

which they were removed to the enclosure opposite the oven. This enclosure consisted of a platform with a railing round it, and a row of coops for the chicks to run into, and boxes at the back for their sleeping quarters; here they ran about all day picking up food, and at six o'clock in the evening they were put to bed, twelve together, in the boxes behind the enclosure; the boxes being lined with flannel, and having a flannel curtain in front. The chickens when three weeks old were sold for one shilling each. The eggs were bought in the common markets, and a considerable number were useless for incubation, but the chickens hatched were said to be very healthy, and not more than two or three in the hundred died after they left the shell. The proprietor was named William Bucknell, but Cantello is generally credited with being the inventor, and it is usually spoken of as Cantello's exhibition; but I was informed that Cantello was employed by Bucknell, and somehow managed to get the concern into his own hands, and afterwards exhibited it at Saville House, Leicester Square, London. Mr. Cantello made a very large sum of money by this exhibition, and afterwards started a poultry farm at Chisnick, where he did very well for some time, but owing to his mismanagement and unfortunate habits he very soon squandered away all the money he had made and died a very poor man.

The next inventor of any note brings us down to the year 1853, when Mr. Carlo Minasi, a Sicilian by extraction, and son of the celebrated Mr. Minasi, the pen and ink artist, invented his artificial hatching machine, which engaged considerable attention at the time. He employed what is known as "bottom contact," that is the eggs were placed on trays over a reservoir holding water heated by means of an oil lamp; the under surface of the eggs were warmed and a flannel covering to the tray with a sheet of glass over the flannel confined the heat so that the eggs received warmth all over, but the greater heat was imparted to that part of the egg lying on the tray. He claims to have hatched out a great per centage of chicks by his method, and the birds to have been very healthy. On the top of the machine, and on each side of the egg trays, he placed artificial mothers with runs for the chicks to be reared in. The machines were costly; one holding one hundred eggs, with accessories, costing about £75 sterling; but he sold several of them, and obtained letters from his patrons testifying their satisfaction at its success. He hatched out successfully birds from eggs sent him by the Ornithological Society of St. James's, England, such as barnacle geese, grouse, wild duck, pheasant, &c. When I became associated with him in the year 1867, I induced His Highness, the Maharajah Duleep Singh, to purchase one of

his machines for the purpose of hatching pheasants' eggs on his estate. Mr. Minasi went to Mulgrave Castle, in Yorkshire to superintend the working of the incubator, and hatched out a good many, but he stated that owing to the opposition of the gamekeepers, who did not appear favorable to the innovation, and who, he said, interfered with the machine, Mr. Minasi left in disgust. The Prince, however, tried it again the next year and met with fair success. I must here mention, however, that Mr. Minasi had altered his ideas about "bottom contact," and constructed this machine on the principle of "top contact," the upper portion of the egg coming in contact with the reservoir which was corrugated so as to allow escape for the hot air and permit cool air to take its place.

(To be continued.)

### Sundries.

Mr. Editor,—I have to tender my thanks to Mr. Halsted for his corrections of my articles on artificial incubation—we all are the better of being "set up" sometimes.

In the first correction respecting Egyptian mamals, I base my authority on Monsieur de Reaumur. I give an extract from his work:—"These ovens, which Egypt ought to be prouder of than her pyramids, are not buildings that strike the eye by their loftiness, they are scarce above nine foot high, but have an extent both in length and breadth which renders them remarkable. These are the real ovens, so that the whole building which we have called a chicken oven, and which is called a *mamal* in Egypt, is an assemblage of many ovens set together by the side of each opposite, or over against each other, and in the course of the process a part of the eggs are warmed in the upper rooms after having been warmed in the lower. Father Sicard gives but four or five rooms to each row on the ground floor; Mr. Grainger insists upon their being seven; Monconys gives each of them ten, or even twelve, and Thevenot no more than three. Let not authors who speak of nothing but what they have seen with their own eyes be suspected of want of exactness on this account, it is more natural to think that there are in Egypt mamals of different sizes and some twice as large as others."

The next "set up;"—Mons Sora. I remember a long and spirited controversy carried on in the *Field* newspaper about his establishment. The first account, I think, was published in *Chambers' Journal*, and copied in *Dickens' Household Words*, or else *Once a Week*, and the *Field* declared the whole thing a myth. How it was settled I do not remember; anyhow, it was conceded that a large poultry establishment did exist somewhere in