a small proportion. So, likewise, if the quantity of food be greater than the digestive organs can well dispose of, a certain quantity escapes digestion altogether, and is practically lost. The problem which the feeder has to solve is, how to supply his cattle with such food, and in such proportions, as to ensure the largest increase with the smallest loss. In solving this problem we must in the first place consider the general nature of the food of all animals, the constituents of which may be divided into three great classes—the nitrogenous matters, which go to the formation of flesh; the saccharine and oily, which support respiration and form fat. It is sufficiently obvious that as the two great functions of nutrition and respiration must proceed simultaneously, the most advantageous food will be that which supplies them in the most readily assimilable forms, and in proper proportions. In regard to the first of these matters, it will be obvious that if two foods contain the same quantity of nutritive matters, but in one they are associated with a larger quantity of woody fibre or other non-nutritious matter, the latter will have considerably less value than the former. The necessity for a proper balance of the two great classes of nutritive constituents is also sufficiently obvious, for if, for example, an animal be supplied with a large quantity of nitrogenous matters, and a small amount of respiratory elements, it must, to supply a sufficiency of the latter, consume a much larger quantity of the former than it can assimilate, and there is practically a great loss. We may determine the proper proportion of these substances in three different ways—1st, We may determine the composition of the animal body; 2d, We may examine that of the milk, the typical food of the young animal; and, 3d, The results of actual feeding experiments may be examined. But, however valuable the data derived from these experiments may be, they are less important than those derived from actual feeding experiments. In fact, it by no means follows that the proportions in which the different substances are found in the animal are exactly those in which they ought to exist in the food. On the contrary, it appears that while one-tenth of the saccharine and fatty matters are assimilated by the animal, only one-twentieth of the nitrogenous compounds, and one-thirty-third of the mineral substances in the food, are assimilated by the animal. On the other hand, however, it must be remembered that the particular compounds also exercise a very different influence. Thus a pound of fat in the food, when assimilated, will produce a pound of fat in the animal; but it requires about two and a half pounds of sugar and starch to produce the same effect. The broad general principle arrived at is, that we must afford a sufficient supply of ready assimilable food, containing a proper proportion of each class of nutritive substances. But there are other matters also to be borne in mind, for the food must not only increase the weight of the animal, but also support respiration and animal heat; and the quantity of food required for this purpose is large.

It appears, from Boussingault's experiments, that in a cow eighteen ounces of nitrogenous matter are required to counterbalance the waste of the tissues—a quantity contained in about ten or twelve pounds of wheat flour; and it is well known that an ox expires four or five pounds of carbon daily, to supply which one hundred pounds of turnips are required. We see from this the large quantity relatively to that used up which is required for the maintenance of these functions and the importance of adopting such measures as, by restraining them within the narrowest possible limits, produce a saving of food. The diminution of muscular exertion, and keeping the animals warm, so that a small quantity of food may be required to act as a fuel to maintain the animal heat, are the most important considerations. Although the presence of a sufficient quantity of nutritive matters is an essential qualification of all foods, their mechanical condition is not unimportant, for unless its bulk be such as to admit of the stomach acting upon it properly there must be an appreciable loss; and there is no greater fallacy than to suppose that the best results are to be obtained by the use of those which contain their nutritive matters in a very small bulk. As a practical question, the principles of feeding are restricted to determining how the staple food produced on the farm can be most advantageously used to feed the cattle kept on it, and on this point much requires to be said. It appears that they can be best made use of when combined with more highly nutritious food, such as oil-cake or rape; and, when this is properly done, a very great advantage is derived. It appears from experiments that sheep, which, when fed on hay only, attain a weight of ninety pounds, reach a hundred when rape is added. The subject cannot be completed without referring to the value of the dung produced, which has been very variously estimated. The experiments appear to show that, of food generally, about one-third to one-fourth of the money value, and seven-eighths of the valuable matter, appear in the dung. Dr. Anderson concluded by saying that he had by no means attempted to exhaust the subject, but had given only a sketch, trusting that the observations of others might fill up the details.—*Dr. Anderson.*

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The wheat harvest has already begun in the vicinity of Chicago.

## HOW TO RAISE TURKEYS.

In the first place, select a good kind. The autumn or early in winter is the most favourable time for that—just before the birds are sent to market. Keep them well during the winter; make pets of them if you like. Mine eat from my hand, and answer to my call. In the spring, a few days before they begin to lay (which is about two weeks after moulting), put them in an enclosure, where it is most desirable to have their nests, and where they cannot get out.—After they have made their nests, they may be set at liberty without any fear of roaming or straying. Next, take good care of the eggs. They should be gathered carefully every day, and placed between layers of flannel or cotton, in a place of uniformly cool temperature, and turned over every day. In spring, after the turkeys begin to lay, it is often cold enough to freeze the ground, when, if the eggs are suffered to lie out, they will become chilled, and will not hatch. In warm weather, it is not so necessary to protect the eggs. As soon as the birds are hatched, feed them with warm bread and milk, well peppered, with boiled eggs added: or with loppered milk, thickened with cooked corn meal, or canaille (wheat middlings) which is better. A little care in these matters will repay all efforts.—Before I knew how to take care of the eggs, I set 30 in one year, and but one of them hatched! The next year I set 40 eggs, and nearly all of them hatched, and the birds lived. At present prices, raising poultry is a much more pleasant and easy occupation than the slavish drudgery of making butter and cheese. At least, such is the opinion of a Cayuga Co. farmer's wife.—*Am. Agriculturist.*

## LIGHT STABLES FOR ALL BUT FATTENING ANIMALS.

Light is as essential to the healthiness of the eye, as good food is for the stomach. Light strengthens the eye. Darkness, and especially sudden changes from darkness to light, tend to weaken the vision of both men and animals. When a horse is taken from a dark stable, he walks as if he were blind, and the light that meets his eyes appears to cause pain. Every stable should have glass windows, wherever the climate is too cold to admit of open windows. When it is not convenient to have a glass window in the walls, panes of glass may be fitted to holes sawed in the door; or a sash containing a single row of panes may be set in a frame over the door. When stock stand in their stalls facing a barn-floor or large feed-room, if their mangers are not boarded up tight, light may be admitted through windows above, or in the barn-doors.—But if they stand with their heads to the