THE DAIRY HERD

(Continued from page two)

element in the air and soil. It builds these up into the various compounds in the different parts of the plant. The animal uses these plant parts to supply it with the necessary protein, etc., from which it builds its body. Water is very important in all plant and animal life. It is the great food carrier. Without plenty of water our crops are a failure. It takes around 300 tons of water to produce one ton of dry matter in our crops. We all know how serious a dry season is or how luxuriant crops are in a wet season. Water forms a large part of every animal's body. It is the great food solvent and all foods are absorbed in solution from the digestive system into the circulatory system. It serves quite largely in disposing of the waste material of the body.

Water in the Animal Body

Water regulates the body temperature, in warm weather large quantities being given off every day by the body as perspiration, thereby keeping the body cool. Liberal supplies of water for all animals are essential and should be available at all times to milch cows.

and a supply of clean fresh water should be in evry field or paddock where stock are. While they drink less in winter, yet it is just as important that water at a drinking temperature be ever before them and many dairymen agree that the increased production during one season will fully pay for putting in a watering system in the stable.

Protein and its Sources in Plants

Protein is a term used to name a large number of compounds, all of which contain nitrogen. These nitrogen compounds are not found in large quantities in most plants. The y are more plentiful in the growing parts of plants such as the leaves rather than the stem. They also are plentiful in certain parts of the seed, the germ and the outer coatings generally carrying a higher percentage of the protein than the rest of the seed. The legume plants—alfalfa, all the clovers, cow peas, beans, are all rich in protein. These plants through hte bacteria which grow on their roots have the peculiar ability to take nitrogen from the air and using it directly thrive upon it and build up stores of protein within themselves. All other plants require protein in order that they may grow and mature into real crops, but this supply of protein or nitrogen must be supplied through some form of fertlizer. Consequently the legume hays should be grown extensively on every farm because instead of requiring fertilization of the soil with protein material they will grow on a poorer soil and enrich it they produce large quantities of protein, rich feeding materials and they carry in generous quantities those desirable mineral products essential for bone building.

The legume hays carry the greatest amount and most valuable part of their protein material in the leaves and more tender stems. In making them into hay and feeding them every effort should be made to prevent any waste of the leaves.

Protein in the Animal Body.

Protein forms a larger proportion of the animal body than it does of plants. Lean meat or muscular tissue is entirely of protein material. The vital organs likewise, are chiefly protein material, the white of egg and milk, both carry a large proportion of differing proteid compounds. Greater quantities of protein are needed by young and growing animals by breeding females and by milking stock of all kinds, than is needed by working mature or fattening stock.

The protein in the food performs peculiar and specially important functions. It is essential for body growth in all young animals. It is an important constituent of milk. It must be supplied to repair tissue which through work is constantly wearing out. It is essential to the activity of every cell of the body. A sufficient supply of it in every ration cannot be overlooked without serious consequences.

Carbohyrates and Their Plant Sources.

Carbohydrates are so named because they are composed of the three elements, carbon, hydrogen and oxygen in certain proportions. They are abundant in all plants and form the bulk of all crops grown on the farm. There are different groups of carbohydrates the chief of which are the starches, the sugars and fibre.

Starch.

Corn starch. in universal use is entirely representative of the starch group. Each plant produces its own characteristic starch. The cereal grains and corn all produce highly valuable starches particularly suited to human consumption. The potato and kindred starches produced by tuber plants are generally coarser and less valuable as a human food.

The starches are not soluble in cold water and only slightly in hot water. Boiling changes their physical form and makes them more easily digestible.

Sugars.

The sugars are best represented by our common table sugar. They are readily dissolved in hot or cold water and are so very quickly absorbed frm the digestive system into the blood. Tho every plant has its characteristic sugar, yet very few plants produce it in abundance, and our chief sources of sugar are the sugar cane, which grows in semi-tropical countries and the sugar beet. Southern Mississippi, Louisiana, Cuba and the Bermudas and the Hawaiian Islands are the chief sources of cane sugar for the United States. Sugar, because of its palatability is used almost exclusively as a human food. Only the molasses from which it is hard to extract the pure sugar is used for cattle feedig.

The sugar beet is essentially a mangel with a hign sugar content. It is more delicate and difficult to grow than the ordinary root crops. Sugar beets are, however, very largely grown in Colorado Utah, California Michigan and Ontario. They are an expensive crop to produce and for that reason chiefly have not interested farmers in many more states .

Fibre.

Fibre has the same chemical composition as the starches and the sugars but it has a different form and different characteristics. One kind of fibre is well represented in linen or cotton. It is tough and not readily soluble. It gives strength and rigidity to the plant. It forms the stems the leaf ribs and the outer cotatings of the

Each plant has its own characteristic fibre, which varies in toughness rigidity and in digestibility. Thus the trunks of trees, the fibre of cotton and the fibre in the alfalfa plant while all are true fibre and chemically alike, yet they are vastly different from a digestive and food value standpoint. The man who refuses to distinguish for feeding purposes between fibres from different sources, disqualifies himself as a feed authority by his lack of knowledge.

The digestible fibre has the same food value as an equal amount of digestible starch or sugar.

Starches and fibre constitute the greater portion of the plant. The sugar is formed in solution in the sap of the plant; it is the form in which the plant building material is transported while it is stored in the form of starch.

Carbohydrates in Animal Body

While these three great carbohydrate groups constitute the very large part of all our farm crops and must form the greater part of all animal food, yet they scarcely exist in the animal body. There is no fibre in the animal body. There is a small amount of animal starch called glycogen in the liver and thruout the muscular tissue. Though this modified starch seeds.

performs an important function in the body yet in amount it is insignificant.

Nitrogen Free Extract Explained

In feed analysis the carbohydrates are divided into the two groups: Fibre and nitrogen free extract this latter.

In summer time cows drink more term including all carbohydrates other than the fibre.

Fats and Oils—Their Sources in Plants.

Fats contain the same three elements, carbon hydrogen and oxygen, as constitute the carbohydrates. They differ in this important respect that they contain less oxygen and so have a food or energy value two and one-fourth times as great as that of the carbohydrates. Fats may be either solid or liquid. Liquid fats are called oils. Fats form a relatively small amount of any of the plants They are found chiefly in the seeds and more particularly in the germ. Flax seed cotton seed and several other seeds running naturally high in fat are used as a source of vegetable oils.

Fats in Animal Body.

Fats occur feely in all animal bodies and are quite widely distributed. Fat is the storage form for excess food in the animal body; it is more freely deposited just beneath te skin, around the kidneys and the viscera, and to a limited extent between the muscle fibres.

Mineral Matter or Ash

Mineral matter is also called ash. The mineral matter in plants consists chiefly of Calcium Potassium Phos-

NO REAL CAUSE FOR ALARM

Chinese Fortune Teller Was Merely Wishing That Good Luck Might Follow His Customer.

To have your fortune told in China is likely to be rather an ordeal. In "Beyond Shanghai" Mr. Harold Speakman describes a curious experience that he once had with a fortune teller at Wuchang. What the fellow told him was something astonishing—considering the length of time he took to tell it.

Asking Ah Chow, my interpreter, to listen attentively, says Mr. Speakman, I sat down at the book-littered table of a large prophet with a benign expression and horn-rimmed spectacles. All that he had to work with was a pair of dirty hands with long, razorlike nails that he instantly began to play about my face with all the abandon of an excited orchestra leader. Hoping that the prophecy he was to make might not include the immediate loss of my eyesight, I sat still and waited. After he had felt my head, thumped my chest and looked at my palms he seized my left hand and began to shout; his voice boomed out like a bell. In a minute I was the center of a large and eager crowd. In three minutes the crowd that listened breathless to every word blocked all ways of escape.

The fortune teller gave his prediction in short, precise sentences each of which began vociferously with the preface, "Yehulla!" What with the humidity of the crowd and the steady bombardment of yehullas close to my ear, I decided after five minutes that it was time to depart. With a smile and a bow that I meant should convey thanks and finality I tried to withdraw my hand from the grasp of the prophet; but he only held on the tighter and fairly peppered me with yehullas. Should he cheat a foreigner? No—no! Four hundred cash had been paid, and the yehullas were only half finished!

At last after I had begun to have morbid thoughts of knocking him on the head and of escaping in the confusion he let go his talonlike grip. We rose moistly and made our way out through the sweating crowd, which opened in respectful silence in front of us. For nine minutes by the watch he had foretold just what the future would hold for me, and, though I thought him a faker, I was curious to know just what he had been saying during all that time. "What," I asked Ah Chow, "did the fortune teller say?"

"Oh," replied Ah Chow, "he say, 'Good luck!' "—Youth's Companion.

New Camera Does Wonders.

Instant changeability from standard-size moving pictures to double-size still pictures, through aperture and shutter control; adaptation of the intermittent movement, replacing the customary claw movement; reduction in size, increased capacity, daylight loading; wider range of utility, with elimination of tripod, if necessary, are features of a new moving picture camera designed by a Seattle war veteran who served as aviation photographer in France for 14 months. The new camera, described in Popular Mechanics Magazine, can be carried about and used for snapshot or still pictures like an ordinary hand camera. Used in this manner it has a capacity of 3,200 pictures, either standard moving picture size, ¾ inch by 1 inch, or double size, 1½ inch by 1 inch, which latter can be enlarged with sharpness up to 8 by 10 inches. About 200 snapshots can be made in the time consumed in taking six with the ordinary roll film camera. This is, perhaps, the most important feature of the new camera.

Shows Power of Lenses.

An instrument, by the use of which the effective power of lenses may be ascertained, has been designed so that, although it will give accurate results, it is comparatively low-priced. The mechanism, described in Popular Mechanics Magazine, consists of an upright bracketed support carrying at one end a sliding telescopic lens system and a seat for the lens to be examined. Projecting from the other end of the bracket is a triangular bar marked with a dioptric scale, upon which is mounted a sliding carrier, fitted with an illuminated target and a rotating axis dial. The target is mounted inside a rotating dial, which is graduated so that the axis of the lens being examined may be easily read.

Reversal of Form.

"I met Lady Duff Gordon in a London beauty parlor last month," said a Chicago woman, "and she was in rather bitter mood on account of the failure of her dressmaking business.

"She showed me a pamphlet that an attendant had just given her—a pamphlet entitled 'How to Keep Your Husband'—and she gave, oh, such a bitter laugh, and said:

"'Most women nowadays, I should think, are more anxious to know how to make their husbands keep them.'"—Chicago Daily News.

Making Him Happy.

"Jack, dear, you remember before we were married you said that anything you could do to make me happy would make you very, very happy."

"Yes, dear, I believe I did."

"Well, I really must have a new gown. I hope you won't deny yourself that happiness, Jack."—Boston Evening Transcript.

Marked.

"Has Tom showed you any marked attention?"

"Yes, he left the price tag on the ring he gave me."—Boston Transcript.

MARKED EPOCH IN HISTORY

Founding of First Public Library, at Alexandria, Egypt, Was of the Highest Importance.

The first important private library of which we have definite knowledge belonged to Aristotle. It was later brought to Rome by Sulla. Such private collections indirectly influenced public libraries.

The largest library of the ancient world, that at Alexandria, is said to have been prompted by Phalereus; the actual founder was either Ptolemy I, Soter, or Ptolemy II, Philadelphus. Possibly the father had gathered a fine private collection and the son threw it open to scholars as a real library; for it occupied quarters in the royal palace, near the famous museum.

This library marked a new epoch in history. It was the first scientifically administered institution of the kind, and upon its existence depended the scholarly labors of the students at the museum. It was here that classical philology had its cradle, and linguistic study received its first impetus.

From the beginning, there was a second library at Alexandria, though much smaller in extent. It occupied the temple of Serapis, and its relation to the larger library resembled that of a city library to a university library.

Under the direction of distinguished scholars and able organizers the larger institution grew with what we may call American rapidity. Its history during this period has become better known through a papyrus discovered a few years ago.

The eagerness of the library authorities to secure new books and rare books sometimes led them to adopt devices that would not be countenanced by modern ethics. So keen was the rivalry with the library at Pergamon, that the Egyptians tried to hamper the latter's growth by a rather futile embargo on the exportation of papyrus. Thereupon the people at Pergamon invented the book material which received its name from their city—parchment.

Demetrius Phalereus reported that in his day there were two hundred thousand rolls or volumes in the library at Alexandria. The poet Kallimachos, under Ptolemy II, reckoned their number at nearly half a million. When the library was burned in 47 B. C., it was supposed to contain seven hundred thousand books, while the library at the Serapeion, in the same city, contained 42,090.

After this fire, which destroyed most of the books, which Caesar had already stored on the wharves for transportation to Rome, Antony presented Cleopatra with the library of Pergamon. In 272 A. D. the museum library was destroyed, and in 381 A. D. the same fate overtook the library at the temple of Serapis. The story of their destruction by the Arabs is a myth.—Prof. William V. Wyss in the Neue Zurcher Zeitung. (Zurich, Switzerland.)

Odd Legal Decision.

A curious verdict just returned in a French court acquits a man of murder according to the unwritten law, which always exists in France, but requires him to pay a heavy fine to the widow of the victim. Valat kept a wine shop in Paris. His neighbor, a retired locksmith, became a friend of Valat and further sought to win the friendship of the wine dealer's wife. When he discovered the intimate relations which existed between his wife and the locksmith Valat decided to avenge himself, but not desiring to kill he asked the locksmith to pay him 40,000 francs which he needed to complete the purchase of his wine shop. The locksmith refused, whereupon Valat killed him. Probably because of his heroic conduct at Verdun Valat was acquitted, the unwritten law being recognized, but the jury, finding him partly guilty, sentenced him to pay 10,000 francs damages to the locksmith's widow.

Fitting Suits by X-Ray.

The latest idea in the trade of tailoring comes from Paris where clothiers propose to fit their customers without the aid of chalk or tape-measure. By the use of an X-ray photograph they can eliminate all danger of misfits and avoid all necessity for "trying-on." The X-ray silhouettes of the regular customers which would have to be very different from ordinary X-ray pictures, would be stocked in the fitting cupboards, and so quick and cheap do they expect the process to be that the ready-to-wear suit would be put out of the market.

Chinese Letters.

Chinese scholars and patriots have recently accomplished the onerous task of reducing the 10,000 old Chinese characters to a simple alphabet of 39 symbols. The object is twofold—to enable the entire Chinese population to read and write—hitherto these were scholarly feats—and to enable the inhabitants of the various Chinese provinces to understand each other. The establishment of a national Chinese dialect will go far toward making China a nation.

Minister Who Was Worldly Wise.

A minister met two of his parishioners at the house of a lawyer whom he considered too sharp a practitioner.

The lawyer put the question: "Doctor, these are members of your flock. May I ask, do you look upon them as white sheep or black sheep?"

"I don't know," answered the minister, dryly, "whether they are black or white sheep, but I know, if they are here long, they are pretty certain to be fleeced."—London Tit-Bits.