

AGRICULTURAL.

Foods For the Dairy Cow.

Prof. W. A. Henry, Ph. D., of the University of Wisconsin, in an elaborate article on the feeding and management of cattle, published by the Department of Agriculture, Washington, D. C., in relation to Foods for the Dairy Cow, referring to tables given not necessary to be reproduced here, says:

From the large amount of protein represented by the cheese part of the milk and the albumen, it is certain that a very considerable amount of protein should enter into the composition of the food. The carbohydrates supply the material out of which the milk-sugar and the fats are elaborated, though of course these can also be made from the protein substances. The protein and fat of the foods are the more expensive portions, and for that reason we should be careful not to feed them in more liberal allowance than is actually needed.

Among grain foods for the dairy the following are worthy of special mention: Corn.—Indian corn is a most valuable food and one of the cheapest used in the dairy, and the quality of milk and butter produced from it usually above question. Corn meal is a very concentrated food and packs too closely in the stomach, and should be extended with something coarser, like bran, if possible. Corn does not furnish much protein.

Oats are probably the best single food on the list, and are just as valuable in the cow stable as in the horse barn. At this station we have found oats to have the value of about 10 per cent. in excess of an equal weight of bran for producing milk and butter fat. Oats contain much ash and a larger proportion of protein than corn, and should have a prominent place in the feed-bin of our dairy farms whenever the cost is not too high.

Barley is a very common food for cows in the Old World, and is used to considerable extent on the Pacific coast. It should be crushed by rolling rather than grinding.

Wheat is sometimes so low in comparison with other grains that it can be fed very profitably. Frequently on the Pacific coast it is the cheapest dairy food in the market.

Peas.—Peas contain a very large amount of protein, and they are an excellent food for dairy cows. Being very rich in protein, but a few pounds should be used in a ration.

Cotton seed.—The progress of Southern live stock interests depend largely upon an intelligent use of cotton seed, cotton-seed meal and cotton-seed hulls. Cotton seed boiled is used at the South with good results, if fed in reasonable quantity. Cotton-seed meal is very rich and heavy, and should be fed with care; it should be extended by some other food like bran and mixed with roughage. Cotton seed and cotton-seed meal have a deleterious effect on butter, if fed in large quantities, but with care they can be fed at any season of the year with profit. Cotton-seed meal should be used more generally at the North, its high fertilizing value after passing through the animal often being worth the first cost.

Oil meal or oil cake.—This by-product of the linseed-oil factories is a most valuable food in the dairy barn, though it should be used in limited quantities. It is especially useful for calves, and a couple of pounds a day may be fed to dairy cows with profit. It is very rich in fertilizing elements. Oil meal to the value of \$8,000,000 is annually shipped to the Old World. For the fertility it contains if for no other reason, it should all be fed in this country and dairy products instead shipped abroad.

Bran is one of the most valuable feeds in the dairy. From its loose, husky nature and cooling effect on the system, it can be given in almost any quantity, with little danger of overfeeding. It is the safest food in the dairy barn, and should always be in store to mix with corn meal or the ground grains, cotton-seed meal or oil meal. We know that wheat rapidly depletes the soil of its fertility, and the chemist has found that the larger part of the fertility that goes into the wheat grain is stored near the outside of the grain in what becomes the bran or grinding. A few farmers still hold that bran is little better than sawdust. Such notions belong to the past generation. Exporters are studying how to compass bran in order to ship it abroad. This movement should be stopped by a lively home demand.

Sherts and middlings are now but a finer form of bran. Sometimes they contain much starch and form a first-class food, but, again, they carry the dirt and dust of the mill, and are not so palatable as bran.

Malt sprouts and brewers' grains, either wet or dried, are valuable foods, rich in protein, and often sell at such low prices as to admit of very profitable use in the dairy barn. Wet brewers' grains, because of their cheapness and abundance, are often misused. The sloppy drainings saturate the feed boxes and mangers and become putrid, endangering the lives of the cows and those who use the milk. If fed when fresh, and in reasonable quantity, and the surroundings kept perfectly clean and wholesome, brewers' grains are an excellent food for dairy cows.

Gluten meal, a by-product in the manufacture of starch or glucose, is very rich in protein. The heavy forms of this meal should be fed cautiously and extended with some light substance like bran.

Corn stover and corn fodder is an excellent and healthful cattle food, being quite free from dust, and very palatable to the cow. The amount of nutriment which can be gathered from a cornfield, and a portion which remains in the stalks, has already been discussed under steer feeding, and the reader is referred to that portion of this chapter for information on this important point.

Clover hay, when well cured and bright, is especially valuable for dairy cows, since it furnishes a large amount of protein.

Timothy hay is at best a poor food for dairy cows; it should be left for horse feeding.

Wheat hay, oat hay, or barley hay, if cut early, are all excellent dairy foods, and their use should become much more common than it is.

Millet hay is satisfactory if cut very early, before the seeds form.

Wheat For Seed.

Prof. H. L. Rolley, botanist of an American experiment station, in relation to conditions affecting the value of wheat for

seed, in a general synopsis gives us the following points:

The qualifications of different samples of wheat for seed purposes vary with each sample; each should be studied as to its own merits.

When in doubt, the driest, heaviest, hardest, best market grades of wheat are the ones to rely upon for seed purposes.

Immature wheats, no matter what the cause, whether drought, attack of rust, or premature harvest, are weakened in seed value because of lack of full food supply in the grain, and perhaps immaturity of the germ.

Mixed varieties of seed should not be sown because there will be inequality in ripening.

The best grades of frosted seed possess less strength in their first growth from the grain than is the case with best grades of mature wheat.

Wheat that has been wet and subject to freezing and thawing during the winter cannot safely be used as seed without being tested.

Any seeds which have at any time been heated because of moisture when in bulk, are very liable to have been injured beyond ability to grow.

If stacks are made from well cured, mature wheat, and remain dry throughout the winter, the wheat threshed from such in the spring will be as good seed as it otherwise would be.

Wheats threshed from the shocks in the spring of 1892 after winter bleaching were generally dead.

The growth of a crop of wheat is dependent upon so many and varying conditions, that no positive rules of procedure which shall invariably result in success can be laid down. Conditions of temperature and moisture in both soil and atmosphere, and physical conditions of the soil, either at the time of sowing, or during the period of growth, must necessarily vitally influence the result, whatever the character of the seed sown. Thus the stooling of the grain is chiefly dependent upon conditions of moisture at the time of stooling, so that in dry seasons stooling is deficient, when from the same amount of seed sown stooling would have been abundant during a moist season; and the quantity of seed sown sufficient in the latter case would have been insufficient in the former. Because of such facts failure may actually follow practice based on the best general rules of procedure, and on the other hand, success may result from practice not usually satisfactory, and which under other conditions would inevitably have resulted in failure; therefore, although an occasional successful crop may under certain conditions result from the using of inferior seed, this practice in the end can only result in failure.

Successful Farmers.

We should ask, says James B. Stephens, in the Practical Farmer, what qualities do these men who are successful farmers possess that have made them so? Let us inquire into the causes that have contributed to their success. Are they not men of great energy, wide-awake, and alert, men who always keep abreast of the times? Are they not men of an unflinching determination, who trample upon difficulties, and who ever press onward and upward? Are they not frugal and sober? Do they not read and think? Do they not love their calling? I am as firm as a rock in my opinion that any farmer who possesses the foregoing qualities will be successful, and I also firmly believe that all those good men who write so ably for the P. F. possess these qualities in an eminent degree. I look back over ten years of observation. I see men engaged in farming who are interested and enthusiastic in almost everything except their own work, who are attentive to almost everything except their own business and who are never satisfied unless they have a chance to go to some circus or some other useless gathering, where both money and time are spent and no compensating advantages realized. Some of these men farm no more, and others of them are scarcely making a living. On the other hand, I see farmers attentive to their work, diligent and enthusiastic in their own calling, always vigilant and economical, who are making a good living and laying up money besides, and who doubtless have before them a prosperous and peaceful future. I am acquainted with a farmer who about eight years ago bought a farm. He had nothing to begin with but energy, character and ability, and to-day he is almost out of debt. His money is all made from his farm products, and he even sells corn, oats and hay crops which take off much plant-food, but this plant-food is always returned by copious manuring. He follows general farming, but it is extensive farming. He does no more than he can do well. And right here is where so many farmers make a mistake. They undertake entirely too much.

A good old farmer once wrote that he never plowed more ground than what he could completely cover with manure. That is a good plan. I can imagine that that farmer was successful. By plowing no more than what can be completely covered with manure, one is not likely to plow more than what can be thoroughly tilled. An able writer on agriculture wrote some time ago that prodigy seed, prodigy fertilizing and prodigy tillage will bring prodigy results. Now, it seems to me that any farmer who has reasonably good land can attain astonishingly good results by using the best seed, by copious fertilizing and by thorough tillage. All that is needed is enterprise, constant planning and push. The trouble with a great many farmers is, they are satisfied too soon. When they raise a crop that is slightly above the average, or somewhat better than that of their neighbours, they think they are doing well enough. This should not be. They should strive each year to surpass the work of the year before. They should set before themselves a high ideal and then strive to their utmost to attain it. I spurn the desire of maintaining fertility. That desire should find no lodgment in any progressive farmer's mind. Increasing the fertility should be the aim.

Fast horses are carefully fed. Nancy Hanks, with a record of 2.04, eats hay from Montana at \$48 a ton. Ormonde, the \$150,000 English thorough bred, just imported, still eats hay from England; as his doctor thinks a sudden change to American hay might hurt him. This may seem needless care, but the owners of \$150,000 horses don't wish to run any risks with their property.

OF SLEEP MAKING.

Hypnotism As a Medical Agent.

Toronto Doctors Use It.

Is hypnotism a useful agent in medicine? Hypnotism, as practised by the medical profession of Toronto, is, because of the prevailing prejudice against the art, a subject fraught with not a little interest. This predisposition against hypnotism, which is almost universal, is a hybrid production of ignorance and superstition—ignorance of established scientific facts and superstition impelled by the wild statements of itinerant showmen, whose purpose is the better accomplished the more they can impress the public with the mysticism of their hypnotic exhibitions. The showmen's first unwarrantable assumption, which they make the basis of effect upon the public mind, is to claim peculiar power—a power which the uninitiated, in their ignorance in many cases, ascribe to the devil.

Hypnotism is, however, not a new thing, even in its application to the healing of diseases, having been in some method or other practised by almost every race since the dawn of history, although scientific investigation dates only since 1787, when it was inaugurated by the eminent physician, Dr. Frederick Anton Mesmer, whose treatment was condemned by the medical profession, but approved of by both the French and German Governments. This unfavorable verdict was, however, revoked in 1825, when a commission appointed by

THE FRENCH ACADEMY OF MEDICINE

to investigate mesmerism, as it was called after Mesmer, concluded their report as follows: "Some of the magnetised patients experienced no benefit. Others derived more or less relief from the treatment; in one case habitual suffering was suspended, in another strength returned, in a third epileptic attacks were averted for several months, and in a fourth serious paralysis of long standing was completely cured. Considered as the agent of physiological phenomena, or as a therapeutic expedient, magnetism must take its place in the scheme of medical science, and consequently it should be practised by physicians only."

This last recommendation is still voiced by every physician who uses hypnotism. Since the time of Mesmer hypnotism (this name, as being more appropriate and explanatory, was given to it by Braid) has held only a footing in the medical profession, and even to attain this result some of the ablest practitioners have been subjected to almost incredible persecution by the rest of this profession. First among these was Dr. John Elliotson, in 1837 physician to the University College hospital, London.

In 1845 Dr. James Esdaile, a surgeon in the employ of the East India Company at Calcutta, began the use of hypnotism in order, if possible, to lessen the pain of patients undergoing surgical operations. He was so successful that after a thorough investigation the Government placed a special hospital at his disposal. He has left a record of over 250 operations painlessly performed by the aid of hypnotism, including many major and dangerous cases, such as amputations and the removal of large tumors. One tumor which he removed was larger than the patient's body, and during the operation it had to be suspended by chains from the ceiling. The authenticity of this feat is attested by an English general who witnessed the operation.

LAFONTAINE'S EXHIBITIONS.

In 1841 Dr. James Braid, a Manchester surgeon, was struck with the public exhibitions of Lafontaine and demonstrated their genuineness by inducing "mesmeric sleep" in his wife and children. His experiment taught him the utter fallacy of the theory that the phenomena depended upon the passing of some mysterious fluid or influence from the operator to the subject, and to prevent as far as possible these erratic ideas he substituted the name "hypnotism" for "mesmerism" or "animal magnetism." To Braid is now generally attributed the honor of having rescued the art from the region of quackery. He used hypnotism with considerable success in the treatment of various nervous diseases such as rheumatism, epilepsy, paralysis and neuralgia and published a book containing the results of his work. Dr. Braid offered to read a paper on the subject before the British association but his proposal was rejected and it is amusing to note that one of the papers accepted at that time was one on the "palpi of spiders," the object of which was to prevent the audience from mistaking young spiders for old ones. Chloroform being introduced about this time, hypnotism was thrust aside. But Dr. Liebeault, then a young man, happened across Braid's book and opened a free dispensary at his home in Nancy for the treatment of the poor. He has since published several works on the subject. Prof. Bernheim, in 1882, indirectly through Liebeault commenced an investigation, and with such striking success in his experiments that he was "forced to speak" and published his great work on hypnotism in 1886. The endorsement of a man so eminent in the profession was at once felt in enlisting adherents and investigators throughout all Christendom.

Thus has hypnotism for a century struggled for a bare foothold in the profession to which it rightly belongs—it "came unto its own and its own received it not." But its time of triumph has at last arrived. In 1890 the British Medical Association, the most powerful society of medicine in the world, after an exhaustive discussion, declared hypnotism to be "worthy of investigation." Hypnotism is now freely discussed by the great medical journals, and indeed journals and magazines of all kinds devote space to it, thus attesting the interest it evokes in the mind of the public at large.

HYPNOTISM IN TORONTO.

But to come to the practice of it in Toronto. The writer having learned that Dr. John S. King had made practical experiments of hypnotism as a medical agency called upon him the other day, and in the course of a pleasant chat the reporter gathered something of the doctor's therapeutic use of the art and of his conclusions after more than one year of careful experimenting and observation. Up to two years ago he was acquainted with the phenomena of hypnotism only through articles in the medical journals and was very skeptical, thinking it one of the many impostures potent only with nervous, impressionable members of the community. But being in-

duced to experiment with one case, it proved so successful that he was at once impressed with the possibilities of hypnotism as a therapeutic agent. Since then he has made constant use of it in his practice in the treatment of nervous diseases and his conclusion, as he told the reporter, is that "it is the most powerful therapeutic agent known." The doctor has been unable to hypnotize insane or weak-minded persons, or very young children. He has successfully employed it in lieu of an anesthetic in minor operations. The effect of suggestion in hypnotic state has been continuous in the post hypnotic state in a therapeutic sense. The effect, either good or bad, depends upon the suggestion made, and can, and does, undoubtedly benefit and quicken mental faculties when applied for that purpose. Dr. King holds that animal magnetism is the basis of hypnotism. With regard to the potency of "mental suggestion," which is the term often applied to this form of treatment, and by which is meant simply that one mind acts upon or responds to a suggestion furnished verbally or otherwise by another, he said it was simply the medium by which the

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became operative. On one point he was emphatic, that the practice of it should be conducted with prudence and care and be confined to the medical profession. With unprincipled or irresponsible persons it was dangerous, and capable also of being used for criminal purposes.

"Why," said he, "a layman should no more hypnotize than prescribe strychnine."

As to who can hypnotize, it is the doctor's opinion that, "theoretically, anybody can, but practically, at least to any great degree, it is confined to a few. It is like singing. All men have tongues and throats and vocal organs, but all men can't sing, and but a very few can sing well."

The older men in the medical profession have no very great regard for the science. Dr. Clark, superintendent of the Toronto Asylum, was seen and he thinks it an altogether too dangerous a thing to be trifled with. That it is a great force, he said, is not to be doubted. He thinks it also a legitimate field for research, but he has no faith in it as a curative agency. He said: "Every man is a walking magnet. There is in every man a mysterious something (the philosophers called it the *tertia quod*), the medium by which the mind governs the body. It is present with every living animal organism, and, call it 'animal magnetism' or what you will, it is the basis of hypnotism. A hypnotist and his subject are just like two magnets, the stronger governing the weaker. A hypnotist can take a

CRAZY PERSON

and make him for the time being perfectly sane. But he is thinking for both persons, and as soon as the mesmeric influence ceases, the magnets separated, the subject is as crazy as ever. This third mysterious force is that upon which the electric current acts to induce muscular contraction during the period of rigor mortis, but upon the first symptom of dissolution the 'third thing' is gone and electricity has no effect upon the body. It precedes and succeeds consciousness, is the first thing to take possession of the body (it is present in the foetus) and is the last thing to leave it."

Dr. W. B. Geikie and Dr. W. T. Aikins, the principals of the faculties of the two Toronto medical schools, are not actively opposed to it, but are very conservative and think that, though in a few cases it may be useful, its practice should be very limited in the profession and entirely prohibited outside of it. They hold also that hypnotism has of itself an injurious effect upon the person hypnotized. It is only fair to observe, however, that the older men have not studied the subject experimentally for themselves. This they have left for the younger members of the profession, who are in many cases taking up the task with a will.

Canada's Aid to the Railways.

The chief statistician of the Dominion government makes the following statement with regard to the aid the Grand Trunk and Canadian Pacific railway have received from the Ottawa treasury. The Canadian Pacific has received from the Dominion Government the sum of \$62,044,159 and 25,000,000 acres of land. Of this latter the Canadian Pacific sold 6,703,004 acres to the Dominion Government for the sum of \$10,198,521. The Grand Trunk received from the Government of Canada a loan of \$15,142,633 in 1855-57. At simple interest the amount of principal and interest due to the Federal Government at the time of confederation was \$10,457,458 interest and the original loan, making a total of \$20,600,091 due on the first of July, 1867. I do not know that any formal renunciation of the debt was ever made by the Government and if the interest were to be added to the amount due at confederation the total would raise to somewhere about \$50,000,000. If the question asked was: "What have the people of Canada given in aid to these two railways?" we would have to examine the accounts to see how much has been advanced to the various lines incorporated with or under the control of each of the two great systems, as systems. Subsidies and aids were given by the Provincial Government and by municipalities.

Bank Failures in the States.

While but one bank has failed in Canada during the present year no less than 715 banking institutions went under in the United States between January and September, 560 being state and private banks, and 155 National banks. The detailed statement of the chief scenes of trouble, so far as the State and private banks are concerned, is as follows:

Table with 2 columns: State and Banks. Lists bank failures in California, Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, New York, Ohio, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Washington, Wisconsin, and Scattering.

THAT VENERABLE LEVIATHAN.

Older Than Methuselah, Weighs 37 Tons and is Worth \$10,975.

The largest whale which ever entered this harbor, and one of the largest ever seen on this coast washed ashore at Iokelund Monday. The news was immediately brought back by one of the morning steamers, and the afternoon passenger boats were crowded to their utmost capacity by the throngs who were anxious to see the monster.

The steamer was just at the mouth of the river when some one, looking through a field glass, discovered the object of curiosity across the head to the bay six miles away. Immediately all eyes were turned that way, and as the vessel neared the wharf the fish began to loom up in all its corpulency of outline.

The fish came in on the high tide, and lies just a little below Charles Fisher's bath houses. It was alive and kicking, and did not finally surrender its lease on existence until Tuesday about noon.

County Attorney M. D. Egbert had taken along a tape line and carefully measured the monster.

The line showed an extreme length of 174 feet 8 inches, with a "waist measurement" of 161 feet. County Surveyor L. C. Vickrey figured on the weight of the "animile" and pronounced this member of the Balenide family to weigh fifty-seven and one-eighth tons, and the blubber and whalebone to be worth, at current prices, oil \$9,795, bone \$1,600, making a neat total of \$10,975.

Attorney L. E. Ginn attempted to compute the age of the subject under consideration and concluded from the transverse lines on the baleen that this fish had existed for 986 years, lacking but fourteen years of having lived the longest term of whale life.

The pectoral fins are twelve feet long and seven feet broad, the mouth is twenty-four feet long, the blow holes eighteen inches long, and the half hundred bathers in the water at the time it came ashore says the noise of spouting was deafening and the spray ejected ascended at least fifty feet in the air. The thrashing of the tail on the water in the struggle to regain the channel was heard at McGowan's cannery, at the mouth of North River, four miles away.

County School Superintendent L. W. Fansher furnished some historical facts in regard to the whale. Alfred the Great had been dead but six years when his whalefish first began to navigate the waters of the earth. This old boy was 120 years old when William the Conqueror was born, and may have been playing off English shores when he was crowned king. He was on earth at the time of making the Great Charter at Runnymede, he was middle aged when the pilgrims landed at Plymouth Rock, and probably looked upon the wars of Napoleon, the American Revolution and civil war with many a sad sigh and shake of the head for the ruthless slaughter of humanity.

AN ENGLISH WHALEBACK.

A Rival of the Duluth Idea Comes From a Foreign Port.

Not since Ericsson's famous monitor slipped from the ways has such a singular looking craft appeared in these waters as the pioneer British whaleback Turret, which steamed into the harbor recently after a nine days' voyage from Tucacas, Venezuela, with 3,022 tons of copper ore aboard. They don't call her a whaleback in England, but a turret steamer, but she is none the less an adaptation of the American whaleback principle. She is 280 feet long by 39 feet beam and can carry 3,250 tons dead weight on an eighteen-foot draught of water.

Below the water line there is little unusual about the construction, but above her freeboard tumbles home in a short curve to a turret running from stem to stern, and she looks like an ordinary slip set into the back of a monstrous turtle. The vessel was launched a year ago from the yard of Duxford & Sons, Sunderland, and is owned by Peterson, Tate & Co., of Newcastle.

She has proved an easy boat in a seaway and several sister ships are in course of construction. —[New York Herald.]

European Navies.

A return issued by the British admiralty recently gives the number of "sea going warships in commission, in reserve, and building, and the naval expenditure, revenue, tonnage of mercantile marine, and value of seaborne commerce of various countries for the year 1893." It shows the English warships in commission to be 24 battleships, 3 coast-defense ships, 60 cruisers, and 74 other ships not torpedo boats, together 161; we have also in reserve 10 battleships, 14 coast-defense ships, 46 cruisers, and 44 other ships not torpedo boats; and in addition, we have building and completing for sea 9 battleships, 19 cruisers, and 22 other ships. Total, 325. France is represented as having in commission 19 battleships, 5 coast-defense ships, 23 cruisers and 70 other ships not torpedo boats, while she has in reserve 5 battleships, 3 coast-defense ships 20 cruisers, and 62 other ships, and building and completing for sea 8 battleships, 2 coast-defense ships, 19 cruisers, and 5 other ships. Total 221. Germany, which is the next naval power, has in commission 11 battleships, 14 cruisers, and 19 other ships; in reserve, 3 battleships, 6 coast-defense ships, 17 cruisers, and 5 other ships, besides 7 battleships, 3 cruisers, and 1 other ship building and completing for sea. Total, 85. It appears from this classification in point of numbers England possesses 325 warships, as compared with 307 belonging to France and Germany combined, and the English colonies have also 20 warships of their own. England has 50 warships building, while France and Germany together have only 45. Russia has altogether 120 warships, mostly small ones, and Italy, has 93. The aggregate naval expenditure of England is given as £18,480,916, while that of France is put as £10,694,867; of Germany, £4,795,570; of Russia, £5,040,139; and of Italy, £4,215,636, so that the present naval expenditure of England is nearly equal to that of France, Germany and Russia combined.

A league has been formed to study the cancer disease. Probably the most eminently suggestive views on the subject recently made public are those of M. M. Verneuil, of Paris, and Roux, of Lausanne, who attribute cancer to the improper use of meat, especially