

the questions in your test, with additional information on the subject, were mailed to you after you got home. You probably realize, too, that you learned something from the other Medical and Health Exhibits. The Quiz Corner tests showed this to be true. Some of the questions were based on 12 of the exhibits themselves, and those taking these questions were asked to indicate whether or not they had seen the exhibits. For all but one of these exhibits there was a significant difference in knowledge between those who had seen the exhibits and those who had not.

The health question-and-answer game is over, but the chance to learn more about health and medical matters will continue. Dr. Louis I. Dublin, acting chairman of the American Museum of Health, has announced that the Medical and Public Health Exhibits at the New York World's Fair will reopen this year on May 11. Most of the exhibits, such as the famous Carrel-Lindbergh artificial heart and lung apparatus, which attracted 7,500,000 World's Fair visitors last summer, will be there, and a number of new ones are also being prepared.

### The Man Godfrey

First of these new exhibits to be announced is "Mac," alias "Godfrey," the Mechanical Man who, while you are reading this, will probably be on the high seas, braving the perils of mines and submarines on his voyage over here from England. Pointing out that this Mechanical Man from England will be housed in the same building with the Transparent Man from Dresden, officials of the Medical and Public Health Exhibits announce humorously that they do not anticipate any trouble but to be sure to keep the peace and allow sufficient "Lebensraum" for these gentlemen, each will be assigned to a different sphere of influence in the building, with the Talking Skeleton between, as a grisly reminder of what both may eventually come to.

The Mechanical Man is a four times life-size model of the upper half of the human body, open on one side to show in mechanical terms the working of the internal organs, the eye, the ear, processes of respiration and digestion, and circulation of the blood. If you look closely at his picture on this page you will see the instrument board in the head representing the automatic regulators adjusting the heart beat, the rate of breathing, and the temperature of the body. Close to them is the muscle switch.

When it turns over a flash on one of "Mac's" shoulders represents the contraction of one of his arm muscles. At the back of his head a library of books, album and records represents memory. The heart is represented by a pair of pumps, and so on. This unique gentleman gives a lecture, probably with a British accent since he was made in England, to explain the mechanisms while his visitors watch them in operation.

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#### BIOLOGY—OCEANOGRAPHY

### Biologists' Aid Is Needed To Combat Ships' Fouling

**N**AVY men, as well as merchant mariners, need the aid of marine biologists in combating the troublesome, speed-reducing, costly fouling of ships' bottoms by growths of barnacles, lesser seaweeds and a score of other oceanic hitch-hiking species. Fouling problems of the biologist are summarized by Dr. Claude E. ZoBell, microbiologist of the Scripps Institution of Oceanography at La Jolla, Calif.

The fight against fouling is complicated by the widely divergent preferences of the many species concerned. Some of them like light, others shun it. Some attach most readily to horizontal surfaces,

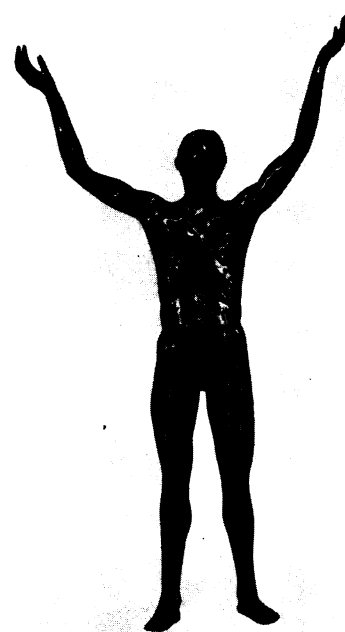
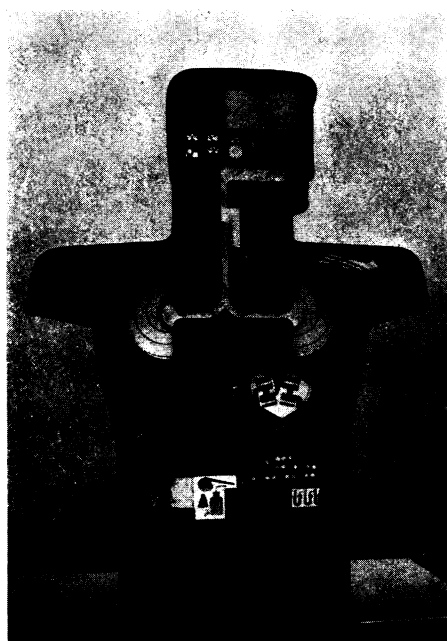
others to vertical or sloping ones. Some slough off when killed by a bath in fresh water, others leave their cumbering thick shells behind when they die. In the latter class, the too-familiar acorn barnacle is most bothersome.

One practical hint, which marine paint manufacturers are advised to take into consideration, lies in the apparent preference of the worst fouling species for dark surfaces and their avoidance of light ones. This suggests that experiments with white, light yellow and green bottom paints may be in order, instead of the dark paints now commonly used.

Bacteria and related microorganisms seem to be the precursors of all the other larger animal and plant forms that attach themselves. They take hold by millions in the first few hours, forming a slimy coating that offers congenial harborage to the larvae of barnacles, bryozoa and other fouling organisms.

An investigation on the relation of primary film formation to the fouling of submerged surfaces is now being conducted at the Scripps Institution of Oceanography as a project of the Bureau of Construction and Repair of the United States Navy Department under the direction of W. Forest Whedon, who is assisted by Dr. Robert Tschudy and J. C. Hindman.

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#### INSTRUCTIONAL VISITORS

*Americans will learn more about themselves at the New York World's Fair this year when they see these visitors from across the seas, the mechanical man Godfrey (left) from England and the Dresden transparent man,*