Comparative Crushing Strength of Cubes and Prisms of Bedford Limestone. By W. K. Hatt.

[Abstract.]

An examination of the curve representing Baushinger's experiments on the crushing strength of stone cubes as compared with the strength of stone prisms, will show that the law of variation of strength is such that the strength of a prism whose height is 1½, the length of its base will be only 92 per cent. the strength of a cube of equal section. It is a matter of doubt whether such a difference will occur between tests of any given specimens of the variation in height mentioned under the ordinary condition of testing.

Tests of 31 specimens of Bedford Limestone (of rather soft variety) made at Purdue University, show that 17 cubical specimens (4x4x4) were slightly weaker than 14 prisms (4x4x6) of the same material, subjected to the same conditions throughout. Specimens were bedded in plaster of paris. The average angle of failure in shearing was 64.5 degrees.

Some Mounds of Vanderburgh County, Indiana. By A. H. Purdue.

Exactly in the southeast corner of Vanderburgh County, Indiana, is a collection of mounds and earthworks, which, so far as I am aware, have never been fully described,* and which are doubtless among the most interesting of the State. They are locally known as the Angel Mounds, taking their name from the owner of the land on which they occur.

As the ground upon which they are situated is nearly all under cultivation and the mounds are rapidly disappearing, it is desirable that a description of them be placed in permanent form.

The remains are situated upon the alluvial soil of the Ohio River, north of Three Mile Island, and lie between two bayous, one on the south separating Three Mile Island from the main land, and an older one on the north.

When in a perfect state there was probably an inclosure, formed by the bank of the bayou on the south and an irregularly curved wall, presumably a rampart, either end of which was terminated by the embankment. At present there are about 1,400 yards of this wall remaining. As it now stands it is from 5 to 10 feet wide at the base, and from 1 to 2 feet high. At intervals, usually of from 37 to

*An imperfect description of these mounds will be found in the Smithsonian Report, 1881, p. 591.

40 yards, there are semicircular mounds with radii of from 5 to 8 feet, joined to the outer side of the wall. On the supposition that the wall was a rampart, these semicircular projections from it were probably lookouts from which the guards could easily flank the outer face of the wall. It will be seen by reference to the map that there is within the outer wall a similar inner one, which terminates in Mound No. 2. There is evidence, though very slight, that this wall formerly extended from Mound No. 2 southward. It is possible that it marks the border of the original inclosure which was afterward extended to the outer wall.

The area included between the outer wall and the embankment north of the present bayou is a little more than 95 acres.

The most striking object among the collection is the large mound within the inclosure. Its longest diameter is 500 feet. Its width varies from 175 feet to 225 feet. With reference to altitude it is divided into three parts. The southern part, which is 160 feet long and which has been under cultivation for years, varies in height from 6 to 9 feet. The east border of this part is somewhat obscured, from cultivation and erosion, but the south and west borders are distinct. The second part of the mound rises about 17 feet above the first part, and is 26 feet above the base. The top is flat and is 240 feet long by 112 feet wide, and has been utilized until recently for an apple orchard. The third part is a dome 13 feet high and stands on the southeast corner of the second part. The base of this dome is about 48 feet in diameter, and the highest point is 39 feet above the ground on which the mound rests. If the trees along the Ohio River were removed, the top of this dome would afford a commanding view for several miles up and down the river.

I shall not even venture a conjecture as to the purpose of this remarkable mound.

Besides this, there are six other mounds within the inclosure, denoted by Arabic numerals. These mounds are all circular at the base and have rounded tops, except No. 3, which is a truncated cone. It has a diameter of 160 feet and is 10 feet high. Trees of walnut, oak and maple are growing upon it. The largest tree is an oak, which is 2½ feet in diameter. This mound has for a long time been used by the people of the vicinity as a burying place. Mound No. 1 is 115 feet in diameter and 12 feet high; No. 2, 90 feet in diameter and 6 feet high; No. 4, 100 feet in diameter and 5 feet high; No. 5, 60 feet in diameter and 4 feet high; No. 6 is a small indistinct mound.

All of the small mounds, except No. 3, are being cultivated.

In Mound No. 5, Mr. Charles F. Artes, of Evansville, reports having found 13 human skulls, 12 of which formed the circumference of a circle, the thirteenth

being in the center. All were well protected by slabs of shale. No human remains are reported from any of the other mounds.

In the southeast part of the inclosure the plow frequently brings to the surface bones of birds, small and large mammals, and human beings. This is for that reason designated on the map "Burying Ground."

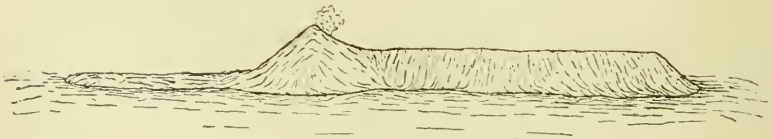
Pieces of pottery, such as is now made by the western Indians, are common within the inclosure.

On the north side of the old bayou, beyond the area shown in the map, is an old excavation, from which a portion of the earth in the mounds was doubtless obtained. In this excavation are stumps of oak trees, two feet or more in diameter.

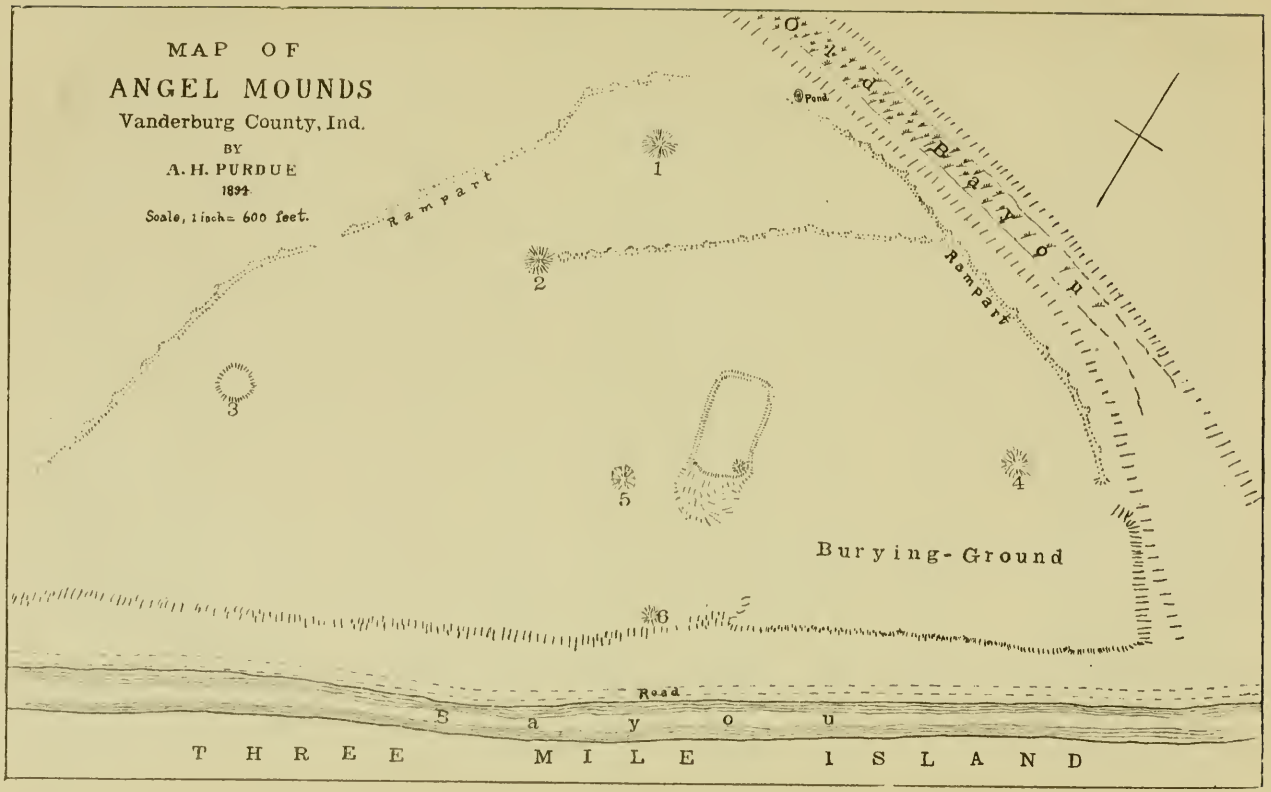
A striking feature of these mounds is their perfect state of preservation. True, the rampart, if it were such, has been greatly reduced in height; but this is probably due to the fact that most of it overflows during the Ohio floods. The east end of the natural embankment north of the bayou and south of the Burying Ground was improved, and, with the exception of a few small washes, now stands as it was left by the aboriginal men who did the work. The large central mound, except where cultivated, is apparently in a perfect state of preservation. The apparent recency of the work certainly indicates that it is none other than that of the American Indians.

Why these mounds were located here on this alluvial soil, most of which overflows, and which is productive of malaria, while the highlands are only a mile north, and three miles to the northeast, at the town of Newburgh, is one of the most commanding views along the entire course of the Ohio River, is a question.

About a mile northeast of the large mound is a single conical mound, 150 feet in diameter and 25 feet high. There are several small mounds along the alluvial deposits of the Ohio in Warrick County.



Angel Mound (1894)


MAP OF
ANGEL MOUNDS
Vanderburg County, Ind.
BY
A. H. PURDUE
1894
Scale, 1 inch = 600 feet.
Ohio River
Pond
Rampart
Rampart
1
2
3
4
5
6
Burying-Ground
Road
Bayou
THREE MILE ISLAND