for solution of essential problems of marine engineering, including the use of marine power plants operating at high pressures and temperatures. There is also the problem of the application of Diesel engines with hydraulic, electrical or gear drive, the solution of which involves familiarity with its thermal, metallurgical and mechanical limitations.

The basic objective of the course is to give the student a unified and scientific approach to engineering problems within this field, with special emphasis on investigation of fundamental methods of analysis applied to new problems in marine engineering. Cooperating in the course, in addition to the department of naval architecture and marine engineering, will be the departments of mechanical and electrical engineering. The entire resources of the institute will be available for various aspects of the training.

Professors Evers Burtner, Lawrence B. Chapman, Frank M. Lewis, all members of the staff of the Pratt School of Naval Architecture, will give instruction in advanced marine engineering and mechanical vibration in ships, and Professor Lewis will give special attention to instruction in propeller theory and experimental research in this field. Professor Harold L. Hazen, head of the department of electrical engineering, will have charge of advanced problems in his subject; Professor C. Richard Soderberg, of the department of mechanical engineering, a designer of heavy power machinery, will devote his attention to advanced problems in mechanical engineering; the subject of internal combustion engines, particularly Diesel power plants, will be covered by Professor C. Fayette Taylor, one of the leading authorities in engine design; instruction in heat transfer will be given by Professor William H. McAdams, of the department of chemical engineering.

THE NEW RESEARCH VESSEL OF THE BUREAU OF FISHERIES

AIDED by the commercial fishing industry, the Bureau of Fisheries is about to place in service a first-class research vessel for offshore work in the North Atlantic. Through the cooperative interest of the General Seafoods Corporation of Boston, arrangements are being made for the transfer of the *Harvard,* a 152½-foot trawler, to the Bureau of Fisheries. As soon as the transfer of the vessel has been completed, Public Works Administration funds to the amount of $125,000, allotted late in June, will be made available for the reconditioning and outfitting of the vessel.

Repairs and alterations to the hull and superstructure and installation of equipment for oceanographic studies and experimental fishing are expected to be completed in time to put the vessel into operation on the fishing grounds next summer. Since the *Albatross II* was taken out of service because of lack of operating funds in 1932, the Bureau of Fisheries has possessed no ship suitable for use on the fishing banks of the Atlantic.

One of the most important problems to be studied with the aid of the new research facilities will be that of maintaining stocks of fish on the nearer banks, a day's run from the New England ports. Under intensive fishing, supplies of haddock in the Georges Bank area have been so reduced in recent years that it has been necessary for much of the fleet to operate on the distant Nova Scotian banks.

As a result of several years' investigation of the haddock fishery, William C. Herrington, in charge of the biological fishery investigations in the North Atlantic area, last fall announced a theoretical basis for operating the haddock fishery of Georges Bank at a level that would maintain a stable yield and guard against reduction of the basic stock. With the aid of a seagoing research vessel, Mr. Herrington and his staff now expect to determine the actual poundage that represents the optimum yield for the haddock fishery.

The program of investigations to be carried out includes an annual survey of the fishing grounds from Nantucket Shoals to the Laurentian Channel to discover the localities in which the greatest numbers of fish are concentrated.

With gear to be installed in the new vessel, biologists will be able to make a census of young haddock too small to be caught in commercial nets. Experiments will be undertaken with commercial fishing gear to develop and encourage the use of nets of a type that will release undersized fish without loss of marketable sizes.

Fluctuations in the catch of mackerel, which may vary more than 50 per cent. from year to year, have been shown by past investigations of the Bureau of Fisheries to be closely linked with the fate of young mackerel during the first months of their lives. It is now planned to make definite measurements of the effects of oceanic conditions on the survival of the young; and to make annual censuses of the newly hatched and one-year-old mackerel so that it may advise the industry whether to expect good or poor fishing. Cruises are also contemplated to discover the location of schools of adult mackerel in years when they do not congregate in the usual areas, as happened in 1937. Tagging of mackerel will be done at sea to further explore the movements of the fish.

THE ASSOCIATION FOR THE STUDY OF SYSTEMATICS IN RELATION TO GENERAL BIOLOGY

THE Association for the Study of Systematics in Relation to General Biology has issued, according to the London *Times,* a statement in regard to its aims and constitution. Hitherto its constitution has been as