

mals in all parts of the United States and in foreign lands. In particular he seeks information as to (1) the terms used to start, hasten, haw, gee, back, and stop horses, oxen, camels, and other animals in harness; (2) terms used for calling in the field cattle, horses, mules, asses, camels, sheep, goats, swine, poultry, and other animals; (3) exclamations used in driving from the person domestic animals; (4) any expressions and inarticulate sounds used in addressing domestic animals for any purpose whatever (dogs and cats). References to information in works of travel and general literature will be very welcome. Persons willing to collect and forward the above-mentioned data will confer great obligations on Mr. Bolton. He is already indebted to many correspondents for kind replies to his appeal for the 'Counting-out Rhymes of Children,' the results of which have been published in a volume with that title (London, Elliot Stock). To indicate the value of vowels in English, please use the vowels-signs of Webster's Unabridged, and in cases of difficulty spell phonetically. All correspondence will be gratefully received, and materials used will be credited to the contributors. Address Mr. H. Carrington Bolton, University Club, New York City.

LETTERS TO THE EDITOR.

. Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

Twenty copies of the number containing his communication will be furnished free to any correspondent on request.

The editor will be glad to publish any queries consonant with the character of the journal.

Weather-Predictions.

MR. CLAYTON'S letter on weather-predictions, in the last *Science*, furnishes a very interesting comparison. I find in the Bulletin of the New England Meteorological Society for October, 1887, Mr. Clayton's interpretation and verification by his own rules of the government predictions. These are made generally for the whole of New England, but it is to be presumed that he has made a fair estimate so as to give a comparison with his own predictions for south-east New England. He gives the Signal Service 58 per cent, and himself 85 per cent. It now appears (see *Science*, Jan. 27) that precisely the same predictions, stripped of all ambiguity and narrowed down to a definite locality (Boston), give, by an application of the same rules, 96 and 80 per cent respectively. This striking difference of 43 per cent, in the application of the same rules of verification, shows the absolute need of a fair comparison in weather-predictions, and that, too, between similar things. X.

The Snow-Snake and its Name.

AS my notes on the snow-snake were written partly to elicit information, and partly to point out an anachronism, I am glad to receive so early a reply. I objected, by implication, to the use of misleading terms for what is probably an old game. I am also aware that a Southern Iroquois nation, for over one hundred and seventy years past resident in New York, now has the snow-snake and a name for it; but I did not and do not think the Southern winters appropriate for the game. The description to which I referred was in every way erroneous, and yet was made to have an historic air. But I wished also to learn the extent to which the game was played, North and South, East and West, and it is pleasant to be assured that it "was a favorite out-door sport of the Carolinian and Virginian tribes of Iroquois." I would esteem it a personal favor if Mr. Hewitt will kindly furnish quotations descriptive of its early use south of the James River. They will be prized by me and others, having escaped our attention.

A more important question is raised by Mr. Hewitt. My orthography of the word *ka-wher-tah* needs no correction, as spelling and pronunciation were given me by living Onondagas, not taken from lifeless books. But the point, rather incorrectly stated by Mr. Hewitt, is worthy of attention. It is not the case, as he says, that the letter *r* "does not occur in the speech of the Onondagas of the present time," but it certainly has become obscure and rare. In all our early records the letter is frequent: Zeisberger employed it

largely in his Onondaga dictionary; in Schoolcraft's vocabulary I think it is found only in the numerals; among the present Onondagas it occurs but sparingly in proper names and other words. Some time ago my Onondaga friend, Sa-go-na-qua-der, sent me a version of the Lord's Prayer in that language. He was not sure of his spelling, and wished me to revise it with him when next at his house. The letter in question frequently occurred, but the sound was obscure. I went over the version with him syllable by syllable, to get the exact sound, and retained the letter four times as clearly enunciated.

It is probable that some Onondagas have given up the letter altogether, while others retain it, and this would account for variations in orthography. My work for many years has been mainly on the early history and customs of the Onondagas, and notes on their language have been but incidental. I am now offered assistance by them in this, and, if I can carry out a contemplated plan will pay especial attention to the question brought up by Mr. Hewitt. Until I have more original data, it would be out of place, for me to do more than justify my present use. The point is debatable, in a sense, but will require some critical research if we are to know the exact extent which the change has reached.

W. M. BEAUCHAMP.

Baldwinsville, N. Y., Jan. 30.

The Occipito-Temporal Region in the Crania of Carnivora.

IN the Proceedings of the Academy of Natural Sciences for 1886, p. 36, I briefly described, under the name of the post-tympanic bone, an ossicle which lies over the squamosal and opisthotic bones in *Ursus*. I have since examined *Amphicyon*, *Dinictis*, and *Archæolurus*. I find that the inferior surfaces of the conjoined bones above named exhibit appearances which resemble those seen in *Ursus*, and make it probable that a post-tympanic bone of larger size than the ursine ossicle was present in these genera. Apart from the bone itself, it is noteworthy that the details in the structure and proportions of the squamosal and opisthotic, as they unite to form the post-tympanic process, afford characters by which these genera can be identified.

I have also found that the species of extant *Felidæ* can also be separated by characters of the tympanic bone, especially by the shape of the tympanic ring, i.e., the part of the tympanic bone in advance of the septum.

HARRISON ALLEN.

Philadelphia, Feb. 7.

Monocular versus Binocular Vision.

THERE is an interesting phenomenon which is new to the writer, and which very beautifully illustrates the prevalence of monocular over binocular localization. This explanation which we suggest may or may not be true, but it will certainly lead the way to a better comprehension of the fact in case it cannot be accepted as we explain it. We mention the phenomenon as much to ascertain whether it can be verified by others as to point the way to its explanation. It certainly has an interest in the question regarding the perception of distance and the localization of images in stereoscopic combination.

Take two circles, as in Fig. 1, and combine them by crossing the eyes in the ordinary way. We shall see, as is well known, three circles in the field of view, the central one the combined result of two images, and apparently nearer to us than the other and exterior circles, and nearer also than the sheet of paper upon which they are drawn. It is possible that to some experimenters the central circle does not seem nearer than the other two: to the writer it always does. If we combine them by fixating the eyes beyond the plane on which they are drawn, the central circle will appear larger and farther off than the other two. So much, however, is not new, but it is a necessary preliminary to the singular phenomenon which we have not noticed in any investigation of binocular vision. It is also known that the observer can place a pencil or pin point at the apparent location of the central circle, and it will seem to coincide with it, and there is no hesitation in placing it at a point between the sheet of paper and the eyes.