

THE TECH

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In this, the last of the Special Issues devoted to the courses of the Institute, The Tech wishes to express its genuine appreciation of the aid given by the contributors from the departments and from the graduates and to the advertisers, all of whom have made possible the publication of this series. It is hoped that these efforts will be a force for the betterment not only of the immediate but the future welfare of the Institute.

NAVAL ARCH. SOCIETY

By G. G. HOLBROOK.

The Naval Architectural Society was founded November 13, 1901, by the upperclassmen taking Course XIII. The object of the society was to promote the welfare of its members by bringing them in closer social contact with each other and by increasing their interest in their professional work. At first the society was composed only of members of the Junior and Senior classes but later the members of the Sophomore class were made eligible for membership.

It has been the custom in the past few years to confine the social activities to one rather formal dinner and have speeches at that time from members of the faculty and prominent members of the profession. This year it was thought that this idea did not permit a close enough acquaintance between the newly elected members and the rest of the society, so a new plan was evolved. Early in the year a very informal dinner was held at a down town cafe where only the members of the two upper classes were present. No outside speakers were invited, the object of the dinner being merely as a sort of "get acquainted party." Later, after the Sophomores were elected to membership, a smoker was held in the Union with Professor Peabody and Dean Burton as speakers. The officers of the society have now in mind for the near future besides the formal annual dinner, other dinners and smokers at which it is hoped to have addresses of a professional nature by prominent naval architects which will doubtless be of great interest and value to all the members.

WELD MODEL

By C. H. PEABODY.

An account has already been given of an extensive course of experiments on resistance and propulsion of ships which are made possible by the generosity of Dr. Charles G. Weld. This work is to be carried on by a self-propelled model about forty feet long and eight tons displacement. In the future it is expected to build other models of various types of ships.

At the time of going to press this work is well advanced and is expected to proceed without delay as soon as the regular work of the school will permit. The hull which was built by Stearns and McKay of Marblehead, is complete and ready to receive the machinery. When measured the model showed an exceedingly close concordance with the lines of the type ship the U. S. R. C. Manning.

A still smaller model, 23 feet long, which was built in the model shop on Garrison Street, is now undergoing tests at the Experimental Model Basin at the Washington Navy Yard. A reduced copy of the propeller of the "Manning" to the proper scale for the 40 ft. model was made and correctly machined by the Fore River Shipbuilding Company; it is also undergoing tests at the Model Basin.

The General Electric Company have nearly completed the propelling machinery for the model, consisting of a 10 K. W. gasoline electric-generating set, and a 12 horse-power motor. Both generator and motor all excited by a separate exciter which controls the voltage on the Ward-Leonard System. This gives precise control and exact determination of power. The motor is connected by a chain gear to the propeller shaft, so that by changing sprockets, a wider variation of conditions can be given to the propeller.

The propeller thrust is to be measured by a ball-bearing thrust block that is now under construction. The thrust is to be stabilized by a relatively weak spring, the deflections of which are to be recorded on a recording device together with other data.

The recording device consists of a strip of paper six inches wide drawn over rolls by an electric motor of variable speed. There are in all nine Waterman fountain pens that can make records on this paper. All except those that have to do with recording propeller thrust are actuated by electro-magnets.

(1) The observer when the model passes the range at the beginning or end of a course presses a button, and the corresponding pen makes the record.

(2) Two pens are controlled by a chronometer marking half seconds and each fifteenth second.

(3) A pen is controlled by the propeller shaft so that the number of revolutions can be determined directly.

(4) Another pen is controlled by an anemometer to record the velocity of the wind.

(5) The deflection of the spring on the thrust device already mentioned is recorded on this same paper.

The extra pens are for use when more than one propeller is provided for the model.

One of the least satisfactory of the factors used in designing ships is the coefficient for surface friction. All determinations have hitherto been made in model basins under restricted conditions. The coefficient for models can be determined with sufficient precision, but the extension of coefficients as in tables given by Fromde and Tideman to full-sized ships is by an extrapolation that cannot carry conviction. An important feature if the investigation will be the determination of this coefficient in the open water for the conditions of the large model. For this purpose a special model is making, which is to be fifty feet long, three feet draught and one foot beam. It will in effect be a plank on edge which will make very little disturbance of the water except by friction. This model can be towed by the forty-three feet model up to eight knots an hour, and it is expected to carry the speed much higher by aid of some other craft for towing.

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