

fat while living upon vegetable food in which no large portion of fatty matter is known to exist. It can hardly be doubted, I think, that the organs of the living animal are endowed with this power of forming in a case of emergency—that is when it does not exist ready formed in the food—as much fat as is necessary to oil the machinery, so to speak, of its body. But the natural source of the fat is the oil contained in the food the animal eats, and an animal, if inclined to fatten at all, will always do so most readily when it lives upon food in which oil, i. e. fat, abounds. Professor Solly, on the other hand, speaking of the same subject, gives as his opinion that: It has been supposed by some chemists, that the oil which exists in the vegetables used for food, might contribute directly to the formation of fat, without undergoing any change; though many facts might be quoted to show that this view is improbable; and that the fat of animals is formed from starch, gum, and sugar, by a kind of fermentation in the animal system; and that the fatty matters of the food are not directly appropriated by the animals which feed on them.

Now a very little consideration will show that Johnston is right and Solly wrong in this matter; for if not, how shall we account for the fact, that a small quantity of linseed oil sprinkled over straw-chaff will very much promote the fattening of a bullock? I have known it used with great success in the North of England, where graziers are celebrated for the economical use of their feeding stuffs. Again, if animals do not pick up their fat ready made in their food, why should two pounds of *linseed* be equal in fattening value to seven pounds of *linseed-cake*?—the same thing, only the greater part of the oil has been extracted.

The refuse of the beet sugar factories is supposed to contain all the feeding qualities of the original beets—this could not be, if sugar were one of the main sources of fat in vegetable food. Sugar does, I think, produce fat, or how account for the improved condition of the negroes in Jamaica, who invariably thrive prodigiously during sugar-making? But it is, as Johnston says, "when the oil is absent from the food," that fat is formed from the carbohydrates.

De omnibus rebus.

I have received the *Cornell University Register* for 1881-82, containing a full list of the students, and a description of the course of study pursued. The term University so popular in the States, is clearly a misnomer, as the act of incorporation states, that "instruction in branches connected with agriculture, mechanic arts, and military" are the main, if not the sole, objects of the institution. But, in what most nearly concerns us, "Applied Agriculture," the instruction given and the plan pursued seem to be well aimed. The farm consists of 120 acres of arable land, and many experiments are tried on it, statistics of which are carefully kept, to show at the year's end the profit or loss, not only of the whole farm, but of each crop and group of animals. Lectures on Agricultural chemistry, on Entomology, Veterinary Science, etc., are given, and practical work at analysis follows in the laboratory, the degree of Bachelor of Agriculture being conferred, after due examination, on the successful students; but it seems rather droll to a modern Englishman that attendance on lectures on *rhetoric*, the most absurd of all studies, should be compulsory in such a course. As far as I can see, though, the Agricultural students do not make a very great show in point of numbers, probably not more than 3 p. cent, and the scheme for the studies of the others may be fitly termed "universal."

At the *New-England Exhibition*, held this year at Worcester, Mass. there was only one exhibitor of Merinoes. They seem, according to the "Country Gentleman," to be quite out of fashion, and the Downs are taking their place. No breed of sheep can be better suited to the New-England pastures than the latter, and, while their hardiness is equal to that of the Merinoes, their mutton is a thing to dream of after dinner.

Clover.—I see that the New-York farmers are already beginning to find out that the too frequent repetition of the clover crop only leads to failure.

Attribute the failure to the midge, or to any other cause, if you like, my friends, but we have passed through the same suffering in England, and you had better learn from our experience that *red clover* sown more frequently than every eighth year will ultimately refuse to grow at all. Singular enough, for white clover and trefoil, or yellow clover, will bear repetition, as will alsike, the cross between the red and the white clover. The four course shift, in the Eastern counties of England, is varied thus:

Roots, barley, clover, wheat.

Roots, barley, trefoil, wheat.

Roots, barley, pease or beans (light or heavy land), wheat.
So that red clover only comes once in twelve years.

I have to thank Mr. Harrison Stephens for the pedigree of his Jersey "Rex" bull. An abbreviated form of the genealogy will be found hereafter.

A great contest at LaFayette, Ind. between the Shorthorns and Herefords! One bull and four cows or heifers, two years old and over, in each herd, nine herds shown:

J. H. Potts and Sons, *Shorthorns*; First prize.

C. M. Culbertson, *Herefords*; Second prize.

H. Sadowsky, *Shorthorns*; Third prize.

For young herds, under two years old, six herds were shown:

Fowler and Vannetta, *Herefords*; First prize.

J. H. Potts and Sons, *Shorthorns*; Second prize.

C. W. Parmalee, *Herefords*; Third prize.

Mr. J. H. Potts' herd consisted of a yearling bull, two yearling heifers, and two cow-calves—rather a queer lot to show against Mr. Fowler and Vannetta, whose females were all yearlings; but the "Breeder's Gazette", appears, in spite of its Shorthorn leaning, perfectly satisfied with the decision; an instance of honest appreciation of merit, which will induce me to trust its judgment for the future. The rival paper, the organ of the Hereford breeders, might take a lesson from the Gazette with great advantage to itself, and with great satisfaction to its unbiased readers, to whom undeviating abuse becomes, at last, wearisome in the extreme.

By the bye, some of our contemporaries have a droll notion of the use of epithets: "The judge showed his *elegant* young three-year old Wild Eyes bull, etc. etc"! A *stately* Shorthorn bull or cow, I can understand, but an *elegant* bull reminds me of an Irishman's "*iligit* faction fight."

Mr Borland's mill turns out, as I told him it would, a perfect imposition. Nothing less than five or six horsepower can deal with ordinary raw bones.

A. R. J. F.

Rock Island Quebec, Oct. 4th, 1882.

A. R. JENNER FOSTER, Esq.

Dear Sir,—I am in receipt of yours of September 1st, but it lay in the Stanstead P. O., till I heard of it: it being sent to me