REPORTS

THE SECOND ANNUAL TRI-STATES GEOLOGICAL FIELD CONFERENCE OF THE UPPER MISSISSIPPI VALLEY

THE second Tri-States Geological Field Conference of the geologists of Illinois, Iowa and Wisconsin was held in the region of Madison, Wisconsin, on October 20 and 21, 1934, with 124 geologists and a few visitors participating. Large groups came from the University of Chicago, Northwestern University, the University of Illinois, the Geological Survey of Illinois and the Geological Survey and University of Iowa. In addition, many of the small colleges of the three states sent one or more representatives. The two-day field trip was under the direction of Loyal Durand, Andrew Leith, G. O. Raasch, R. R. Shrock and F. T. Thwaites, with the general supervision under the direction of W. H. Twenhofel.

The field party left Madison at 9 A. M. on October 20 in forty cars. There was first visited the Johnstown Moraine, the outermost or terminal moraine on the east side of the Driftless Area. Thence was studied the section from the St. Peter sandstone to the Maquoketa shale. This was seen at various points on the south side of the Wisconsin Valley in the region of Mt. Horeb and Blue Mounds. The highest strata of southern Wisconsin, the lower part of the Niagaran dolomite, here replaced by chert, caps the top of West Blue Mound. This is the highest elevation in southern Wisconsin (1,716 feet). East Blue Mound is capped by the Maquoketa shale.

The party crossed over East Blue Mound and thence went north and west to the Wisconsin River, passing downward through the section to the Galesville member of the Dresbach formation, exposed on the Wisconsin River in Tower Hill State Park—a nearly complete section of the Cambrian and the Ordovician thus being seen to this point. This section consists of formations as follows:

Silurian
- Niagara dolomite (not Mayville)

Ordovician
- Maquoketa shale
- Galena dolomite
- Decorah shale
- Platteville limestone
- St. Peter sandstone
- Shakopee dolomite (not proved to be present)
- New Richmond sandstone (not proved to be present)
- Oneota dolomite

Cambrian
- Trempealeau formation
  - Madison-Jordan sandstone
  - Lodi siltstone
  - St. Lawrence dolomite
- Franconia formation
- Dresbach formation
  - Galesville sandstone

Lunch was had at Tower Hill State Park, a place of historical interest because of the manufacture of shot at that place in the early days. The old shot tower cut in the sandstone is still in existence.

On the afternoon of the same day the country north of Spring Green, Wisconsin, was studied and parts of the section seen in the morning were again examined. In the middle of the afternoon the party reached the summit of the Lower Magnesium Upland on the north side of the Wisconsin Valley. This upland area is cut on a strata of the Lower Magnesian dolomites (Shakopee and Oneota dolomites). At a higher elevation remnants of another upland may be seen. Mr. Thwaites presented the various explanations which have been offered to account for the uplands.

The most southwestern exposure of the Huronian Baraboo quartzite was seen at Weidman Falls, where the erosion of a stream superimposed from the Cambrian upon the quartzite has brought the latter to the surface. Finally, late in the afternoon, extensive exposures of the Baraboo quartzite, conglomerates of the Paleozoic strata at the contact with the quartzite, the fracture cleavage of Van Hise rock and other features of the section were studied in the Upper Narrows of the Baraboo River.

The party spent the night in Baraboo, and a banquet attended by 83 members of the conference was served. After the banquet there was chosen a committee to organize the conference for 1935, consisting of A. C. Trowbridge, *chairman,* representing Iowa, M. M. Leighton, representing Illinois, and W. H. Twenhofel, representing Wisconsin. The 1935 conference will be held in Iowa.

Sunday morning, October 21, was spent in the Baraboo Range. Attention was called to the differences in the lithology of the Cambrian strata within the Range and the fact that at the contact with the Baraboo quartzite every formation becomes a conglomerate and that the assignment of all the conglomerates to the Cambrian is not correct. There were examined in order shaly strata in the Franconia formation, highly burrowed sandstones in the upper part of the same formation, the intrusive granite of Baxter Hollow, the highly contorted and deformed strata in the upper part of the Baraboo quartzite exposed on the headwaters of Skillet Creek, fracture cleavage exposed in the quartzite on the northern end

of Devils Lake, and, lastly, the schistose and massive rhyolites exposed on the Lower Narrows of the Baraboo River, at which place the quartzite is in vertical position and likewise the original surface of the rhyolite on which deposition took place. No evidence of incorporation of rhyolite fragments in the quartzite was found.

The conference adjourned at 1 P. M. on Sunday, October 21.

W. H. TWENHOFEL

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A PHYSIOLOGICAL STROBOSCOPE

A NEW physiological stroboscope has been developed primarily for the study of the vocal cords during phonation. Stroboscopy, in this application, dates to a suggestion of Töpler[1] in 1866 and its first utilization by Oertel[2] in 1878. However, the instrumentation to date, although having seen much change in form, has shown little change in principle from that of original conception. These apparatus essentially consist of a light source of rapid quenching characteristic, some means for interrupting the light such as a shutter or switch, and a variable speed motor or actuator capable of covering the frequency range of the voice. A further elaboration provides for a tone source or loud speaker in conjunction with the interruptor, whereby the subject has established for him the tone frequency he is to take.

In contra-distinction, the authors' apparatus permits the subject to take any tone or series of tones arbitrarily, and the stroboscope automatically responds to the variation as it occurs. Inasmuch as no manual adjustment or compensation is necessary for the reestablishment of syntony upon a variation of frequency, either in the voice or the mechanism of interruption, it is possible to follow the cordal configuration throughout a tonal transition. Thus a limitation of large proportion has been lifted from this field of study.

A microphonic pick-up element, a series of band pass filters, a high gain amplifier, a set of phasing impedances and an oscillator with the output feeding a gaseous discharge lamp substantially comprise the instrument. The phasing circuit permits the study of the cords during any portion of the cycle from the fully closed to the fully opened positions. Entrance into the viewing position is accomplished with an endo-laryngoscopic device which has been fitted with the gas discharge lamp.

A series of investigations utilizing the instrument has been projected and reports will follow.

LEO A. KALLEN
H. S. POLIN

DISSECTION AS A METHOD OF EMBRYOLOGICAL STUDY

AT the meetings of the American Association for the Advancement of Science held in Berkeley in June of this year one of the demonstrations was an exhibit of most of the equipment for the dissection and stereoscopic photography of embryos, together with a display of stereoscopic photographs of various dissections of the developing rat. Although a detailed description is being prepared, the following summary is offered.

The chief pieces of apparatus consist of the following: A specially designed lamp, for using flashlight bulbs, by which light is concentrated to a small spot at a distance of 7 inches from the lamp; an electrically operated vibrating knife, made from a piece of safety razor blade, supported and controlled by racks and pinions; a dissecting needle fashioned from a hypodermic needle mounted on a system of levers so that the motion is reduced by about 4; ball and socket mounts for holding embryos during dissecting and during photographing. The camera bellows consists in part of a telescoping bellows and in part of boxes by which the total length can be increased to about 6 feet. It is supported on a long piece of steel tubing which in turn is so mounted vertically that it can be inclined to right and to left in order with the same lens to take in succession two different photographs of the same embryo, which give a stereoscopic effect. A support for the embryo so that it can be kept in the axis of inclination of the camera and also be illuminated from beneath as well as from above.

Other items include such things as fine-tipped forceps, brushes made of fine silk thread, turn table, etc.

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THE DEVELOPMENT OF THE PRINCIPAL ARTERIAL VESSELS IN THE RAT FROM 11 TO 16½ DAYS

THIS study traces the vascular changes through a critical period of development and determines the embryonic relationships of certain adult vessels. It also offers a reconciliation of inconsistent embryological terminology with the B.N.A. as used by Greene.[1]

The embryos were injected with diluted India ink, dehydrated, dissected in benzol, for which a method was devised, and finally cleared by Reagan's modified

[1] Topler, *Annalen d. Phys. u. Chem.*, p. 108, 1866.

[2] M. J. Oertel, "Uber eine Neue Laryngo-Stroboskopische," *Zentral. Med. Wiss.*, 1878.

[1] The writer wishes to gratefully acknowledge the generous cooperation of E. C. Greene in advancing information from her manuscript on the anatomy of the adult rat soon to be published.