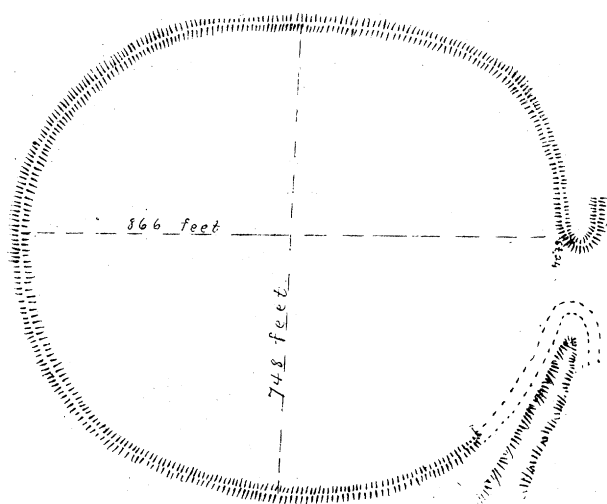


It is apparent that these mistakes cannot be attributed to typographical errors or mere slips of the pen. We are forced, therefore, to ascribe them to unpardonable carelessness.

Turning to their Plate XX., representing the ancient works in Liberty Township, Ross County, we find in a supplementary plan (A), a diagram showing their method of surveying circles, of which an explanation is given in a footnote on p. 57. In this note the authors say, "To put at once all scepticism at rest, which might otherwise arise as to the regularity of these works, it should be stated that they were all carefully surveyed by the authors in person." After mentioning their method, they add, "The supplementary plan A indicates the method of survey, the 'Field-Book' of which, the circle being thirty-six hundred feet in circumference, and the stations three hundred feet apart, is as follows," etc.

It is certainly disappointing, after this positive assurance of accuracy in their work, and reference to the 'Field-Book,' to find that the circle used in this illustration of their method is purely an imaginary one, as there is no circular enclosure of the dimensions given, either figured or mentioned in their book.

Another reason for being disappointed where such precision is predicated is the fact, ascertained by examination of the works, that



this plate is turned one-quarter round, the left of the page being north instead of the top. Moreover, this error is carried into the plat; the direction of the wall of the square marked 'N. 45 E.' being in truth S. 45 E., and of that marked 'N. 45 W.' being N. 45 E.: in other words, the large circle is south of the square, and not east of it as represented in the plate.

A resurvey of the smaller circular enclosure, the only one of the group remaining, proves that it is far from being a true circle. This is clearly shown by the following list of external angles made by the successive chords with each other; or, in other words, the differences in the bearings of the successive chords. The survey was made precisely as suggested by Squier and Davis, except that the chords are each one hundred feet, thus bringing them within the length of a single chain. A gap of 343 feet is omitted, as the wall over this space is too nearly obliterated to be traced satisfactorily.

21° 35'	4° 45'	17° 37'	14° 43'	13° 13'	7° 30'	25° 19'
3 09	10 44	11 35	13 54	17 18	2 63	19 10
20 31	17 16	18 35	19 28	15 29	5 57	12 55

The first course (from Station 1 to 2) was S. 60° W.; from 2 to 3, S. 81° 35' W.; and so on around, making one hundred feet at each step to Station 23; from 23 to 24, S. 1° 58' W., 30 feet; from 24 to 1, S. 23° 20' W., 313 feet. These figures make it clear that there are sharp curves at some points, and nearly straight stretches at others. I insert here a diagram of this so-called perfect circle prepared by Mr. Middleton, who conducted the survey. It will be seen from this that not only is it irregular, but that the longer diameter is 866 feet and the shorter 748, — a difference of 108 feet.

Although there are some puzzling questions connected with these Ohio works, yet it is apparent that the mathematical accuracy of which Messrs. Squier and Davis speak is imaginary, and is based, in fact, upon hypothetical figures. But the worst feature of the case is the evidence thus brought to light of the want of care in their work, thus shaking the confidence which has hitherto been reposed in it. Their allusion to a 'Field-Book' in connection with a purely imaginary circle, is, to say the least, misleading.

CYRUS THOMAS.

Youngsville, Penn., Feb. 8.

Cat Phenomena.

A YOUNG male cat, from the first quite secluded from other associations than those of his home, exhibited great fondness for bottled Tuscan olives when first offered this fruit, eagerly eating it, and rubbing his head and rolling upon the floor where it was dropped. This is repeated on every occasion since. His appetite for olives is seemingly insatiable, and experiments show that it is not because these are salted. He is indifferent to the ordinary culinary aromatics and toilet perfumes. What aromatics are used in the 'aromatized sea-salt' said to be used in the foreign pickling of olives? None are spoken of in the California processes, which, however, include marine salt; but this can have no pertinence to cat-senses. Have others observed the appetite, and will any one who can try cats with unpickled olives, both green and ripe, report the result? The subject has bearings on animal sensation and its relations. A series of various experiments, shutting out the possibility of artificially acquired individual appetites for flavors and odors, would be interesting.

As related to other considerations, it may be mentioned that the cat above referred to, the second time it was offered meat in its early kittenhood, and with a peculiar call therewith for the first time repeated, ran to the meat. Later, after a child had several times tickled the cat's feet by reaching under the open-work weaving of a cane-seat chair on which the animal was sitting, the cat was a number of times observed to repeat the kicking and shaking of its feet on a similar chair with no such stimulus, no person being near the chair. The titillation had become speedily associated with the touch of the cane-seat itself. These facts illustrate the quick and permanent sense-associations of animals, which are the secret of the formation of instincts (along with variation of acts and Darwin's theory of the natural selection of the same), and also of many alleged novel or isolated acts that are construed as rational.

Inherited domestic instinct was shown by the same cat, when, in its early and feeble wanderings as a kitten about the room, it sought a door with signs of a desire to have it opened. From accompanying circumstances, it was inferred that this was connected with some severe lessons on the necessity of personal neatness inflicted on some unknown ancestor: at all events, it seemed to be an inherited sense-association of some kind with the door, and suggests that many so-called 'intelligent acts' may be of this character.

A fact opposed to perception as always the stimulus to instinct is every day verified by this cat, now nine months old, in his vigorous pawing of the wooden box itself and the adjacent wall, after using the dry earth in his large, shallow sanitary box. The perception of soil, rather than of hard box and wall, should alone stimulate the instinct, if such mental act is necessary. In the act of preparatory digging, the perception of soil is manifest. It is absent in the covering process, as above shown; also in the same cat's frequent attempts to cover such food as it refuses at its usual place of feeding, by scraping the oil-cloth of the floor. There is, however, perception as well as sensation in the act of this and other cats when pausing to smell around and locate anew the matter to be covered. The process of covering is the most wonderful part of the instinct, and originally must have been the last acquired: in some cases it seems to be more or less lost; in the same individual cases it is at times omitted or little fulfilled. It is purely automatic. The wonder is, how, in the wild state, it was ever of enough consequence to cats and dogs to be acquired by natural selection; and how it was of sufficient consequence to be thoroughly acquired as automatic, while at the same time it is so poorly ingrained as to habitually blunder, and even fall into much disuse, in some cases. H. W. PARKER.

Grinnell, Io., Feb. 9.