River east to Gaspé for three weeks. In Virginia and West Virginia, one of the most typical non-glaciated areas of the eastern United States will be studied by students of geography under the direction of Professor Frank J. Wright, of Denison University, Granville, Ohio.

DISCUSSION

SOIL TEMPERATURES AT BOZEMAN, MONTANA, DURING SUB-ZERO WEATHER

DURING the period commencing on January 25, 1936, at Bozeman, Montana, there was experienced the coldest and most extended spell of sub-zero weather ever to be recorded at the Experimental Farm. These records have been maintained for fifty-three years. This cold snap swept over practically all the northern and central United States east of the Rocky Mountains, inflicting much personal hardship on individuals and communities and disrupting all forms of transportation. Not only Bozeman but many places widely scattered over the whole country registered record lows.

Throughout the month of February, at Bozeman, the soil temperature apparatus operated by the Department of Entomology provided many interesting data, emphasizing once more what has been so often forcibly impressed on observers—the great insulating effect of a snow covering.

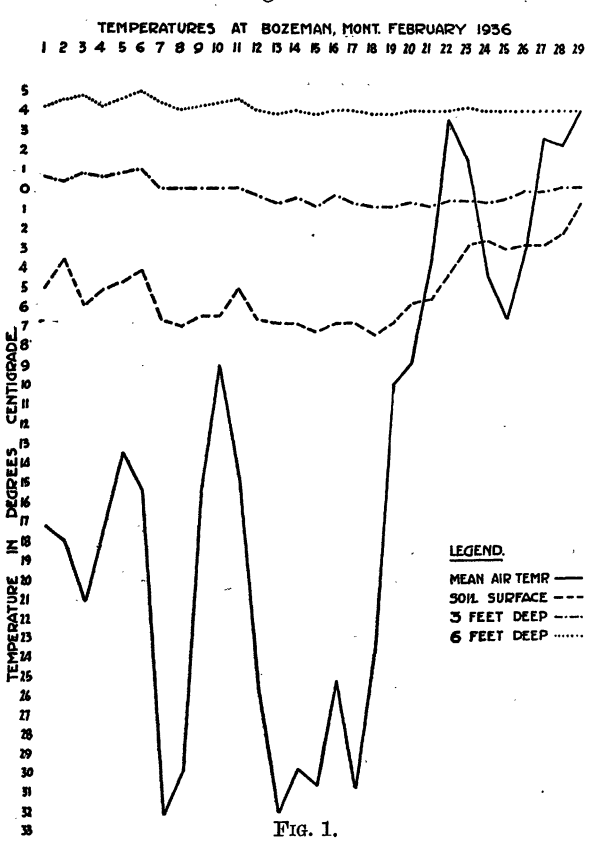

FIG. 1.

From a perusal of the graph (Fig. 1) showing conditions in soil, snow and air, it will be seen that the frost line reached three feet and stayed there for 23 days, and at four feet the temperature was only 1.0° C. above freezing. This is the first time during the six years covered by this study that the frost line has penetrated so far and for such a lengthy period. During all February the snow covering over the instruments varied in depth from 8 to 15 inches. This insulation resulted in a very small fluctuation of temperature under the snow in spite of great variations of air temperature, the minimum temperature at the soil surface being only −7° C. The minimum air temperature for the month was −41.7° C. Also between the minimum of +1° C. at four feet in depth and the soil surface there was only an 8-degree gradient, so that plant and animal life in that first four feet were not subjected to abnormally cold conditions.

It is unfortunate that similar records are not being obtained at more stations throughout the country. Were comparable data available from stations widely scattered and in greatly varying climatic belts, it might be possible to correlate the information so obtained, as regards winter soil temperature distribution, with the distribution of plant and surface-living and subterranean animal life. Certainly such information would be of marked importance in studying the winter hardiness of economic forms of plants and animals.

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THE DODGE, NEBRASKA, "FIREBALL"

BETWEEN 10 and 11 P. M. on the evening of June 24, 1935, farmers who live in the vicinity of the Carl Iske farm, 8½ miles south of Dodge, Nebraska, reported intense light entering through windows on all sides of the house, followed by a loud explosive noise. The day had been hot, with a thunder-storm a short distance to the northward, but no rainfall in that immediate vicinity.

A few days later, a hole was found in the earth in a cornfield which slopes gradually to the south, with clay subsoil. A party, headed by Police Commissioner Frank Meyers, of Omaha; Professor J. L. Cannon, of Creighton University, and Professor D. W. Crouse, of Midland College, had charge of an excavation of the hole, this work being begun on July 22.

The dirt was found thrown back from all sides of the 8-inch hole at the center for a distance of about 3 feet and heaped up about 6 inches above the level of the surrounding ground. The hole extended downward 8 feet almost vertically, with an average diameter of 8 inches, then became smaller for the next 7 feet and varied somewhat from the perpendicular. At a depth of 15 feet the diameter had been reduced to about 4 inches and branched out in 3 directions into 2-inch holes, which were followed for 3 or 4 feet into the bank where they disappeared. At this level the clay became very moist, and it was evident that the water level was being approached.

The clay showed signs of fusion at a number of points, and the inside of the hole had a corrugated appearance, as though moist clay had been forced violently back by high pressure. No evidences of any material of different composition than the clay itself were found, and there were no traces either in the hole or outside of it of material which might have been of meteoric origin.

The conclusion reached, therefore, is that, although eye-witnesses held to the opinion that a meteorite struck the earth, the hole was caused by a thunderbolt and not by material of celestial origin, for there is no record of a small meteorite ever having penetrated the earth to such a depth. The size and length of the hole are phenomenal, however, in the records of electrical discharges.

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TERMITE DISTRIBUTION IN THE UNITED STATES

DR. A. E. EMERSON'S[1] current reference in SCIENCE to the somewhat more common occurrence of termites in the eastern United States than has been indicated by some observers prompts the following confirmation. *Reticulitermes flavipes* (Kollar) was secured in considerable abundance from several sources within a five-mile radius of New Haven in 1921–23. Individuals were taken from colonies in the ground and from fallen tree trunks in partial states of decay, soldiers, workers and winged adults being present. Specimens were transferred to the Osborn Zoological Laboratory, where they were kept in large covered crystallization dishes in pieces of the original wood, moisture being supplied by wet filter paper. Ample numbers were available for a study of the protozoan fauna of the intestine.

On April 20, 1933, nearly all of a colony of termites, seemingly *Reticulitermes flavipes,* was recovered from a stand of hard and soft wood on Mill Road about a mile from the village of Durham, New Hampshire. Examination of the protozoan content of the gut showed it to be similar to that found in New Haven.

Banks and Snyder[2] print a map of distribution for *R. flavipes,* which shows that they were found in southwestern Maine, southeastern New Hampshire and in Connecticut. The monograph reports them from Lyme, Connecticut (Greene), from Kingston, Rhode Island (Barlow), and from several towns in and around Boston. The authors state that "This termite is widespread in the eastern United States, its geographical distribution being from (Canada?), Kittery, Maine (Thaxter), southward to the Florida Everglades."

Dr. Emerson mentions that *R. flavipes* was also collected at "New Castle, Lincoln County, Maine," referring undoubtedly to the town of *Newcastle,* located some eighteen miles from Bath. He adds "Other new northern records furnished by Dr. T. E. Snyder . . . are Bellows Falls, etc.," which may imply that these termites have been reported only once from Maine. This does not seem to be the case. Casual attempts to discover them in this section of the state have thus far proved unsuccessful, however.

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FEDERAL RELIEF LABOR AND PALEONTOLOGY

FOR the two years just past, the Museum of Paleontology of the University of California has been the sponsor of a project involving the use of fourteen to eighteen Federal Relief workers engaged in the various phases of museum duties. During the current year, the labor cost has been borne by the Works Progress Administration. The object of the present paper is to place on record the nature of the work done, the adaptability of the workers to it and the possibility of other similar public institutions taking advantage of this type of help.

At Berkeley, the Museum of Paleontology houses primarily a research collection of fossil vertebrates, invertebrates and plants. As in related museums, the primary problem is the quick and adequate preparation, housing and cataloguing of newly acquired material. And as in most museums, the permanent staff is small and the duties manifold, with the result that many specimens or even faunas are, of necessity, half prepared or still in the field wrappings. Moreover, housing problems become acute, curatorial difficulties increase and research is hindered.

When Federal Relief workers became available to the various units of the University of California, it

[1] SCIENCE, 83, 410.

[2] U. S. Nat'l Mus. Bull. 108: pp. 45, 150–161, 1920.