become a leading one in the near future; and our statesmen will do well to begin soon to give it their thoughtful attention.

LETTERS TO THE EDITOR.

Increase in growth of young robins.

THE past season my attention had been attracted to the rapid growth made by a nest of young robins on our porch. Early in July another pair of robins built a nest on a bracket on the same porch, in which the female laid three eggs. I carefully watched the nest, to note the appearance of the young, as I had determined to accurately weigh the young birds daily, after hatching, as I was curious to learn just how much they might increase in growth during each succeeding twenty-four hours, up to the time of flight. On July 28, two eggs hatched, the third being infertile. At two o'clock, July 28, I weighed the young birds separately, as I did for the next twelve days at about the same hour. I have designated the birds as 1 and 2; and the following figures represent their increase in weight in grams: —

No.	JULY.			
	28.	29.	30.	31.
	Grams.	Grams.	Grams.	Grams.
1	5.8	8.7	14.3	21.15
2	6	10	14.7	24

No.	AUGUST.								
	1.	2.	3.	4.	5.	6.	7.	8.	9.
	Grams.	Grams.	Grams.	Grams.	Grams.	Grams.	Grams.	Grams.	Grams.
1 . . .	25	33.8	42.5	43.75	51.2	52.45	52.2	53	52.2
2 . . .	26.8	34	43.5	48	52.6	55.3	57.6	57.8	57.8

The above figures are surely interesting, and will, without doubt, surprise many readers who before had no idea of the increase in growth made by the young of birds. As can be seen, the growth made by No. 1 was not so constant and steady as that made by No. 2; and, whereas No. 1 lost some in weight Aug. 8 and 9, No. 2 sustained no loss. The loss in weight was owing, I think, to the great quantity of lice which infested the birds and nest. CHAS. S. PLUMB.

N.Y. experiment-station,
Geneva, N.Y.

The meng-leng.

In China the sphex, or solitary wasp, makes a neat mud-cell in a crevice, puts therein the store of young insects which are to be the food of its own larva, lays its egg in the midst, closes the entrance of the cell, leaving only a minute window in the front wall, and flies away, with reason for such complacency as is produced in the feminine mind by snug housekeeping. The egg develops, the larva sucks the juices of the imprisoned spiders and flies, and finally the little wasp issues through the window, equipped for flight in the sunshine.

The Chinese call this lone, busy, steel-blue insect the 'meng-leng,' and have a peculiar notion of its habits. They say that it has no domestic nor social relationships, but longs, like other creatures, for little folk of its kind. So it makes a cot, and puts therein the child of some fruitful mother of another family, seals the infant carefully into its domicile, and then, flying frequently back from commonplace occupations, it puts its mouth to the little window of the cot, and buzzes and sings 'meng-leng, meng-leng, meng-leng!' And the little creature within, hearing itself constantly called a 'meng-leng,' believes itself to be one, and gradually and surely verifies its name, coming out in due time a perfect sphex.

So in China an adopted child is popularly and poetically called a little 'meng-leng.'

ADELE M. FIELDE.

Indian languages in South America.

Your interesting notice of recent works on 'Indian languages of South America' (*Science*, Aug. 15, p. 138) requires to be completed by the mention of the remarkably valuable treatise by the venerable traveller, J. J. von Tschudi, — 'Organismus der Kechua sprache' (Leipzig, *F. A. Brockhaus*, 1884, 534 p.). For the first time in the history of American linguistics, we have here presented an exhaustive analysis of the lexical and grammatical structure of a native tongue, fully adequate to the demands of modern study. Von Tschudi has made a long investigation of the Kechua. As far back as 1853, he published his treatise upon it, and has twice edited the original text of the celebrated Ollantadrama (1853 and 1875).

The introduction to his last work occupies a hundred and twenty-five pages, and contains a brief exposition of his views on the ancient history and mythology of the Inca race, and on the affinities of their language. Based, as his opinions are, on a most careful analysis of the tongue and on ample personal observation, they must have great weight with future ethnologists and antiquaries. To mention only one of his many novel conclusions, he denies any affinity between the Aymara and Kechua languages, and considers Bertonio's grammar and dictionary of the former (from which such affinity has been argued) as based on a local and corrupt dialect.

I would further add to your list the meritorious treatise of Giovanni Pelleschi, 'Sulla lingua degli Indiani Mattacchi del Gran Ciacco' (Firenze, 1881), where, in the scope of seventy pages, he imparts much fresh information about this little-known tongue; and, if not too remote to be called recent, it is worth while mentioning the republication in Lima, in 1880, of the extremely scarce 'Arte de la lengua Yunga,' by F. de la Carrera, — an idiom presenting many curious features, both in phonetics and structure.

D. G. BRINTON, M.D.

Media, Penn., Aug. 16.

Fish-remains in the North-American Silurian rocks.

Mr. E. W. Claypole states in *Science*, July 11, that he has come into the possession of some fossil fish which lead him to the conclusion that there are forms of fish more ancient in America than are known elsewhere. From Mr. Claypole's letter, I gather that he imagines that the upper Ludlows and the 'bone-bed' are the earliest rocks which yield fish-remains. I would direct attention to the fact that the *lower Ludlow* rocks of England have yielded the remains of fish; viz., the Scaphaspis (Lankester). The Scaphaspis ludensis was discovered at Leintwardine, in *lower Ludlow* strata, which must have been deposited long ages before the accumulation of the upper Ludlow 'bone-bed.' Soon after the shield of this fish was detected, I personally investigated the physical position of the rocks in which it was found. The Leintwardine beds are the only locality where the

relics of this first-known fish have hitherto been found. Some excavations, made of late in the passage beds between the old red sandstone and the Ludlow rocks at Ledbury in Herefordshire, have afforded a fine series of the fish found in the 'bone-bed' and passage rocks. Among them, Mr. Piper has obtained plates and cephalic shields of Scaphaspis, Pteraspis, Cyathaspis, and Auchenaspis. Auchenaspis has been found perfect; and much more of the structure of these early fishes has come to light. But there is a good deal of difference in the geological horizon of these fish at Ledbury and that of the Scaphaspis at Leintwardine. The lower Ludlows appear in great thickness at Ledbury, but hitherto they have not presented us with fish. W. S. SYMONDS.

The Camp, Sunningdale, July 31.

Depth of the glacial submergence on the upper Mississippi.

I desire to call attention to certain facts which appear to me to indicate a submergence of even the highest land at this point, which, it may be said, is near the centre of the driftless area. I am not aware of their having been previously noted.

That which first called my attention to the matter was the discovery that the layer of broken stone which covers the undisturbed rock on the top of the bluffs to a depth of four to six feet, contained numerous shells belonging to several species of pulmoniferous gasteropods. I have thus far obtained specimens of the following species (the identifications were kindly furnished by Mr. Sanderson Smith of the U.S. fish-commission): Helicina acculeata Say, Lymneae columella Say, Helix (Patula) attenuata Say, Helix (Helicodiscus) lineata Say, Helix (Patula) striatella Anthony.

The condition of the shells, and the positions in which found, even more than the mere fact of their occurrence, indicate submergence by giving strong evidence of wave-action, evidence of which is also seen in the general order and arrangement of the stones composing the layer, especially in the remarkable evenness of its upper surface. Overlying this layer of broken stone, and sharply distinguished from it, is a layer of earth from two to four feet thick, destitute of either stones or shells, and having all the characteristics of the loess, which, in unmistakable deposits, reaches a height of two to three hundred feet above the Mississippi. As the bluffs at this point reach to about five hundred feet above the river, a submergence to at least that extent is indicated, — a conclusion which is sustained by other facts, which I need not now refer to.

G. H. SQUIER.

Trempealeau, Wis.

THE VISIT OF THE BRITISH ASSOCIATION.

ALTHOUGH the British association does not meet officially on our own soil, we may yet regard it as in some sort paying a visit to our neighborhood, and opening up such an opportunity for personal communication between the scientific men of England and America as has never before offered itself. It is true that Principal Grant, as a Canadian by adoption, suggests to the members to be satisfied with Canada on this occasion, "and to leave the United States and Mexico to other and more convenient seasons." He strengthens this suggestion by the statement that the time of meeting of the American association was chosen so as to give the members of that body an opportunity of visiting Montreal, thus correcting the current impression that the object was to make it convenient for the members of the British association to visit Philadelphia. The Canadians may also feel fairly entitled to all the credit which the visit of the association can bring, since so long a journey by so large a body of men would hardly have been seriously considered, but for Canadian enterprise. A proposal was privately discussed among us, a few years ago, to invite the British association to Boston on the occasion of the anticipated exposition of 1883. But, after the exposition was abandoned, no one was so bold as to seriously press the invitation in the absence of any special attraction to second it; and it was left for our neighbors to successfully attack the problem which we had abandoned as hopeless. It is not, however, to be expected that the individual members of the association will be greatly influenced by sentiment in the use they make of their time on this side of the ocean, or that Canadian pride, enterprise, or loyalty, will prevent them from crossing the border. Not even such energy as that of our neighbors, and such glory as that of their dominion, can compensate for the charm of novelty in life and institutions offered the foreigner by such countries as "the United States and Mexico." It may be well worth the while of a studious Englishman to take a long journey to learn from actual inspection what an English province can become under the influence of so energetic a people as those of Canada; but he cannot suppress his curiosity to study the ampler and more varied civilization which his race is working out under political conditions less like those to which he is accustomed. We therefore look upon the present meeting as nearly the equivalent of a visit to our own country, and, in the name of the stu-