

physics, geology and Latin who receive \$7,000. It is significant, however, that on the basis of the figures reported most college teaching, particularly in the first two years, is done by men of instructor grade with salaries of \$1,000 to \$1,200, or by assistants who receive on the average about \$500, usually for half-time services.

UNIVERSITY AND EDUCATIONAL NEWS

DR. H. T. SUMMERSGILL, superintendent of the New Haven Hospital, has been appointed superintendent of the University Hospital in San Francisco. Dr. Summersgill has arrived to take charge of the present hospital of the University of California Medical School, and to aid in completing the plans for the new teaching hospital buildings, to erect which \$615,000 has been given by various friends of the university. Dr. Winford H. Smith, superintendent of the Johns Hopkins Hospital, recently spent a month in San Francisco, coming to California as expert adviser for the plans for the new hospital.

THE six-weeks' summer session of the University of California, for 1914, enrolled 3,101 students. It is expected that next year's summer session, coming while the Panama-Pacific Exposition will be in progress in San Francisco, will much exceed this year's enrollment. The freshman class at the University of California this year, excluding special students, will number over 1,700.

THE first summer school of the George Peabody College for Teachers has just come to a close. The total enrollment reached 1,006 regular students and 99 part-time visitors, coming from 28 states, including all of the southern states. This is possibly the largest enrollment with which any summer school has started. Next year the summer school will continue for twelve weeks instead of six, thus becoming a very integral part of the year's work which is to be divided into four quarters of twelve weeks each.

FRANCIS C. LINCOLN, associate professor in the mining department of the University of

Illinois, has been made the head of the Mackay School of Mines of the University of Nevada.

MR. J. E. RUSH, of the University of Wisconsin, has been made assistant professor, in charge of the departments of biology and bacteriology, at the Carnegie Technical Schools, Pittsburgh.

THE governors of the Imperial College of Science and Technology, London, have appointed Dr. A. N. Whitehead, F.R.S., to the newly constituted chair of applied mathematics, and Dr. C. G. Cullis to the professorship of economic mineralogy.

DR. T. J. JEHU, lecturer on geology at the University of St. Andrews, has been appointed Murchison regius professor of geology and mineralogy in the University of Edinburgh, in succession to Professor James Geikie.

DISCUSSION AND CORRESPONDENCE

YOUNG WHITEFISH IN LAKE SUPERIOR

THE literature on the two species of whitefish that are so important commercially in our Great Lakes (*Coregonus albus* and *C. clupeaformis*), as well as unpublished statements received by the writer from prominent ichthyologists and fish culturists, makes it appear that little, if anything, is known concerning the very young of these fish as they exist in these bodies of water. Where the young whitefish, both native and those that are planted, live and what they feed upon in their natural habitats, constitutes an important problem for ichthyologists and fish culturists. Jordan and Evermann (1902),¹ writing of *Coregonus clupeaformis*, say:

Nothing is definitely known regarding the general distribution and habits of the young, but they are supposed to remain chiefly in the deep waters of the lake.

During August, 1913, the writer studied the fish-life of the Whitefish Point Region in Northern Michigan, as one of the investigators sent there by the University of Michigan, with funds given for the work by the Hon.

¹"American Food and Game Fishes," page 128; published by Doubleday Page and Company.

George Shiras. While making some collections from the shallow water of Lake Superior, not far from the Vermilion Life Saving Station near Whitefish Point, eighteen little whitefish were caught, which measured from 4.9 to 9 centimeters in length, from the tip of the snout to the tip of the caudal fin. They answer very well to the description of *Coregonus clupeaformis* (Mitchill), with certain departures undoubtedly due to their immature condition; but it is possible that some or all of them may be Lake Erie whitefish (*Coregonus albus* Le Sueur) for fry of this species have been planted in Lake Superior, according to information obtained from B. W. Evermann of the Bureau of Fisheries at Washington and H. H. Marks, superintendent of the Sault Ste. Marie Fish Hatchery. It has been impossible to distinguish the two species from a study of the structure of the small fish, for the adults are thought to differ from each other only in form and color, and no evidence can be obtained that the dark, lateral bands that are thought to be characteristic of the fry of *clupeaformis*, do not disappear shortly after that stage is passed.

The food of eight of the fish examined was found to be principally entomostracans, of which the following appear to be the chief species, according to the examinations of three typical stomach contents, made by Mr. Chancey Juday, of Madison, Wisconsin: *Bosmina longirostris* O. F. Müller, *Diaptomus ashlandi* Marsh, and *Cyclops viridus* Jurine (probably var. *parvus*, Herrick). Fragments of midge larvæ and miscellaneous insects, including winged forms, and filaments of a green alga (*Ulothrix zonata*), were the other objects noted among the food.

The eighteen specimens of young whitefish were taken in several hauls made with minnow seines, drawn over the sandy bottoms where the water was less than three feet deep and through the large schools of hundreds of small fish, that were chiefly young lake herring (*Leucichthys* sp.). These were similar in size to the young whitefish associated with them, which were relatively very few in number, and superficially so like the little herrings that

they could be picked from a collection only after a very careful examination of it.

Detailed descriptions of these young whitefish, their food, habitat and associates, will be given in the paper now being prepared on the fish-life of the Whitefish Point Region.

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IS THE POOR HATCHING OF NORMAL EGGS DUE TO
THE PRESENCE OF MICROORGANISMS
WITHIN THE EGGS?

THE loss of young chicks due to the non-hatching of eggs is inestimable. Poultrymen have often said that "on an average a fifty per cent. hatch and a fifty per cent. raise was all that was generally obtained." What becomes of the other fifty per cent.? Wherein lies the cause of this heavy loss? Can it be due to the presence of microorganisms within the egg or rather to some inherent quality of the egg itself? We are aware of the fact that faulty incubation may be responsible in a large measure, but in this respect even the hen may have her troubles.

During the spring hatch we have had occasion to examine some 350 eggs, taken from both incubator and from under the hen. The eggs were those tested out as "non-fertile" or "dead in the shell." The incubation period ranged from ten days to twenty-two days. The eggs were from a flock of healthy birds and may be termed "normal" eggs.

In only one egg of the 350 eggs examined were bacteria found. The organism isolated belonged to the coli-typhi group.

From this, a preliminary report, we are of the opinion that the poor hatching quality of "normal" eggs is not directly due to the presence of microorganisms within the egg.

This work may serve to verify to a certain extent the findings of Rettger.¹

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¹ Bulletin No. 75, Storrs Agricultural Experiment Station.