

February 13 has so generally been ascribed was really responsible for that outbreak, there should have been a series of displays, for this spot was very large and apparently active throughout its transit. As a matter of fact, whatever auroral effect the disturbed region in its vicinity was able to exercise fell about February 2-4 and February 29. Upon the latter date there was a fine display, but upon the former it was generally cloudy.

M. A. VEEDER.

Lyons, N.Y., March 23.

#### Pilchards.

I WAS very sorry to find from Mr. Dunn's letter (p. 511) that I had not reported his evidence on the occurrence of young pilchards with perfect accuracy. He admits that the misunderstanding was probably not altogether my fault. It seems that in the days before the railway existed in Cornwall, and when seines were largely used at Mevagissey for the capture of pilchards, small pilchards under 8 inches in length, of the same size as French sardines, were often taken in vast numbers, but were either allowed to escape, or used only as manure. The sentence in my article, therefore, which states that Mr. Dunn had never seen such pilchards must be corrected, and I make the correction most willingly, regretting that I should have unconsciously misrepresented Mr. Dunn's statement.

But I must warn your readers against the idea that my article on the growth of the pilchard contained nothing which Mr. Dunn had not discovered and made known years ago. The letter to which he refers in Buckland's "Familiar History of British Fishes" deals with the subject of curing pilchards in oil, and contains nothing whatever about the rate of growth of the fish. It merely mentions that if small fish were wanted they could be had in quantities: "Some seasons their smallness is a pest to the fisher men, and millions have been returned to the sea after being inclosed in the seines, because of being no money value." But Mr. Dunn acknowledges that I correctly reported him as saying that no such small sardines have been taken since the factory at Mevagissey was started, and that no pilchards of the same size as French sardines have ever been tinned in Cornwall. As for his exhibit of a series of pilchards from those an inch in length up to the two years old full-grown fish, I find that it is only catalogued in the Polytechnic Society's Report, and that no dimensions are mentioned, nor any description given. My published evidence on the rate of growth in this species was therefore by no means superfluous, and I am glad to find that my conclusions confirm those which he had already formed, but for which he had sought no satisfactory means of publication. I have often received and acknowledged with the greatest pleasure valuable information from Mr. Dunn: in this instance I was unaware that he had collected any evidence on the subject beyond that which I acknowledged in my article.

But while correcting misunderstandings on my part, Mr. Dunn misunderstands part of my article far more seriously. I stated that the adult sardine of the Atlantic coast of France was of the same size as the full-grown Cornish pilchard, while the sardine of the Mediterranean, taken at Marseilles, was considerably smaller. I did not say that the English pilchard was "larger than those of other countries," and I did not say that the Spanish pilchard was smaller than the Cornish. My "informants" were Prof. Pouchet for France, and Prof. Marion for Marseilles; and the accuracy of their published observations on the mere question of size is not in the least affected by any grave doubts, however much italicized, on Mr. Dunn's part.

Plymouth, April 5.

J. T. CUNNINGHAM.

#### Ornithology of the Sandwich Islands.

YOUR correspondents, Prof. Newton and J. E. Harting (p. 532), are a little hasty in their conclusions referring to the Banksian collection.

In order to make things clearer, I will go a little further back in the history of this matter.

When the Linnean Society removed from 32 Soho Square, Dr. Brown was left in possession of that portion which had been built upon and used by Sir Joseph Banks as his museum.

Mr. John Calvert, partly out of veneration for the old house where so many men of science had from time to time met together, and partly from want of additional space for his very extensive museum and library, secured a long lease of these premises, including the old museum; so by that arrangement Dr. Brown

became his tenant. Now, it is a well-known fact that a portion of the Banksian collection was never removed from these premises, and remained the property of Dr. Brown, at the death of whom, Mr. J. Calvert arranged with Dr. Bennet (one of his executors), who had been for months removing van-loads of books, herbariums, and other articles of scientific interest, to purchase and take over, with the premises, various cases of birds, sundry articles, and the remainder and refuse of this large collection.

In two cupboards on the south side of the gallery were the ethnological relics collected during the voyage of the *Endeavour*, as well as many manuscripts in the autograph of Sir Joseph Banks, together with some of the catalogues of his collection.

On November 10, 1863, there was a sale at the rooms of Mr. J. C. Stevens by order of the Council of the Linnean Society. We soon detected the case of birds, which matched in every particular the cases that we purchased of Dr. Brown's executor; it had the same handwriting at the back, undoubtedly in the autograph of Sir Joseph. We also detected, in a cabinet of fossils and minerals which had belonged to Dr. Pulteney, one of the volumes of Sir Joseph Banks's catalogue, which matches the other volumes we had previously obtained: that volume still contains the stamp of the Linnean Society.

Lot 174 of this sale was a very large lot in boxes and a cabinet; added to which was a good proportion of the dirt and dust of bygone times. This collection had been formed by Dr. Maton with great care and industry, and contained various figured and type specimens, being all named in the quaint nomenclature of that period. At the bottom of one of the drawers of the cabinet was a letter in the autograph of the great Linnæus.

We purchased all these, together with others in that sale.

The Duchess of Portland, Sir Ashton Lever, and Sir Joseph Banks, were the great collectors of that period; and the Owhyhee case of birds might have been obtained by Sir Joseph either by purchase or otherwise at any date during his life. We have this case marked Owhyhee in the undoubted autograph of Sir Joseph Banks. The birds are all badly set up, and one has fallen from its perch, but underneath each one is a number which is referred to in one of Sir Joseph's catalogues.

In our Museum there are several thousand specimens which formed portions of the three collections just named, with regard to which we have absolute proof of identification, and in some cases the old lot tickets still remain.

As our museum is densely packed in several houses, and in some instances there are large cabinets four and five rows deep, it is not possible at a few hours' notice to dig out all and everything connected with this matter; but I will at the earliest opportunity bring the Banksian collection to the front, which I shall give a full description of in print, for the satisfaction of all those who are interested in the matter.

As to the collection of eggs of Mr. J. D. Salmon, we knew this collection well, but have never seen it since his death. There is not one single specimen in our museum that belonged to that collection, nor did we ever make a catalogue of the same, as the very exhaustive and elaborate catalogue made by the owner would be amply sufficient for all purposes.

ALBERT F. CALVERT.

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#### First Visible Colour of Incandescent Iron.

HAVING read in your number for March 24 (p. 484) a letter on the above subject, I thought it might prove interesting to try a similar experiment with the carbon filament of an ordinary incandescent lamp. That used was an Edison Swan 16 candle-power 80 volt, and the method employed to heat it was to pass a gradually-increasing current (supplied from accumulators), using a water resistance gradually diminished by the addition of very dilute sulphuric acid in sensibly equal portions. The room in which the experiment was performed was very carefully darkened, and the observers were kept in darkness some minutes before the current was switched on, the dilute acid being added, so that, after visibility had been reached, five additions should bring the lamp to dull redness (by diffused daylight. The number of the experiment being called out, each observer wrote this down, together with his impression of the colour, *in the dark*, so that the retina was not affected by any extraneous light throughout. Each observer closely inspected the filament till he felt satisfied as to the colour, and then rested