The cycles through which she passed are outlined below with the attendant events in parentheses:

Oestrus: (copulated); fifth day: oestrus (copulated); ninth day: (oestrus); thirteen day: oestrus (copulated); seventeenth day: oestrus (copulated); twenty-first day: (oestrus) (parturition).

Her vaginal smears were observed during the period of lactation, but at no time while the young were suckling were the cyclic changes found. Three days after removal of the litter she came into oestrus, but no further fertile copulations were obtained.

It is of interest to note that not only were the corpora lutea of pregnancy unable to inhibit oestrus (it is, of course, a matter of conjecture as to whether ovulation occurred or not) during the pregnant period, but also that the cervical stimulation by the vaginal plug of the initial copulation also failed to prolong the diestrous interval. Ordinarily, even infertile copulations induce a condition of pseudo-pregnancy, which lasts from ten to twelve days, through the medium of the cervical stimulation and its attendant effect upon the corpora lutea.

WARREN O. NELSON
ZOOLOGICAL LABORATORIES,
STATE UNIVERSITY OF IOWA

ALCALIGENES ABORTUS FROM THE SPINAL FLUID

Alcaligenes abortus, the cause of undulant fever in the United States, has been reported as having been isolated from the blood, urine, feces, tonsil, joint fluid, lymph gland and ovarian cyst. No report of the isolation of this micro-organism from the spinal fluid has come to my attention. Recently, I have isolated the porcine variety from the spinal fluid in a case of suspected infantile paralysis occurring in a child two and one half years of age.

FREDERICK W. SHAW
MEDICAL COLLEGE OF VIRGINIA, RICHMOND

REPORTS

THE NEW ENGLAND INTERCOLLEGIATE GEOLOGICAL EXCURSION

THE twenty-fifth annual New England intercollegiate geological excursion was held in the vicinity of Littleton, N. H., October 11 and 12, 1929. Fifty-two persons were present, representing sixteen institutions. The excursion was arranged and directed by I. B. Crosby, geologist of the New England Power Association.

Friday afternoon, October 11, the members of the excursion assembled at Barnet, Vt., and drove by automobile to the east end of the lower dam being erected by the New England Power Association at Monroe, N. H. Fifteen Miles Falls has a total drop of 320 feet. The lower dam at Monroe will utilize approximately 160 feet of the fall. By excavating a gorge forty feet deep in the schist at the lower dam and by creating a tail-race of fifteen feet the effective head is increased to 215 feet. The upper dam between Waterford, Vt., and Littleton, N. H., will be approximately 160 feet high, making a total head of 375 feet. The project involves the expenditure of between $30,000,000 and $40,000,000. The lower dam will create a lake of 1,100 acres and the upper dam a lake of 3,300 acres. Four units of 50,000 horse-power each will be installed at the two dams and at peak load will be able to deliver 300,000 horse-power.

Excavation at the eastern end of the lower dam at Monroe had revealed four separate glacial deposits, a lower till of normal texture overlain by deltaic deposits merging westward into varve clays. A second till was deposited unconformably on the sands and varve clays and contains a large amount of clay derived from the erosion of the underlying varved clays. Overlying the second till were the second deltaic sands, forming a capping terrace.

During the last year there has been a tendency to postulate a stagnation of the ice sheet in New England, and some have doubted whether the deposits at Bethlehem, N. H., were true recessional moraine. The erosion of the varved clays at Monroe would indicate an active rather than stagnant glacier and, since it occurs approximately in line with the Bethlehem deposits, tends to confirm the determination of a recessional moraine at that place.

At the conference on Friday evening Irving B. Crosby discussed the general geology of Littleton and Dr. J. W. Goldthwait emphasized the significance of the cuttings at Monroe in relation to the glacial history of the region.

Saturday morning the party drove to Fitch Hill and studied the fossiliferous deposits of Silurian and Devonian age at that place. A few imperfect fossils were found. Driving westward to the upper dam site at Waterford, Vt., a brief stop was made to study the terraces in the valley of the Ammonoosuc River. Lunch was eaten at the upper dam and Mr. Crosby explained that it was here the Schlumberger electrical prospecting methods had first been used to locate the buried valley of the Connecticut River. The present valley lies somewhat south of its former bed. The till filling the former course is to be utilized as an impervious barrier to which will be tied the concrete structure from the southern bank of the river.

Much of the sand of the vicinity of Fifteen Miles Falls is so rich in mica and slate that it was considered unsuitable for the concrete of the dams. Large masses of trap and diabase were located at the northern end of the lower dam in Barnet and are being utilized in large quantities in the concrete construction. During the afternoon the geologists spent an interesting period deciphering the relations of the igneous rocks at this quarry. Four types are present, a coarse diabase, two traps of intermediate and fine grain and an aplitic granite. The pyroxenes of these rocks have been largely altered to hornblende. The coarse diabase has been further metamorphosed by the alteration of its plagioclase feldspars to albite and zoisite and the fine traps have developed a schistosity accompanied by the production of much chlorite. There was a vigorous discussion concerning the relative ages of the coarse diabase and the traps, but it was generally agreed that the alteration of these rocks had been largely influenced by the later intrusion of the aplitic granite.

Saturday evening R. J. Lougee discussed his recent study of the Connecticut valley lake stretching from Middletown, Conn., to Beecher Falls, near the Canadian boundary. The deltaic terraces bordering this lake have been tilted since their deposition at the close of the Pleistocene from an altitude of 160 feet near Middletown, Conn., to an altitude of 657 feet at Hanover, N. H. The dam holding back this first lake broke, perhaps at the White Rocks Narrows near Middletown, lowering the lake approximately one hundred feet. A second lake surface can be traced northward from Hanover at an elevation of 565 feet to Beecher Falls at an altitude of 1,080 feet. Comparing the isobases of the Atlantic beaches along the New England coast with the lake terraces it would appear that the lake level was approximately 180 feet above the surface of the ocean at the time of its formation.

Sunday morning a number of the party visited the site of the future power plant which is being erected below the lower dam. Throughout the excursion the New England Power Association extended every courtesy to the geologists. Mr. A. C. Eaton, chief hydraulic engineer for the association, was specially helpful. All who took part in the excursion were much impressed by the magnitude of the undertaking and by the interesting geologic facts revealed in the large excavations.

W. G. FOYE,
Secretary

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A USEFUL MODIFICATION OF AMANN'S MEDIUM

IN the belief that any promising method develops into more certain usefulness when generally known, I wish to add an additional point to Mr. Linder's timely note on Amann's lacto-phenol-cotton blue medium. During the past two years, since he brought it to our attention, this medium has been used with success in this laboratory by the students and myself for making temporary and permanent mounts of a great variety of materials. Its combined killing, clearing and staining action, rapid restoration of normal turgor and fixation *in situ* of easily disattached spores, are marked advantages over glycerine or glycerine jelly media. Cotton blue, however—although bringing out more structures than eosine—does not usually differentiate nuclei. To meet this difficulty I tried various nuclear stains that would mix with Amann's formula. The addition of a very little Nigrosin (water soluble), either aqueous, or in saturated picric acid as described by Curtis and Colley in the *American Journal of Botany,* for February, 1915 (with subsequent filtration or settling if necessary), was found to differentiate nuclei as well as other cell structures in a considerable number of representative fungi and algae.

Moreover, with sections of host plants invaded by mycelium of such fungi as the downy mildews, a prolonged stay in the medium yields a differentiation of the host and parasite like that resulting from the more complicated treatment with lacto-phenol-cotton blue and safranin described by Lepik in *Phytopathology* for October, 1928.

The medium lends itself well to making permanent mounts either by the double cover-glass method of Diehl (SCIENCE, p. 276, 1929), or by the older but quite reliable method described by Bullard in the *Transactions* of the American Microscopical Society in April, 1921, provided one exercises the same scrupulous care to insure perfect sealing (preferably with King's cement) that is necessary when mounting in glycerine. When making permanent mounts in very damp weather, as during a tropical rainy season, it is advisable, before sealing, to concentrate the medium on the slides in a desiccator.

WM. H. WESTON, JR.
LABORATORIES OF CRYPTOGAMIC BOTANY,
HARVARD UNIVERSITY

A CIRCUIT BREAKER FOR WATER-COOLED X-RAY TUBES

A RECENT issue of the *Journal of the Optical Society*[1] contains the description of a device for pro-

[1] L. W. McKeehan and L. M. Kirkpatrick: *Journal Opt. Soc.,* April, 1929.