Calls for Domestic Animals.

IN reply to Mr. H. Carrington Bolton's query in relation to terms used in addressing domesticated animals, I beg leave to give information regarding the terms used by the Eskimo of Cumberland Sound and Davis Strait in addressing dogs. To start dogs, a whistling sound made in the throat, and strongly aspirated, something like *h! h!* is used. For urging the dogs, a great variety of terms are used, the most common of which are the following, expressed in the phonetic alphabet of the Bureau of Ethnology: *ak* (the *k* being very guttural); *yatit; ut̄* (the *i* pronounced in a very high key, and lasting from about five to ten seconds); *a* (pronounced in a similar way); *yauksa kōksa;* the same sound as the one used in starting the dogs. For stopping the dogs, a deep *ō*, drawn very long, is used; for making them lie down, a similar *ō* spoken in a low voice, and at the same time the whip is gently thrown over their heads. In order to turn to the right, the driver sings out, *au'a au'a ya au'a*, throwing the whip to the left; to turn to the left, the term *qoï'a qoï'a ya qoï'a* is used. For driving dogs from some food or other things they may attack, the term *ha!* preceded by the name of the dog, is used. DR. F. BOAS.

New York, Feb. 20.

Vermin-Eaters.

CERTAIN aborigines of South America are addicted to a peculiarly disgusting habit, as the following extract from A. Simson's 'Travels in the Wilds of Ecuador' attests: "Lice of different species are the most abundant, and it is among the commonest sights to see the inhabitants engaged in their chase, keenly pursuing them in each other's heads, and cracking them, when captured, between their teeth" (p. 9). It is interesting to compare this with the evidence of a traveller in another part of the globe. Octavius G. Stone, in 'A Few Months in New Guinea' (Franklin Square Library edition), says, "A very favorite pastime, particularly of the women, is hunting in each other's heads for vermin. Two, three, or four in a row, sitting one behind the other, might be constantly seen in front of my tent, pursuing their favorite amusement. It is a common one among most colored races, and a wholesome practice to boot. But *eating* the lice is another affair. I could hardly believe my own eyes when I first saw them engaged in this disgusting employment; yet they not only eat every one caught, but appear to do it with considerable zest and relish. Whether they believe it nourishing, or take it simply as a *bonne bouche*, is not quite certain, but opinion inclines toward the latter theory" (p. 11). Whether this be the correct explanation or not, remains to be seen. Certainly it is not for lack of food that the practice is kept up. Is the practice known to exist elsewhere in America? The tribes visited by Mr. Simson were the Piojes and Jivaros; those seen by Mr. Stone belonged to the Motu district of New Guinea. Perhaps when all instances of the occurrence of this strange habit have been collated and examined, a clear and satisfactory explanation of it may be given. In the mean time, I simply call attention to this interesting point in the anthropology of the Naturvölker.

A. F. CHAMBERLAIN.

Toronto, Feb. 15.

IN addition to Mr. Chamberlain's quotations, I would say that the custom of eating vermin is a wide-spread one, although most travellers do not mention it in their reports. Parry and Lyon, as well as Hall, found it practised by the Eskimo of Hudson Bay and Frobisher Strait. I found the same habit among the Eskimo of Cumberland Sound and Davis Strait, and I well remember a father carrying his three-year-old child, and feeding it with the lice he picked from its head. F. BOAS.

New York, Feb. 25.

The Snow-Snake and the r-Sound.

DR. BEAUCHAMP will, I am sure, agree with me that the presence of the snow-snake game among the Southern Iroquoian tribes can be more firmly established by the evidence to be obtained directly from the traditions of those Tuscaroras who early in the present century came directly from the South to their present habitation in Niagara County, N.Y., and by the evidence of language, than in any other way.

In these traditions the *Tci-ru-hă'-kā'* (the Nottowayans), among others, are mentioned as contestants with the *Skă-ru'-rĕⁿ'* (Tuscaroras) in this game of snow-snake.

The name of the so-called 'snow-snake' in the language of the Tuscaroras is *u-tră-hwĕⁿ-tĕ* (misprinted in my former article); and of the game, *nä-yä-tră-hwĕⁿ-tă'-yĕñs* (literally, 'they two bet snow-snake'). *U-tră-hwĕⁿ'-tĕ* is a pure noun, having the power of composition either with verbs or adjectives, and also having a declension to express the nominative and oblique cases, — circumstances that in the nature of the language assign to the noun an age far antedating the wars of 1711-13. The game was played in winter, and a slight modification of it in the summer.

The southern limit of snow at sea-level is, in the United States, the 30th parallel of northern latitude; and, as the territory of the Southern Iroquoian tribes lay between the 35th and 39th parallels, it is quite likely that they often had winters 'appropriate' for the use of the snow-snake.

With the assistance of some very intelligent Onondagas, some of whom spoke Tuscarora and Oneida in addition to their own tongue, I collected, in 1880 and 1884, with other linguistic matter, a vocabulary of more than fifteen hundred words and over five hundred and fifty phrases and sentences, and I also made translations of two quite lengthy aboriginal compositions. In the prosecution of these linguistic studies, great care was taken in verifying the work at every stage of it. No *Onondagan* word was found in which the *r*-sound was used.

Mr. Albert Cusick, a man of intelligence and education, was one of my assistants in these investigations.

The Onondagan, like the Senecan, tongue of to-day has either transmuted the *r*-sound into an aspirate, or has simply suppressed it.

Mr. Horatio Hale, the eminent linguist and ethnologist, says (*Book of Rites*, p. 46), "In former times, as we know from Jesuit vocabularies, the sound of the letter *r* existed in the Onondagan dialect. Since their day the sound has disappeared from it entirely."

Dr. Daniel Wilson, in his lecture on the Huron-Iroquois of Canada (*Trans. Roy. Soc. of Canada*, 1884, Sec. II. p. 105), states that the *r*-sound is "no longer heard" in the Onondagan tongue.

No one denies that the *r*-sound once existed in the speech of the Onondagas, as it is still common to nearly all of the cognate dialects.

The orthographies and translations of both Schoolcraft and Zeisberger are so inaccurate and untrustworthy that it seems strange to see them quoted as authority on a point of phonetics requiring precision and accuracy of observation, and record of language, for its proper determination.

Dr. Beauchamp says that in a version of the Lord's Prayer sent to him by a native Onondaga in that tongue, "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."

Faulty articulation quite probably accounts for these four *r*'s retained by the doctor.

In the summer of 1884, I obtained from living Onondagas, and not from 'lifeless books,' a version of the Lord's Prayer in which the *r*-sound does not once occur.

One difficulty experienced in my work was to obtain the Onondagan orthoepy of a word. The intercommingling with the Onondagas, of persons speaking cognate languages in which some form of the *r*-sound occurs, is in many instances the cause of the unconscious mispronunciation of a word.

To the student of Iroquoian tongues faulty articulation, worse orthography, and *otosis* (defective hearing) are fruitful sources of error.

Every Indian is not competent to furnish satisfactory linguistic data. Equally deficient are many collectors of vocabularies and linguistic material.

Recognizing these difficulties, the Rev. Ashur Wright, who knew well what Iroquoian orthoepy and orthography require, says, on the sixth page of his valuable Senecan spelling-book, printed in 1842, "It is sometimes, also, very difficult to decide on the correct usage,

where there are differences of pronunciation among the Indians. In such cases we have sought for the pure Seneca in contradistinction from the *idioms of Mohawk, Cayuga, Onondaga*, etc., and for Seneca as spoken by the old men."

With these facts in view, I cannot accept Dr. Beauchamp's use of the *r*-sound in his orthography *ka-wher-tah* for *kă-whe"-tă'*.

J. N. B. HEWITT.

Washington, D.C., Feb. 18.

Queries.

29. THE JACKSON MEDALS. — In 1874 or 1875 a farmer brought to this city and sold to Mr. W. H. Daum a silver medal which his boys found in a stone tumulus, supposed to be the grave of Little Bear, an Osage chief. The medal is three inches in diameter, has on its face the profile of Jackson, with the words, "Andrew Jackson, President of the United States, A.D. 1829," and on the reverse a pipe and a tomahawk crossed, two hands clasped, — one that of an Indian, and the other of the President, — and the words "peace and friendship." Can you or any of the readers of *Science* tell me why these medals were given to the Indians, and whether the practice is a common one? L. C. WOOSTER.

Eureka, Kan., Feb. 23.

Answers.

26. THE EARTH'S ROTATION AS AFFECTING RAILWAY-TRAINS. — Mr. Goodridge will find a partial answer to his query, in 'The Annual Report of the Chief Signal Officer for 1885,' Part II., which forms W. Ferrel's 'Recent Advances in Meteorology,' p. 191. After having shown that a body moving in any direction on the earth's surface is deflected, and giving the formulas for computing the deflecting force, the example is treated, "If a railroad-train on the parallel of 45° runs at the rate of forty miles per hour, what would be the lateral pressure per ton of the weight of the train on the side of the rails if both were on the same level?" and the answer is given that it would be 0.38 of a pound per ton of two thousand pounds. In reply to this query, a writer in *Engineering News* quotes the famous 'Bär's law' regarding deflection of rivers. Ferrel's formula shows that the action of the earth's rotation is not at all confined to a body moving in the direction of the meridian, as this writer also assumes. Ferrel gives an example of this kind, and finds that a river one mile in width, flowing in latitude 45° at the rate of four miles per hour, will be 1.2 inches higher at the right-hand bank than at the left-hand bank. F. B.

New York, Feb. 25.

21. GLOBULAR LIGHTNING. — Apropos of this subject, let me mention three cases which have come to my knowledge in such a way as to inspire confidence in them. The first in order of time occurred about 1859 or 1860, and was witnessed by a lady, the wife of a prominent physician. She was lying down for an after-dinner nap one summer day. From her letter I quote what seems pertinent: "The experience was this, and at The Forest Grove House, Schooley's Mountains. . . . We were aroused by a sudden and quite heavy hail-storm. . . . I immediately went to the open window, putting it down, leaving just space enough to put out my hands, in which I enjoyed the fun of catching the stones to eat. . . . This was only for a few minutes, when we were terribly startled by a flash of lightning and a peal of thunder, and I saw what appeared to be a ball of fire the size of my head come down the body of a tree about three yards from my hands. . . . The flash, the thunder, and the ball seemed simultaneous. . . . The tree did not afterward show the usual appearance of being struck, except just at the roots, where the ground was torn up for quite a little distance. . . . The house was struck at the same time and set on fire at the roof, but at its farthest point from us. . . . I was the only one who saw the ball of fire, but I have never doubted that I really did see it. . . . It was too plainly before my very eyes." The second case occurred a few miles north of Lambertville, N.J., in July, 1879. A barn was burned, and the company which had insured it instituted an investigation to determine the cause of the fire. From the testimony, I quote that of two men who swore that they saw "a cylindrical form of fire, apparently about three feet in diameter, and from six to eight feet in length, fall with a whizzing sound. . . . No thunder was heard, nor did any rain fall at that time. . . . Others also saw the strange occurrence." These men were in Pennsylvania, across the Delaware River, about a mile from the spot where the barn was burned. The third case was at Connersville, Ind., in August of 1881. Mr. L. L. Broaddus wrote me that it was about twenty minutes before four in the morning when the family and several neighbors were roused by a terrific crash. One of the neighbors, living nearly half a mile away, slept in a room from which she could see the Broaddus mansion. She saw a bolt strike a tree and burst like a bomb, scattering fire-balls over the yard, and brilliantly illuminating the premises. Mr. W. H. Broaddus and his wife slept on the side of the house where the tree was, and saw the 'second act;' that is, the fire-balls rolling about. They say the phenomenon lasted long enough for them to collect themselves and call occupants of other rooms, who, however, did not arrive in time to witness the display. The duration of the phenomenon was estimated by those who saw it at about a minute.

F. C. VAN DYCK.

New Brunswick, N.J., Feb. 20.

21. GLOBULAR LIGHTNING. — It may throw further light upon this interesting phenomenon to quote several additional reports received by the United States Hydrographic Office from masters of vessels; and, by permission of the hydrographer, I have selected the following as likely to be of interest in this connection. The phenomenon seems to be by no means unusual at sea, and perhaps some readers of *Science* who have devoted special attention to the study of electricity will contribute new facts or suggestions which may lead to a satisfactory explanation. The instances already cited (*Science*, x. p. 324, xi. pp. 38, 62), with those given below, would seem to furnish a very good basis upon which to build a theory. A further discussion will also be valuable as indicating, possibly, certain important details of observation which have hitherto been neglected, but which it might be practicable to attend to, even on shipboard. Captain Moore, British steamship 'Siberian,' in addition to the report already given, states that he encountered a severe electric storm Jan. 17, 1887, latitude 42° 50′ north, longitude 59° 14′ west; dark, gloomy weather, with rain and sleet. Between 8 and 9 P.M., during shift of wind from south-west to south-east, a brilliant display of St. Elmo's fire was observed, taking the shape of balls of fire shooting up from the horizon all around the vessel, and bursting at an altitude of about 5°. One ball, showing a green light, was mistaken for a vessel's side-light; brilliant lightning to the south-west. Captain Bowers, American bark 'Hannah McLoon,' encountered a severe electric storm Feb. 27, 1887, latitude 37° 17′ north, longitude 73° 56′ west, during a stormy gale from the south-west; all points and all wire rigging brilliantly illumined; fire-balls flying in the air. Captain Mitchell, British steamship 'Mentmore,' experienced a succession of terrific hurricanes from west-north-west during a voyage from Liverpool to Baltimore. Jan. 28, 1885, at 2.30 A.M., a ball of St. Elmo's fire fell between the bridge and foremast, and afterwards played upon the foremast and gaff. This ball of fire was so bright that for a time it blinded the officer on watch. Captain McKinnon, British brig 'Nellie Crosby,' encountered a remarkably severe electric storm Nov. 30, 1886, off Minot's Ledge light, Massachusetts, with terrific thunder and blinding lightning. A ball burst between the masts, completely blinding all on board; heavy rain; sea full of phosphorescence. Captain Sparks, American bark 'John H. Pierson,' reports witnessing an unusual phenomenon during a hurricane, Aug. 25, 1886, between the hours of 9 and 11 P.M. The sky was completely overcast, the weather dark and gloomy, and rain falling heavily. In the northern horizon, balls of fire were seen to shoot upwards, reaching an elevation of at least 30°, and covering a horizontal angle of at least 20°. The display continued at frequent intervals during the time mentioned. Captain Bodden, British schooner 'Clara L. Dyer,' reports that on Sept. 20, 1887, when in the Gulf of Mexico, about two hundred miles south by east from South Pass, had very heavy rain-squalls with thunder and lightning. The effect of the lightning was very peculiar, as it seemed to issue from the waves instead of from the heavens; thought at first it was due to the phosphorescence of the water, but the flashes seemed too plainly marked for that.

EVERETT HAYDEN.

U.S. Hydrographic Office, Feb. 20.