supplement to and a revision of the taxonomic portions of the former monograph.

It contains no plates so beautiful as those of the full-grown larvae, done by Frederick Knab, in the old monograph, but there are 123 plates showing the male hypopigium of different species and larval heads and larval anal segments and appendages. There must be seven or eight hundred independent drawings in all. Half of these are new and were made by Miss Eleanor T. Armstrong and Miss Mary C. Foley under Dr. Dyar's direction.

The volume is a very handsome one, and is bound to be of great use. The entomologists and sanitarians of all the Americas are very fortunate in that Dr. Dyar has been able to do this great work at this time. And all of us, including Dr. Dyar, have been fortunate in that the trustees of the Carnegie Institution of Washington have permitted its publication in such excellent shape. The warm interest of President John C. Merriam is doubtless largely responsible.

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REPORTS

THE NEW ENGLAND INTERCOLLEGIATE GEOLOGICAL EXCURSION

THE twenty-fourth annual New England Intercollegiate Geological Excursion was held in the vicinity of Boston, Massachusetts, October 12 and 13, under the leadership of Dr. Kirtley F. Mather. On Friday morning the excursionists studied the glacial geology south of Boston, devoting most of their time to the region about Scituate. Extensive workings by the Boston Sand and Gravel Company have exposed instructive sections, especially in the vicinity of the Greenbush Station. Here an older interpretation would place a recessional moraine, south from which an outwash plain was deposited. A more recent interpretation would postulate a lake lying southward from a stagnant ice-sheet and dammed by the ice to the north and east and by the hills to the south and west. The merits of these two hypotheses were debated in the field.

At the invitation of the Boston Sand and Gravel Company lunch was served at their club house near the Greenbush Station.

Friday afternoon the group was under the leadership of Dr. R. W. Sayles and Dr. Marland Billings. After a beautiful drive along the shore through the towns of Scituate, Cohasset, Hingham, Weymouth and Quincy, we came to Squantum. Here Dr. Sayles has studied the Squantum tillite for a number of years. His studies have recently become very important because of their relation to the Wegener hypothesis of floating continents.

Dr. Wegener has drawn a map of the world during the Permian period, rearranging the continents in such a way that the equator of that period would pass through New England. Supporters of his hypothesis have doubted the existence of glaciation at Squantum because it interfered with this hypothesis. The New England geologists were very glad of the opportunity to study this locality under the guidance of Dr. Sayles.

The evidence of glaciation shown by Dr. Sayles were (1) the tillite with characteristic lack of sorting and with occasional striated pebbles; (2) varved clays which have been studied under the microscope and have been demonstrated to be similar to the clays of Pleistocene lakes; (3) gliding planes within the clays which have mashed the clay layers and which were started, perhaps, by floating ice; (4) inclusions of blocks of the varved clays in the overlying sediments, indicating that they were solid enough to be broken up and moved by contemporaneous agents of erosion. Most of the geologists agreed that the evidence was very conclusive. There was a question whether the glaciation was local or regional.

After a strenuous day in the field the dinner at the Commander Hotel, Cambridge, was much appreciated. During the evening there was a conference at the Harvard Geological Museum. Greetings were sent Dr. William North Rice, who attended the first excursion in 1901 at Westfield, Mass., and has been present at most of the gatherings since that time. It was decided to hold the twenty-fifth excursion in the vicinity of Littleton, New Hampshire. Dr. Keith, of the United States Geological Survey, and Dr. Kirk Bryan, of Harvard University, gave a history of the geologic study of the Boston Basin and Dr. Marland Billings explained a recent map of the structure of the basin.

On Saturday morning there were busses awaiting us at the Agassiz Museum and the day was spent in the vicinity of Boston under the guidance of Drs. Bryan and Billings. Details necessary for the construction of a cross-section between Jamaica Plains and the Blue Hills, south of Boston, were studied. Dr. Billings believes that the key to the geologic structure of the Boston Basin lies in the presence of overthrust faults which have brought the basal complex of the Dedham granodiorite and its associated Mattapan volcanics into contact with the Cambridge slate, the uppermost member of the Boston Basin series.

The Boston Basin series consists of the basal Dedham group and Mattapan complex overlain by the Roxbury conglomerate, the Squantum tillite and the

Cambridge argillite in the order named. Hitherto certain argillites interbedded with the Roxbury conglomerate have been confused with the Cambridge argillite. The structures have been simplified by the discovery of this error.

The thrust planes within the basin are abnormal since they have been tilted from a low angle at the time of their initial development into vertical or overturned positions at the present time. Doctor Billings' sections were sometimes difficult to understand since the field evidence would force his thrusts to originate in a direction *away from* that toward which the planes now dip—the thrusts coming from the south and the thrust planes now dipping steeply to the north.

Twenty-eight colleges and institutions were represented during the excursion.

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Secretary

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

ISOPROPYL ALCOHOL AS A PRESERVATIVE

WHILE working at Reed College in 1922 I put up several specimens of the western newt, *Triturus torosus,* in isopropyl alcohol in order to test the usefulness of this alcohol as a preserving fluid. This was done at the suggestion of Dr. L. E. Griffin, who was experimenting with substitutes for ethyl alcohol. Six newts were preserved; one each in 40 per cent., 50 per cent., 60 per cent., 70 per cent. and 80 per cent. of Petrohol (the trade name of the isopropyl alcohol used) with a control in 70 per cent. grain alcohol. As the Petrohol contained only 91 per cent. of isopropyl alcohol the actual concentrations ranged from 36.4 per cent. to 72.8 per cent. The newts varied from 134 to 178 mm in length and from 14 to 19 mm in greatest diameter of body. They were chloroformed and the abdomen pierced with a stout pin before putting them in the preserving fluid.

I looked for these specimens last spring but could not find the control. As they were dated March 31, 1922, they had stood for six years, a very fair test for the fluid.

The discoloration of the liquid was quite noticeable, for it grew progressively darker as the concentration decreased. The 80 per cent. was almost clear, while the 40 per cent. was a greenish amber, though no darker than ethyl alcohol sometimes gets by standing on specimens. As the skins of the newts were faded proportionately, it seems clear that isopropyl alcohol dissolves the dermal pigment more readily in low than in high concentrations.

The specimen in 40 per cent. Petrohol was faded to a dull grayish brown above and dirty yellowish white below, the original reddish brown and orange yellow having completely disappeared. The 80 per cent. specimen had the colors very well preserved for an alcoholic and the others varied between the two extremes.

The bodies of those in 40 per cent., 50 per cent. and 60 per cent. were soft and pliable (except that the last was rather stiff) and the jaws could be opened easily. The 70 per cent. and 80 per cent. specimens on the other hand were stiff and badly shrunken and the jaws were very hard to open. The muscles of the first three were in good condition for dissection. The skin peeled readily from the muscles and the latter were easily parted from the bones. Apparently it would be easy to make a skeleton from any of the specimens. The cartilage was yellow like the muscles, otherwise it appeared about as in life.

The viscera of all were perfectly preserved with no sign of decay anywhere. The liver was soft but not mushy except in the 70 per cent. and 80 per cent. specimens, where it was harder and adherent to the body wall.

The heart, blood vessels and contained blood were faded to a yellowish color. Heart muscles were in good condition except that in the 60 per cent. specimen they were rather brittle. This fading of the blood made it rather hard to trace veins and arteries except in the liver.

Perfect preservation in such low concentration of any alcohol is unusual and may prove to be a valuable property of isopropyl alcohol. The fading effect seems to be confined to the blood and heart muscles and to the yellow pigment of the skin, as the 40 per cent. specimen was only a little paler dorsally than the 80 per cent., though much less yellow. Perhaps this would not be the disadvantage in other groups that it is in the Amphibia. The ones in 40 per cent. and 50 per cent. were softer and in better shape for examination or dissection than most alcoholics are. For many anatomical specimens I believe that isopropyl alcohol would be an excellent preservative.

Griffin[1] has shown that isopropyl alcohol is useful for histology, that it may be used freely without the annoying restrictions placed on the use of grain alcohol and that it can compete with the latter in price. The fact that it can be used in low concentrations should make it an economical preserving fluid. It lacks the irritating properties of formalin and does not soften the bones or teeth in the same way.

[1] L. E. Griffin, "Practicable Substitutes for Grain Alcohol," SCIENCE, 55: 262, 1922.