to beyond Hebron, Maine, where collecting was indulged in at the pit formerly operated by the General Electric Company for pollucite.

The name Lewiston limestone was proposed by Dr. Fisher for the limestone occurring at the City Quarry in Lewiston. He also proposed calling two definitely distinguishable metamorphosed phases of it the Thorncrag gneiss and the Sabattus schist. Another member of the series, the Hill Ridge biotite gneiss and schist, was not included in the itinerary. The age of the pegmatites, so common in the area, might be ascertained from the study of included radioactive minerals or from the age of the Hedgehog Hill granite. Dr. O'Connell suggested that the Lewiston series might be more or less analogous to the Inwood limestone, Manhattan schist and Fordham gneiss, but until definite age relationships are established for the Lewiston rocks no definite correlations will be made.

No definite meeting place for next year has been decided on. The group has been invited to visit several localities in New Hampshire and in and around New York and Long Island.

LLOYD W. FISHER

BATES COLLEGE

SCIENTIFIC APPARATUS AND LABORATORY METHODS

AN ELECTRICALLY-HEATED SLIDE-RINGING DEVICE

IN preparing permanent slides of material mounted in lacto-phenol or other non-hardening medium, it is customary to use a suitable cement to fix the cover slip firmly to the slide. A satisfactory cement is Noyer's, which consists of 80 per cent. rosin and 20 per cent. anhydrous lanolin and is described in Langeron's "Précis de Microscopie." Ordinarily this cement is applied to the cover slip by means of a small coil of wire which has been heated in the Bunsen flame, dipped in the cement and subsequently applied to the slide. In using this method one tends to overheat the wire coil in an attempt to retain enough of the cement in the coil to deposit a complete ring around the slide with one application. There is, in consequence, uneven heating, frequent burning of the cement and the production of acrid smoke.

It is the purpose of this account to describe briefly an electrical heating device which maintains a constant and satisfactory temperature and greatly facilitates slide ringing by this method.

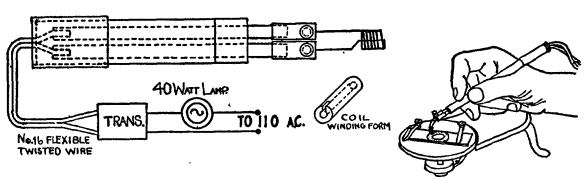

FIG. 1

The device consists of a heating coil held in a convenient handle by which it can be manipulated. The general character can easily be understood from the accompanying illustration. It consists of two insulated brass rods in a fiber tube with No. 16 flexible twisted wire soldered to the rods at one end and the other end bearing set screw connections to which is attached a small heating coil of No. 21 nichrome wire. To make the heating coil, a piece of wire approximately 7 inches in length is wound as follows: A right angle bend is made in the wire at a distance of about 1¼ inches from one end. This is inserted in a brass tube ⅛ inch external diameter and 1/16 inch internal diameter, with a small slot cut in the end of the tube. The long end is fitted into the slot and a coil is wound closely on the outside of the tube until the remaining end is about one inch in length. The coil is then removed from the tube and the two free ends are firmly attached by tightening the set screws. The coil thus wound is compact and the windings are equally spaced. The ends attached at the set screws are then bent at approximately a right angle to facilitate using the device.

The proper temperature is obtained by passing a current of about 5 amperes through the coil, which heats it to a dull red. A convenient source of this is the transformer used for microscope illumination. This transformer, however, with its primary input of 110 volts, 60 cycles, A.C., has an output of 18 amperes at 6 volts which is excessive, but can easily be brought to the proper intensity by placing a 40-Watt lamp in series with the primary of the transformer.

When the device is connected and pressed into the cement, the cement melts easily and enough is retained to deposit a sealing ring of cement around a cover slip of as much as ⅞ inch diameter. For circular slides a turn table has proved very satisfactory. The slides should be cleaned and seepage of the mounting fluid should be avoided. When lacto-phenol is used, this excess can be removed by a cotton swab moistened in 95 per cent. alcohol.

The device has also been found useful in affixing paraffin imbedded material to blocks for sectioning. The material is placed on the paraffin covered top of a block and the coil applied gently to the sides, until the paraffin melts sufficiently to affix the material to the block.

This coil retains sufficient cement to ring a slide with one application and the even heat obtained minimizes the smoke and avoids change in the com-

position of the cement. The raw materials including tools are easily obtained, the cost is very small and the device is easily made. It has been used with satisfactory results in this laboratory for the past year and it is hoped that it will be of service to others in ringing slides by this method.

BASIL W. PARKER
LABORATORIES OF CRYPTOGAMIC BOTANY
HARVARD UNIVERSITY

PRESERVATION OF SMALL AMPHIBIA IN GELATIN[1]

IT is difficult to retain the natural colors and appearance of frogs and salamanders by preserving the specimen simply in formalin or alcohol. The use of tubes of gelatin, described below, overcomes this difficulty and also makes a handy mount for identification purposes in the classroom. The gelatin mixture is a clear medium through which the external features of the specimen are clearly visible. Several successive stages in the life cycle of a given species may be replaced conveniently in one tube.

Procedure: The live specimen is killed and placed at once in 20 per cent. formalin. A slit in the abdomen of the larger specimens may be made to permit more ready penetration. After remaining in the formalin over night, the specimen is removed and washed in tap water eight hours. It is next placed in Kahle's fixative over night, then washed in running tap water ten hours. Kahle's fixative is:

95 per cent. alcohol	15 parts
40 per cent. formalin	6 "
Glacial acetic acid	2 "
Distilled water	30 "

Test-tubes of from 15 to 50 cc capacity are used, depending on the size of the specimen. The mounting medium is made as follows, using Difco Standardized Bacto Gelatin:

10 grams of purified gelatin
36 drops of formalin (40 per cent.)
100 grams of water.

Heat the water to boiling, add the gelatin and allow to dissolve. Add the formalin just before pouring the mixture into the tubes. In some cases good results are obtained by adding the formalin after the gelatin has been poured into the tubes and mixing thoroughly. When the tube feels moderately warm to the hand, place the specimen in the medium in the desired position, with tweezers, etc. Further cooling will stiffen the gelatin sufficiently to hold the specimen in position. After the specimen is satisfactorily oriented, the tube may be placed in a refrigerator to hasten gelation.

The tubes are later sealed with a mixture of equal parts of Parowax and sealing wax, and should be placed in a vertical position in a rack for safe storage.

FRANK JAMES GORDON
OHIO STATE UNIVERSITY

SPECIAL ARTICLES

TRANSMISSION OF INFLUENZA BY A FILTERABLE VIRUS

THE studies of Shope[1] on swine influenza established the fact that a filterable virus is the essential factor in the production and transmission of the disease. In 1933, Smith, Andrewes and Laidlaw[2] reported that the intranasal inoculation of ferrets with nasal or pharyngeal washings from human cases of epidemic influenza produced a disease in those animals characterized by fever and catarrhal swelling of the nasal mucous membranes, but without detectable pathological lesions in the viscera. They were able to transfer the disease in ferrets by the intranasal inoculation of suspensions of the ground turbinate bones. The causative agent was found to be a filterable virus. The animals invariably recovered from the disease, and the serum of a recovered animal was found to neutralize the action of the virus. They were also able to produce a similar disease in ferrets with the virus of swine influenza. Shope[3] was able to confirm their observations on the infectivity of the virus of swine influenza for ferrets. He observed, however, that when the ferrets were inoculated intranasally under light ether anesthesia, pulmonary consolidation was an invariable accompaniment of the disease, the infection was more severe, and death of the animal sometimes occurred. Suspensions of the lungs of infected animals were found to contain a high concentration of the virus.

Last winter a number of ferrets were inoculated in this laboratory with material from various respiratory infections, including common colds, acute tonsilitis, lobar pneumonia, psittacosis and two cases of clinical influenza. In only one instance, and that distinctly of bacterial origin, was infection established in the ferret.

During the latter part of August and September of 1934, an epidemic of respiratory infection occurred in Puerto Rico. In its clinical course it appeared to be typical epidemic influenza, although the mortality was low. On September 10, 1934, through the kindness of Drs. W. C. Earle and W. A. Sawyer, of the

[1] The basis of this method was obtained from C. W. Eagleson's article in Scientific Notes, *Jour. Econ. Ent.*, Vol. 25, p. 936.

[1] Richard E. Shope, *Jour. Exp. Med.*, 54: 373, 1931.

[2] W. Smith, C. H. Andrewes and P. P. Laidlaw, *Lancet*, 2: 66, 1933.

[3] Richard E. Shope, *Jour. Exp. Med.*, 60: 49, 1934.