

and deep, and occasionally quite symmetrical in shape.<sup>4</sup> In the vicinity of large mounds such excavations are common. The earth and stone composing these works are sometimes foreign to the locality which they occupy, and must have been brought from considerable distances.

### Regular in Outline

A large, perhaps the larger, portion of these enclosures are regular in outline, the square and the circle predominating. Some are parallelograms, some ellipses, others polygons, regular or irregular. The regular works are almost invariably erected on level river-terraces, great care having evidently been taken to select those least broken. The irregular works are those which partake most of the character of defences, and are usually made to conform to the nature of the ground upon which they are situated,—running along the brows of hills, or cutting off the approaches to strong natural positions. The square and the circle often occur in combination, frequently communicating with each other or with irregular works directly, or by avenues consisting of parallel lines of embankment. Detached parallels are numerous. The mounds are usually simple cones in form; but they are sometimes truncated, and occasionally terraced, with graded or winding ascents to their summits. Some are elliptical, others pear-shaped, and others squares or parallelograms, with flanking terraces. Besides these, there are others already alluded to, most common in the extreme north-west,

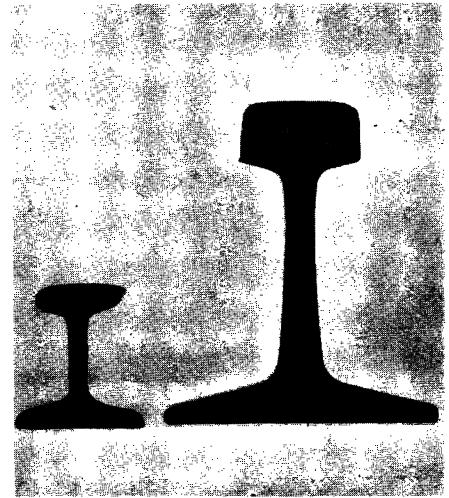
<sup>4</sup>These are the "wells" of Mr. Arwater and other writers on American antiquities. It is barely possible that a few were really wells, or *secondarily* designed for reservoirs.

which assume the forms of animals and reptiles. Another variety of remains are the causeways or "roads," and the graded descents to rivers and streams, or from one terrace to another. These several classes of works will be described at length, under appropriate heads.

As already remarked, these remains occur mainly in the valleys of the Western rivers and streams. The alluvial terraces, or "river-bottoms," as they are popularly termed, were the favorite sites of the builders. The principal monuments are found where these "bottoms" are most extended, and where the soil is most fertile and easy of cultivation. At the junction of streams, where the valleys are usually broadest and most favorable for their erection, some of the largest and most singular remains are found. The works at Marietta; at the junction of the Muskingum with the Ohio; at the mouth of Grave Creek; at Portsmouth, the mouth of the Scioto; and at the mouth of the Great Miami, are instances in point. Occasional works are found on the hill tops, overlooking the valleys, or at a little distance from them; but these are manifestly, in most instances, works of defence or last resort, or in some way connected with warlike purposes. And it is worthy of remark, that the sites selected for settlements, towns, and cities, by the invading Europeans, are often those which were the especial favorites of the mound-builders, and the seats of their heaviest population.

*Science News Letter, September 12, 1931*

One fine residence excavated in the ruins of Pompeii contained at least 40 rooms.



### PUT ON WEIGHT

That is what the "T" rail has done during the century of its development. On the left is shown a cross-section of the first "T" shaped rail used by an American railroad. Contrasted with it, is the largest rail ever made for standard use, which has recently been designed and is now being laid on portions of the Pennsylvania system. The old rail, laid in 1831, weighs only 36 pounds per yard. The new rail, however, tips the scales at 152 pounds per yard and is built to stand satisfactorily 100,000 pound axle pressure loads at a speed of 100 miles an hour.

### MEDICINE

## Infantile Paralysis Breaks Out in Middle West

WITH INFANTILE paralysis increasing in the New York area, a second epidemic center of the disease has appeared in the Middle West, according to reports received by the U. S. Public Health Service. The new outbreak is in Michigan, Wisconsin, and Minnesota.

The two outbreaks are probably not related, health officials believe. The total number of cases for 44 states according to the latest report was 1,264.

Figures from individual states having large numbers of cases are as follows: New York City, 432; New York state outside the city, 180; Massachusetts, 135; Connecticut, 134; New Jersey, 103; Michigan, 76; Wisconsin, 61; Minnesota, 39; and West Virginia, 10.

Health officials pointed out that the epidemic in the East has spread from New York, but apparently will not spread across the continent, for in nearby Pennsylvania, the number of cases continues to be low. This state reported only 9 cases for the week of August 29.

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Health officials do not expect to see the end of the epidemic before October. However, this outbreak has not reached the size of the 1916 epidemic and is not now expected to. The fatality rate of the present epidemic is only about one-third that of the 1916 one. States in which infantile paralysis outbreaks occurred last summer, such as California and Kansas, do not appear to be affected at all during the present eastern epidemic. Whether this is due to immunity acquired last year or to the fact that the epidemic has not yet traveled far is not known.

Physicians and health officials in New York are trying to get all cases of the disease reported and to get all reported cases treated with convalescent serum and given adequate after-care so as to prevent or reduce the crippling paralysis which follows the fever in this disease. School openings in the affected area are being delayed in the hope of preventing any further spread.

*Science News Letter, September 12, 1931*

## MEDICINE

## Maggot Treatment of Bone Wounds Suggested Long Ago

THE "MAGGOT TREATMENT" of bone injuries, in which larvae of blowflies are placed in the wound to clear up the decayed tissue and hasten healing, seems to be no new thing under the sun. Dr. Hyman I. Goldstein of Camden, N. J., has made a search into medical literature of the past, and has found that the beneficial effect of these larvae was suggested by a French surgeon, Baron D. J. Larrey, shortly after the Napoleonic campaign in Egypt.

The Baron states that in Syria the wounded were annoyed and often terrified by the appearance of "the larvae of the blue fly" in their injuries. "Noth-

ing short of experience could convince them that these insects, so far from being injurious to their wounds, promoted rather their cicatrization, by cutting short the process of nature, and by causing the separation of the cellular eschars which they devoured. These larvae are, indeed, greedy only after putrefying substances, and never touch the parts which are endowed with life."

The modern use of maggots to clear up wounds, especially bone wounds, dates from observations made in the field during the World War. It was the late Dr. W. S. Baer, of the Johns Hopkins University, who made the most extensive clinical tests, developed a technique, and most vigorously advocated the general adoption of the method.

*Science News Letter, September 12, 1931*

## METEOROLOGY

## Do Glaciers Melt of Their Own Weight?

By DR. W. J. HUMPHREYS,  
U. S. Weather Bureau

AMONG the many statements that familiarity allows to pass unchallenged is that time-honored one to the effect that glaciers automatically limit themselves to a rather moderate thickness because their own weight keeps melting them at their base at a rate that increases with the load. It is true that increase of pressure on the bottom layer of ice does lower its melting point, but this does not enforce rapid melting, and would not even if the initial temperature of the ice were exactly at the melting point, except briefly.

### Heat Not Provided

Of course the ice would melt at a furious rate under its own pressure if heat were brought to its under layer rapidly enough to keep the temperature above the melting point appropriate to that pressure. But heat is not so provided by Nature, and melting is a process that consumes much heat. Hence the very act of melting automatically so cools the ice that its further melting is determined entirely by the additional supply of heat. In short, regardless of the pressure, ice is melted only through its consumption of the necessary heat of fusion, a quantity that a pressure of 1,000 atmospheres, or 14,700 pounds per

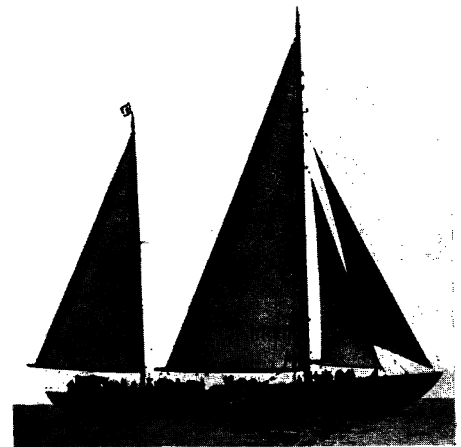
square inch, would not reduce by more than 10 per cent.

Now, from direct experiments, and from theory as well, it appears that the melting point of ordinary ice, the only kind that need here be considered, at the bottom of a sheet 10,000 feet thick, would be approximately 4.12 degrees Fahrenheit below the temperature at which water ordinarily freezes. At the bottom of a sheet 30,000 feet thick (liberal enough as to thickness, perhaps) it would be 13 degrees below the usual freezing point.

But even so, the ice would melt only as heat was supplied and absorbed. In the case of a thick sheet of ice this supply of heat for melting must come mainly from the earth beneath, as practically none could penetrate to the base from above. But this supply from the earth beneath is small, only enough, on the average, to melt a layer of ice a quarter of an inch thick in a year.

The limiting thickness of a glacial sheet, then, is not owing to melting incident to pressure, but to various other causes, especially horizontal flow, surface melting, the brushing off from the top of loose snow by winds, the decrease of precipitation owing to increase of height, effective above the base level of the average snow cloud, evaporation, and the supply of earth heat.

*Science News Letter, September 12, 1931*



### TO STUDY THE SEA

This is the "Atlantis," whose maiden voyage from Copenhagen, where she was built especially for scientific work, has ended at Boston after 41 days at sea. The "Atlantis" is the new research ship of the Woods Hole, Mass., Oceanographic Institution. Delicate nets and other gear are a part of the special equipment with which scientists will gather material from the floor of the sea; among the chief features of the work is the study of marketable fish and matters of oceanography such as pressure, temperature, currents, as well as meteorological problems of the off-shore fisherman. The "Atlantis," made of steel, is almost 150 feet long. Her displacement is about 410 tons and she will accommodate 30 officers and men including a staff of scientists and students. The "Atlantis" was made possible by a two and a half million dollar gift from the Rockefeller Foundation.