curied, owing to the clogging effect of the heated meal; and great inconvenience occasioned from not being able to dress the meal as soon as it leaves the stones. In the patent mill, as soon as grinding has commenced, the liberated fine flour passes over wire-gauze openings in the lower stone, when the finest flour is separated from the meal. In the upper stone a series of openings are so arranged and furnished with air-boxes, facing the direction in which the stone revolves, that the air is forced down upon the grinding surfaces, cooling the meal and facilitating the passing of the superfine flour through the wire-frames, in a very cool state. The result is, that while the ordinary mill-stones will grind 200lbs. per hour, the same mill-stones with Barnett's Patent Principle affixed, will grind 400lbs. per hour—in each trial the stones being in equal condition, and both trials with the same wheat. From ordinary wheats a superfine flour may be separated; and while from one-third to above two-thirds of the flour is delivered ready dressed into the bag, the remainder of the meal is ready for dressing immediately. In bad weather, the patent stones will grind damp samples, which common stones cannot grind; and from the quarter of wheat more flour is obtained than when ground by common stones. From ordinary wheats a valuable portion of superfine flour, suitable for confectionary, may always be obtained; thus enabling any country miller to produce flour of any quality to suit his customers, or to send to the best markets.

MISCELLANEOUS.

THE ATMOSPHERE, AND ITS EFFECTS ON ANIMAL LIFE.

We find in the *Scientific American* the following report of an interesting lecture lately delivered by Dr. Griscom, at the New York Mechanics' Institute, on the "Influence of Air in connection with Animal Life:"—

The lecturer commenced by saying that he supposed some of them would be surprised to hear that they lived at the bottom of an immense ocean of air fifty miles deep; yet it was so; and the color of this ocean, which is called the atmosphere, is a deep cerulean blue. To perceive this color it was necessary to be able to see at once the whole volume, and also on a calm and clear day, for no color could be perceived if seen in small quantities, or when there was either wind or haziness. In like manner, the color of water could not be seen in small quantities, and was only perceptible where there was a vast expanse of ocean. The air was also a substance capable of condensation and expansion. The expansion was seen in the winds, by which the ships were made to traverse the ocean, and also in windmills. The tornado was another phase of its expansion, by which trees were uprooted and houses overturned, and was almost equal to the power of steam. The greatest weight of the atmosphere was fifteen pounds to the square inch, and this weight presses on every way, both upwards and downwards. To explain the pressure upwards, the lecturer exhausted the air out of a large vase, which then remained fast to the plate on which it stood, but on the air being let in, it was easily removed. I remember, said he, being asked the question, if there is a pressure of fifteen pounds to the square inch, the reason why we were not at once crushed by the weight; but this is, as I before explained, because the air presses in all directions with the same force; and hence there is an equilibrium. This is a most important element, and one which requires to be known; and also, that the air never presses more than fifteen pounds to the square inch.

The next quality of the air is elasticity. Press it so as to make it occupy a smaller space than it otherwise would, and then take away the weight, and it comes back and occupies its original space. The lecturer then explained that in the air there were two gases; one oxygen, which is that part of the atmosphere by which chiefly we live, and which is the one-fifth part; and the other nitrogen, which is four-fifths of the atmosphere. Oxygen supports life and combustion, and nitrogen restrains its effects and dulls its operation. The quantity of air which a person consumes depends in a measure on oneself, and by training can be made more or less. The tailor and shoemaker take little in comparison with the laborer and public speaker and singer, or those who cry commodities for sale through the streets. A man in good health makes eighteen respirations in a minute, and in 24 hours consumes fifty-one hogsheads of the air.

As the oxygen which supports life is so small, we ought to be very particular how we permit other gases to mix with it and vitiate it. The blood which enters the lungs is black, but when the oxygen acts upon it it becomes red, and sends it through the veins to impart life and animation. The black blood is produced by carbon, and imparts the blackness which we see in the face of persons who lose their lives by suffocation, because the oxygen was not allowed to reach the lungs to purify it. When we send out the air from the lungs, we do not send it in the same manner as we inhaled it, for when exhaled it is as deadly a poison as arsenic or corrosive sublimate. The lecturer showed this by experiments, and filled a vase with his own breath, in which a lighted candle would not live. It was such air as killed persons who went down into wells in the country, or who died when a pan of charcoal was placed in a room. The danger of taking impure matter into the stomach was not so great as into the lungs, for the stomach had power to eject impurities, which the lungs had not. Besides the impure air which we exhale, there are 2,800 pores on every square inch of the surface of the body, and to a body of large size there are 2,590 square inches; and these multiplied make 7,000,000 of pores.

There is a sort of drainage pipe in the body, which sends out matter as well as gas; and this pipe is calculated at twenty-eight miles long. The particles of matter which are sent out, and which do not dissolve, are so numerous, that in China, where the houses are low and a great many persons are in the habit of assembling in one room, it has been discovered, that after fifteen or twenty years, these particles so adhere to the ceiling of the rooms, that the farmers will contract to put up a new ceiling if they are allowed to take down the old one, so valuable has it been found for manure.