-90, we must sooner or later seek the sea as a place to grow food. While the food grown there may not appeal to man (until some future date when appeal won't make much difference), food for animals could be grown in the sea now.

The sea bottoms are also a great source of raw materials, as the results of the International Geophysical Year have shown. Manganese, cobalt, iron, and copper abound on certain parts of the bottoms of the oceans. It is thought that development of these deposits may be economically attractive under conditions existing at the present time.

These wonderful prospects, under more normal circumstances, should give us great comfort. The sea offers the solution to three of man's greatest problems—a shortage of water, prospects of famine, and the depletion of our high-grade mineral resources.

However there is a threat to this prospect. For some time the Atomic Energy Commission and its British and French equivalents have been dumping radioactive wastes into the oceans. It is to be assumed that this was done only with low-level wastes and in as safe a manner as possible; however was it safe enough? Our ignorance of the sea is profound. Sea currents, tidal waves, submarine earthquakes, and submarine topography have been explored only to very limited extents. How can anyone say with any confidence what is safe? A broken container would lead to wide dispersion at first, but maybe later some marine organism would concentrate these materials. Furthermore the attitude of the A. E. C. in the matter of fall-out and the level of radioactivity in Minnesota wheat (a six-month delay in reporting the distressing results) does not inspire confidence.

Let us hope that our oceans, the last great frontier on earth and the greatest hope for the alleviation of some of man's problems, will not be contaminated for all time through inadequate knowledge.

H.B.