

loam where it may grow and bring forth the desired harvest. He says:

Words of friendly criticism may be as silver, but far better are golden words of encouragement.

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THE U. S. FISHERIES BIOLOGICAL STATION
AT WOODS HOLE

THE laboratory of the U. S. Fisheries Biological Station at Woods Hole, Mass., was open from June 21 to September 15 during the past summer. P. H. Mitchell, of Brown University, was director. Investigators appointed by the Bureau of Fisheries conducted the following researches bearing on the economics of the fishing industries: I. A. Field, of Clark College, the anatomy of the circulatory and nervous systems and the embryology of the edible muscle; C. W. Hahn, of the High School of Commerce, the mode of infection by, and the life history of several parasites of herring, alewives and some other food fishes; A. Kuntz, of the Washington University Medical School, with L. Radcliffe, of the U. S. Bureau of Fisheries, the identification and study of the embryological and larval stages of twelve species of common fishes; E. Linton, of Washington and Jefferson College, investigations of various fish parasites with special study of helminth and nematode parasites of butter fish, also a study of the food of winter flounders; P. H. Mitchell and W. W. Browne, of the College of City of New York, nutrition of oysters with special reference to conditions of glycogen formation; S. Morgulis, of the College of Physicians and Surgeons, the digestive enzymes of Teleosts, the changes in weight and composition of starving lobsters, a critical analysis of Moore's investigations on the metabolism of marine organisms, and a colorimetric method for approximate oxygen determinations in sea-water; G. G. Scott, of the College of the City of New York, the oxygen consumption of developing fishes at various stages, the oxygen consumption of 42 marine forms for comparison of rates of metabolism, the efficiency of various means of aerating aquaria, conditions affecting the oxygen requirements of fishes, the

oxygen consumption of regenerating tissues, and the dry method of shipping live fishes; A. Thomas, of Clark University, the toxic effect of heavy metals on fishes; G. F. White, of Clark University, methods of preparing dried dogfish for human food, the distribution of nitrogen in dog fish muscle, the phosphatides of dogfish egg-oil, the collagenous matter of dogfish skulls and of tilefish swim-bladders; W. W. Browne, of the College of the City of New York, the possibilities for fish to act as carriers of pollution bacteria and the time required to rid fish of such bacteria when put in unpolluted water; B. H. Gross, the conditions affecting the occurrence of color in "green oysters"; K. S. Rice, of Brown University, the behavior of oyster spat under artificial conditions, and the methods of ridding oysters of the colored copper-containing compound found in "green oysters."

Besides the work of employees of the bureau, a number of investigations were conducted by table applicants to whom the facilities of the laboratory were extended. Such researches were as follows: R. P. Bigelow, of the Massachusetts Institute of Technology, an examination and study of 27 species of Crustacea collected by the *Albatross* during the Philippine expedition; S. R. Clemence, of the American Museum of Natural History, a survey of the reptilian and batrachian fauna of the Elizabeth Island; G. A. MacCallum, observations on fish parasites; G. H. Parker, of Harvard University, a study of reflexes and other nerve reactions of Cœlenterates; A. C. Redfield, of Harvard University, the control of chromatophores in *Fundulus* embryos, in flounders and in horned toads; E. A. Redfield, of Harvard University, the movements of shell and mantle in Lammellibranchs and the relation of such movements to respiration; I. L. Shaw, studies of diatoms; J. M. Thornington and F. P. Reagan, of Princeton University, the development of hybrids with especial reference to the vascular system; H. C. Tracy, of Marquette University, the relation of the swim-bladder to the ear and the eighth nerve in *clupeidæ*; G. B. Wislocki, of Johns Hopkins University, the internal secretions of fishes.