injustice to the reader to give this account in any other language than that of the original. We do this without reluctance, as our object is to convey the most accurate knowledge, rather than produce a work exclusively of our own composition. All that follows in relation to the whale is selected from the different works of the accurate and philosophical Scoresby." If the critic's edition of Godman has played false with him, as our edition of Scoresby has with us, perhaps he may think it wise to 'cry quits,' and join with us in throwing out of the case the two slippery points.

It may be proper to add here, that we are familiar with Scoresby's second figure of mysticetus, which is so far improved as to have the 'small' shortened; but unfortunately the first figure, with all its imperfections, is the one that has been brought down to us through every book on natural history.

The reference to Bachstrom's figure of nordcaper is obscure.

It matters not what that figure *is:* it was regarded as one of nordcaper by Cuvier; and he, in comparison with the old figures of mysticetus, which we claim were nearer true than Scoresby's in general proportion, wisely admitted two species.

They were both, as we have said, about equally incorrect; yet they both had certain features that agreed with the descriptions of the two forms. The nordcaper had been described in nearly the same terms by various authors, great stress being laid on its slenderness and mobility. Scoresby now presents his figure, which, instead of being bulky, with a very short 'small,' or caudal region, and a head one-third the total, had quite nearly the proportions of the figure of Bachstrom, received by Cuvier as that of nordcaper, and with no other specific feature to distinguish them.

The mention of inaccuracies, seen near the close of the criticism, is not wholly free from error; for example: the citation touching Col. Hamilton and the Naturalists' library is exactly correct, yet it is noticed as one of the errors that render the historical *résumé* 'seriously defective and misleading.' We are now willing to rest this showing, trusting to the facts herein referred to for our vindication in the face of this grave charge. J. B. HOLDER.

Fortunately for Dr. Holder, he did not state directly and unequivocally that the St. Lawrence whale was a Balaena; but he occupies several pages in trying to explain away the obvious discrepancies in the way of such an identification and in offsetting them with the *possibilities* in its favor, leaving the reader with the conviction that the specimen is cited as, in Dr. Holder's opinion, an instance of the occurrence of a Balaena in the St. Lawrence near Quebec. Indeed, he goes so far as to say, "and the second example [the one here in question] . . . shows that the largest of the right whales [Balaena] have really found their way as far up a fresh-water stream as Quebec and Montreal" (p. 116). Again he says, "This example is valuable for record, 1°, as a specimen of unusual size; 2°, as one of great age; 3°, as one out of its usual habitat in so far as to be quite within fresh water" (p. 115). From the context, the point in doubt seems to be, not whether the species is a Balaena, but whether it is B. cisarctica or B. mysticetus; and the whole tenor of the argument (for such it really is) is fairly open to only this construction, whatever may have been intended. In evidence that my criticism on this point is not groundless, or due to perversity on my part, I may cite Mr. F. W. True's notice (*Scient. lit. gossip*, i. 72) of Dr. Holder's memoir, where the same criticism is made.

As to other points, I will take space to say merely that I regret to notice that Dr. Holder forgets to tell us where Scoresby got his drawings, which, he (Dr. Holder) informs us, 'were evidently ill-considered and taken at second hand,' and to ask for proof that Col. Hamilton wrote the 'Cetacea' of Jardine's 'Naturalists' library.' The copies of the work I have seen are anonymous, but the work is accredited by Gray and other cetologists to Jardine; and some time since, I took pains to satisfy myself that Jardine was the author. As to Godman, I confess to having done him injustice in overlooking his credit to Scoresby, which my friend Dr. Holder appears to have unfortunately only recently discovered; otherwise, doubtless my stricture on this point would not have been called out. J. A. ALLEN.

The Ainos of Japan.

On p. 307 of SCIENCE, D. P. Penhallow objects to my statement of the number of Ainos. It is rather surprising how little he heeds what I said. The numbers he gives are official; i.e., he gives the number of Ainos known to the Japanese government. Therefore he reaches the surprising result, that, with the exception of the Ainos brought over from Saghalien (now about 800), there are but 200 in all the province of Ischicari. That province is about as large as Hitaka (according to Penhallow, with 5,000 to 6,000).

Penhallow gives the Aino population in Kitami, Kushiro, Tokachi, and Teshiwo as ranging from 350 to 1,500 in each, when it is well known that they are full of Ainos, as any one travelling there will see, their villages being thickly scattered along the coast and the banks of all the larger rivers. I should estimate from those seen at such points that there must be more than 50,000 Ainos in all. Taking Penhallow's figures for Iburi and Hitaka as correct, and assuming that the four provinces named above must have as many Ainos as Hitaka, we should have about 26,000 in these five. Granting that Ischicari, Shiribeshi, and Nemuro have also been taken as much too thickly populated, still we must give them 4,000 more than Penhallow allows; i.e., about 6,000.

Now add to them Penhallow's number for Iburi, nearly 4,000, and the small remnant of Oshima, (Penhallow, 250), and lastly for Chishima (not Chisuma) or the Kuriles a minimum of 750, we get 33,000 as the minimum for Yezo. Saghalien having 10,000 to 12,000, and South Kamtchatka 5,000 to 6,000 (perhaps less), there cannot be fewer than 50,000 Ainos altogether. D. BRAUNS.

The Iroquois.

A close study of the Mohawks of Quebec province, Canada, after the plan and in the service of the Bureau of ethnology, reveals several facts hitherto unnoticed in the various histories of the Iroquois.

Isolated by the early Jesuit fathers from their former Pagan friends and surroundings, every trace of their old folk-lore and of their Pagan customs has disappeared. The division and nomenclature of their gentes differ materially from those of any of the other tribes, and present an interesting field of inquiry. The Mohawk gentes, as given by Morgan, are the wolf, bear, and turtle. Among the Mohawks at Oka, we find, in addition to those, the lark and the eel, while at Caughnawaga they are the bear, wolf, calumet, rock, lark, turtle, and dove.

Among the wampum belts of this tribe is a very fine one, upon which the calumet is figured in white

wampum beads, the remainder of the belt being in dark purple. This probably belonged to the gens bearing the name of the calumet, and whose office it was to prepare and present the grand calumet in all the solemn assemblies.

The effect of the isolation of this tribe upon its language is also an interesting and important study. Through the courtesy of Superior Antoine and Père Burtin, I have obtained access to an invaluable collection by the French missionary Marcoux, which will furnish Mohawk synonymes for a dictionary of the six Iroquois dialects, for which thirty thousand words have already been gathered. ERMINNIE SMITH.

203 Pacific Ave., Jersey City.

Many snakes killed.

The number of snakes killed near this city during the late overflow of the Nemaha River is almost beyond belief. They were driven by the water from the bottom-lands to the higher grounds, and especially to the embankments thrown up across the bottom for the Burlington and Missouri and the Missouri Pacific railways. It is estimated that more than three thousand snakes were killed within a mile of this town. They were chiefly garter snakes; but water moccasons, blue racers, and rattlesnakes were also killed. A horse was confined in a pasture surrounded by a wire fence in the overflowed district, and, when released, it was found that several snakes had taken refuge in the long hair of his mane. Since my residence here, I have travelled nearly all over this county, a portion of the time engaged in geological explorations; yet, up to the time of the present June overflow, I had failed to see half a dozen snakes all told. The overflowed district along the Nemaha would not average over a mile in width; and it is astonishing where so many snakes found hiding-places. Undoubtedly, nearly all the snakes in this county are confined to the creek and river bottoms.

STEPHEN BOWERS.

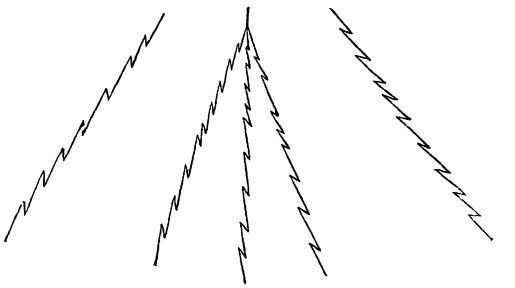
Falls City, Neb., July 10, 1883.

Swallows in Boston.

Has any one seen a swallow in Boston this summer? The old proverb says, 'One swallow does not make a summer.' Have we a summer and not one swallow? CARL REDDOTS.

Singular lightning.

On the evening of July 4, 1883, I noticed some lightning which differed from any that I have previously seen. About sunset a mass of very threatening clouds, accompanied by heavy rain and lightning of the usual character, rose in the north-west, and, following an easterly course, passed a little to the northward, giving us a few drops of rain from its ragged southern edge. It was quickly succeeded by a comparatively thin cloud-stratum, — apparently the after-birth of the main storm, — the course of which was directly overhead. During the passage of this cloud, rain fell briskly but not heavily for perhaps half an hour, and rather frequent flashes of lightning preceded and followed the first sprinkle. Owing to my position on the eastern side of a large building, I could not see the earlier flashes; but their light, thrown on the walls of neighboring houses, was noticeably rose-colored. At length, however, one came that could be accurately noted. It passed directly overhead, forking into five fine, thread-like lines of vivid yellow light. Each line was distinctly zig-zagged with sharp though not prominent angles. The divergence of the lines was nearly regular, but the outer pair branched at a greater angle than the inner three. The relative divergence was similar to that of the outstretched fingers of a human hand; but a still more accurate idea may be given by the following sketch.



The flash above described was followed, in a few minutes, by a second one, apparently similar, but less satisfactorily noted. After this the rapid passage of the storm carried the lightning beyond my limited space of observation.

I may add that none of the lightning from this cloud seemed to come to the earth, its course being on an apparently horizontal plane. The accompanying thunder was unusually deep and grand.

WILLIAM BREWSTER.

Cambridge, Mass.

Deflective effect of the earth's rotation.

In SCIENCE for March 2 (No. 4), Mr. W. M. Davis says, "A correct knowledge of the deflective effect of the earth's rotation is generally accounted the result of studies made within the last twenty-five years."

This correct knowledge, he says, is still disputed by some authors.

By transferring the axis of rotation to the tangent plane on which the body is supposed to move, and resolving the earth's rotary motion into two motions, — one around the meridian of the tangent plane, and the other around a vertical to that plane, — it is easily seen, without recourse to the equations of motion, that the angular motion of the tangent plane with respect to a fixed plane will depend upon the angular rotation of the earth and the sine of the latitude of the tangent plane; from which it follows that the deflective force is the same, in whatever direction the body is supposed to move on any given tangent plane.

But in resolving the actual motion into two motions, respectively around the vertical to the tangent plane and around the meridian of that plane, we have neglected the effect resulting from the latter, — a consideration of which would have introduced another term, containing a function of, and therefore varying with, the cosine of the angle contained between the meridian and the line of projection of the moving body; we have also neglected the effect of the centrifugal force resulting from the motion of the body, which is a minimum when the motion is in the meridian, and a maximum when at right angles to the meridian, and therefore also varies with the cosine of the angle contained between the meridian and the line of projection of the moving body. When the velocity is considerable, both these terms become sensible; and therefore the deflective force is least when the body moves in the meridian, and greatest when the motion is at right angles with the meridian.

This conclusion is in conflict with the 'correct knowledge' above alluded to; viz., that the deflec-