

# DIET AND HEALTH

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## MILK FOR BABES--BUTTERMILK FOR ADULTS

All authorities on diet say that milk is a perfect food. This is true in a sense; and in another it is altogether untrue and misleading.

The natural food of the infant is mother's milk. But the appalling mortality of infants is due chiefly to the use of cow's milk, carrying the seeds of disease from the cow, the air and water, and planting them in a soil made favorable by improper feeding, lack of fresh air, bathing and exercise. Not even cereal starch kills more infants between the ages of one and six than does milk in the first two years.

Cow's milk differs materially from the infant's natural food, containing twice as much protein and only about half as much sugar, but the danger lies more in the contamination of the milk sold in the cities. Fortunately good work is being done in many places to remedy this evil.

Milk is called the perfect food because it contains all the elements necessary for the growth of the infant, and in the proper proportion. But the physical constitution and development of the infant differ much from those of the adult, and the food should differ accordingly.

The growth of the infant in the first six years is rapid, and a large proportion of lime is necessary to build the bony framework. Milk is in this respect an appropriate food for the infant and inappropriate for the adult. The lime of milk being little needed for maintaining the bony framework of the adult, is largely deposited in the arteries, contributing to the distinctive disease of old age--hardening of the arteries.

The prime cause of hardening of the arteries, which is also a cause of "heart failure" and of certain forms of insanity, is auto-intoxication, or self-poisoning, resulting from the absorption of waste matter from the lower part of the alimentary canal, of which I shall have more to say in dealing with "Bread," in a subsequent article.

Deficiency of iron in the blood of the adult is serious; the percentage of iron in cow's milk is small, corresponding to the nervous inactivity of the infant. In this particular milk is a very unsatisfactory adult diet, though it sustains life indefinitely.

But the unsuitability of milk to the adult is more evident on comparing the infant with the adult anatomy and physiology: In the infant, for instance, the upper part of the alimentary canal is almost a straight tube, allowing the milk to pass quickly to the intestine, which is adapted to its digestion. The adult stomach is a deeply curved pouch, which in certain abnormal conditions retains the food for several hours longer than the proper time for digestion. The fermentation of milk alone is not always serious, but the fermentation of meat, cereals and fruits in the stomach, through the agency of milk, leads to serious results.

The proportion of iron in the blood is very small, but very important. When it is found to be deficient, it is very difficult to supply it. Probably its best source is the brown part of wheat which is excluded from our fine patent white flours, of which we shall speak later. Grapes, the brown part of wheat, cabbage (raw) and lettuce readily supply iron. It has been found that persons living exclusively on milk lack "sand," a quality which the infant never needs to display, since it is absolutely dependent.

In flesh-eating animals the stomach and liver are much larger in proportion than in the vegetable-eaters. An apparent exception is found in the ruminating animals, like the cow, which gathers a large quantity of food and stores it in the first of a series of stomachs for future chewing. The development of the food tube indicates the food adapted to the animal. Although the infant digestive organs are better adapted to milk than the adult's, they are not perfectly adapted to cow's milk. To feed a dog or a child of two years on "what we eat ourselves" indicates a sympathetic but thoughtless disposition.

Sterilized or boiled milk is open to the same objection as roasted peanuts. Its vitality, its real life-giving qualities are largely destroyed.

It is most unfortunate that our people are ignorant of the value of goat's milk, especially for infant feeding. The goat is the healthiest of all animals and the slowest to degenerate when domesticated. Rarely, if ever, is the goat known to contract tuberculosis or any other disease. The milk is superior in every way to cow's, and the poorest can own a "poor man's cow," which can be fed on the potato peelings, cabbage leaves or anything else that is clean.

Hardly any other food is compatible with milk, except uncooked, whipped eggs, rice or toasted bread. Flesh meat, being a stomach food, is particularly inharmonious with milk.

The Jewish instructions on diet prohibit eating meat and milk together, though this may be for an ethical reason.

The writer has recently made several days' tests of an exclusive milk diet on himself and others, carefully recording results. A change from the ordinary mixed diet to any monodiet is beneficial, and milk is not an exception. But the benefits derived from the milk diet which have recently been much advertised should be credited to the monodiet, avoiding the injurious effects of mixing several incompatible foods at the same meal. Equally satisfactory results can be shown from many other monodiets--even the peanut, which is the most concentrated of all foods, containing an excess of albumen. Great gains have been recorded from exclusive diets of beans, oatmeal, wheat, etc., as well as milk, pursued for 60 days or more.

Prof. Metchnikoff, head of the Pasteur Institute, who has made most praiseworthy investigations into the causes of our early decay, has concluded that the failure of the average man to live his natural term of life, 100 years, is due to the development of pathogenic germs in the lower part of the food tube from improperly digested, superfluous food, and recommends the use of buttermilk as an antidote.

The chief causes of the offending conditions in the colon, the large intestine, leading to a constant poisoning of the stream of life, are: Too much food, eaten hurriedly; too much starch and not enough fruit, and bad combinations of foods, good in themselves. Buttermilk is not a natural corrective of these abnormal conditions, although it no doubt serves as an antidote, nor is the "internal bath," good in a way, the true remedy; the cause should be removed.

It has been said that "wine is the milk of age," and of unfermented wine this is true. The grape contains much sugar, acid and iron, which are deficient in milk. The most noted case of prolonged life in history, that of Cornaro, the Venetian nobleman in the sixteenth century, was due to a uniform diet, consisting chiefly of unfermented wine with an egg daily. The egg supplied the fat, sulphur and albumen deficient in the "light wine," or grape juice. Broken down at 40 by indulgence in eating and drinking, Cornaro lived to be more than 100 by simple living.

You can make the best buttermilk any day in your own kitchen. And there is nothing better for digestive disorders, and especially for intestinal troubles, or as a substitute in infant feeding, in certain cases.

You can get at the drug store tablets containing the lactic acid bacterium culture that will convert sweet milk into full cream buttermilk by simply dropping a tablet into a quart bottle of milk and maintaining the proper temperature, according to the instructions. Not only because this full cream buttermilk contains the fat in emulsified form is it better than the buttermilk you buy of the buttermilk man, but because the lactic acid bacterium prevents the development of injurious bacteria in the milk. This is important in the case of infants. Cholera infantum, some forms of diarrhoea and perhaps typhoid can be avoided in this way. Here is the most important practical application of the germ theory yet made, a boon for infant humanity, a recovery in some degree of the loss due to departing from nature in infant feeding as a result of departing from nature in other ways.

It has long been known that buttermilk is a valuable food medicine--even when soured by lightning. We can not always command the thunder, but science has discovered how to make buttermilk without a churn and without lightning, and without separating the butter. Butterless buttermilk is good, full-cream buttermilk is better in most cases.

Cow's milk is digested by the infant with difficulty, often resulting in complete breakdown of the digestive and nervous system; but the adult digestive system is not so well adapted to the digestion of milk and hence flatulence and absolute revulsion often result from its continued use. But buttermilk causes no such difficulties, because it is in a sense largely predigested, the coarser curds of the casein in cow's milk being finely broken up.

This removes the greatest objection to cow's milk as a diet for infants and as an ideal monodiet for adults in severe stomach and bowel troubles.

A certain amount of fat is necessary to the best conditions for normal nutrition, and fat is about 2 1/2 times more valuable as a heat and energy producer than other forms of carbon; and of the fats, butter is the most easily assimilated, except peanut and olive oil. But emulsified as the fat is in milk, it is much more easily assimilated than as butter. For this reason, and for others, the new way of making buttermilk gives a much more nutritious product and more digestible, especially for the infant.

Cow's milk cannot be made identical with the infant's natural food, but it can be approximated to it. The chief difficulty to be overcome is to adapt the large curds that tend to remain in the stomach longer than they should, as the development of the calf's stomach requires that its food shall have a much heavier curd than that required by the infant in which intestinal digestion is more important. The use of buttermilk tablets obviates this difficulty, besides overcoming other objections to the use of cow's milk. But the objection naturally arises that soured milk is not natural. The reply is that cow's milk is not natural. Certainly tests of buttermilk have proved it very satisfactory.

# NATIONAL FOREST FOR FLORIDA

FIRST RESERVATION TO BE CREATED EAST OF THE MISSISSIPPI.



LIVE OAK TREE WITH SPANISH MOSS.



CABBAGE PALMETTO, SAW PALMETTO, BANK OF KISSIMMEE RIVER.



GOOD REPRODUCTION OF LONGLEAF PINE.

To Florida goes the distinction of getting the first national forest created east of the Mississippi river. President Roosevelt has just signed a proclamation setting aside and naming the Ocala national forest in Marion county in eastern Florida and another proclamation creating the Dakota national forest in Billings county, North Dakota. Inasmuch as the last named national forest is the first in North Dakota, the two proclamations add two more states to the list of those wherein land will be put under scientific forest administration. There are now 19 states, and Alaska, having national forests.

Before the creation of the Ocala, in Florida, the two forests in Arkansas, the Ozark and the Arkansas, were the easternmost national forests. Practically all the other national forests are in the Rocky mountain and the Pacific coast states. The Florida forest has an area of 201,480 acres, of which about one-fourth has been taken up under various land laws. It covers a plateau between the St. John's and Ochlawaha rivers and at no point is an elevation exceeding 150 feet above sea level obtained. The area is by nature better fitted for the production of forest growth than for any other purpose. Nearly all of the area, however, seems particularly well adapted to the growth of sand pine, which is even now replacing the less valuable species, and with protection from fire almost the entire area will in time undoubtedly be covered with a dense stand of this species. The long-leaf pine, a much more valuable commercial tree than the sand pine, appears rather sparsely on this forest and is confined principally to the lower flat lands along the streams on the borders of the forest.

In addition to the pines and scrub growths, bald cypress, cabbage palmetto and tupelo gum, gradually changing to water oak, ash, elm, magnolia, hickory and maple are found bordering the numerous ponds and lakes which are scattered abundantly throughout the confines of this forest.

Fire has played a very important part in bringing about the present poorly forested condition of the Ocala, as year after year large fires have burned uninterruptedly over this tract, killing all vegetation and consuming the humus of the soil. Naturally protected portions which have not been subject to the flames prove positively, however, that the soil will rapidly respond to a little care taking and that the prevention of fires would eventually mean the reforestation of practically the entire area.

No sawmill operations have been conducted on the area included in the Ocala national forest. Turpentine by boxing is carried on over contiguous areas and through the careless and antiquated methods used the future pine crop of the adjoining region is greatly jeopardized. The soil is of little value for agricultural purposes and about the only crop which can be produced that will be of lasting value is sand pine, and with proper care and attention there should in time be a valuable forest of this species.

The new Dakota national forest consists of 14,080 acres in the Bad Lands region. It is located in Billings county and lies an equal distance between the Northern Pacific railroad on the north and the Chicago, Milwaukee & St. Paul on the south. Its creation is important for it means that an experimental field for forest planting has been secured in North Dakota, the least forested state in the Union, having only one per cent. of tree growth. The forest service expects to establish forest nurseries with the hope that in time to come the area may be reforested by artificial means. This feature is expected to prove a very good object lesson to the settlers, who, it is

# EXPERIMENT IN LAMB FEEDING IN THE WEST

Results Obtained from Various Feed Combinations--By G. E. Morton, Wyoming.

The Wyoming experiment station have just concluded a year's investigation in lamb feeding with a view to ascertaining the best ration.

Three experiments were carried on at the same time. Previous experiments with small numbers of lambs had shown that oats and oil meal seemed to balance the native hay ration about as well as any grains tried. Therefore, one lot of 40 lambs was fed this ration and another lot was fed alfalfa hay and corn. Shropshire-Merino cross-bred lambs were used.

A comparison of peas in the field and pea hay was made with two lots of Cotswold grade lambs, having 40 lambs in each lot.

All the lambs were fed in uncovered yards protected by a high board fence, with the exception of the lambs, upon peas in the field. These were run in small areas fenced with woven wire, the fences being moved as necessary,

and the lambs driven to a corral at night.

The alfalfa hay used was good first cutting; the sweet clover was coarse and stemmy; the pea hay was somewhat over-ripe; the native hay was mixed wild grasses, containing a considerable quantity of wire-grass.

The corn and barley were from Nebraska; the spelt was raised on the Laramie plains; and the oil meal was old process.

The lambs on native hay ate less hay than those fed alfalfa, and the lambs fed pea hay ate only 200 pounds of hay per head, which was less than the amount of hay and grain eaten by any other lot.

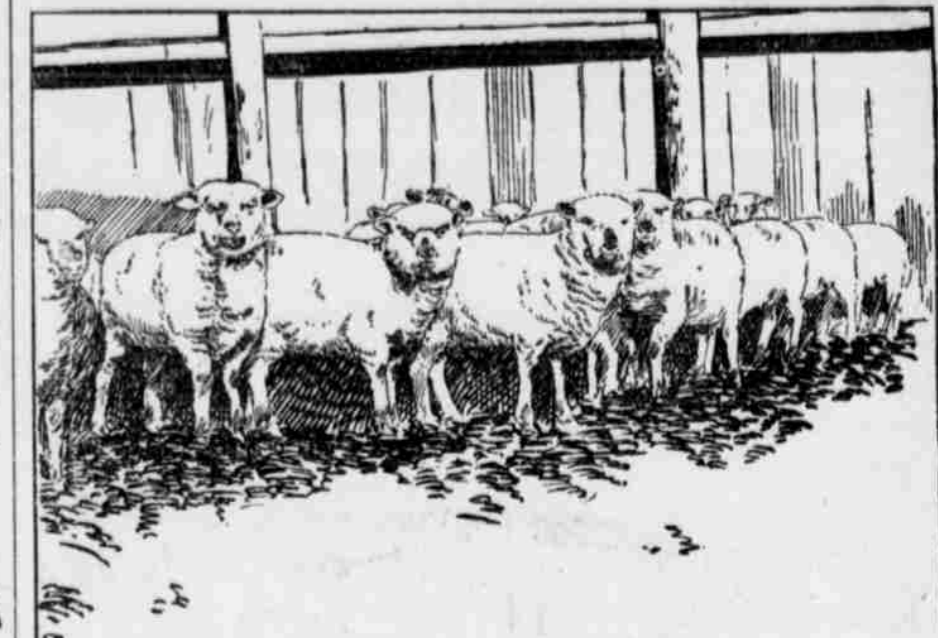
Lots 1 and 3 constituted a second trial of native hay, oats, and oil meal, in comparison with alfalfa hay and corn. In experiments conducted the previous winter with small lots of lambs upon various grain rations and native hay, the ration made up of native hay, oats and oil meal proved to

get enough roughage, and have the scours almost constantly. What gain is made is chiefly framework and mottle and little fat. Pea hay that was well cured before the stalks became stringy, undoubtedly would show better results than those given above, but when compared with alfalfa and corn the pea hay is a poor ration.

By comparing Lots 7 and 8 we find that Scotch barley and bald barley are practically equal in value when fed with native hay and oil meal. A study of Lot 9 shows that spelt is not nearly equal to either bald or Scotch barley when fed with native hay and oil meal, giving a gain of only 13.8 pounds in 14 weeks, or less than a pound a week per head.

The peas in the field gave a gain of 18.3 pounds per head in 14 weeks; .95 of an acre was required for the production of 100 pounds gain. An acre of the peas supported six lambs for 14 weeks.

The pea hay fed in a corral pro-



Showing Type of Lambs Used in Experiment.

duced 5.8 pounds gain in the same length of time; 3,470 pounds of the pea hay were required for 100 pounds gain. The results from the pea hay were wholly unsatisfactory.

be the best of those tried, the lambs making a gain of 17.4 pounds per head in 14 weeks, against 28.6 pounds made by the lot on alfalfa hay and corn. The present experiment with 40 lambs in each lot shows an average gain of 20.3 pounds in 14 weeks by the lambs on native hay, oats, and oil meal, and 34.3 pounds by the lambs on alfalfa hay and corn.

The amount of feed required was 607 pounds of native hay, 460 pounds of oats, and 25 pounds of oil meal for 100 pounds of gain. In the previous experiment 574 pounds of hay, 591 pounds of oats, and 86 pounds of oil meal were required for 100 pounds gain.

The results of these two experiments indicate that the native hay, oats, and oil meal ration will produce somewhat less than two-thirds the gain produced by alfalfa hay and corn in the same length of time, and also requires considerably more feed to produce 100 pounds gain.

Wild sweet clover is common along irrigation ditches and in waste spots, and since it withstands alkali well and gives a heavy tonnage of hay, it should prove a desirable hay crop in many sections. Stockmen commonly believe that sweet clover is useless as a forage plant, but cattle and sheep will eat the growing plant if it is not too large and coarse, and the experiment here reported shows that lambs eat the hay readily and make good gains from it.

Comparing Lots 4 and 5, we find that the sweet clover lambs made an average gain of 30.7 pounds in 14 weeks, while the alfalfa lambs made 34.4 pounds gain. The former ate one-sixth more hay, somewhat more corn, and a small amount of oil meal. The larger consumption of sweet clover hay was due to the fact that it was cut late and was very coarse and



Lamb Cuts That Tell Their Own Story.

ducing 5.8 pounds gain in the same length of time; 3,470 pounds of the pea hay were required for 100 pounds gain. The results from the pea hay were wholly unsatisfactory.

## YIELDS OF BARLEY

The highest yield of six-rowed barley in 1907 at the Ontario experiment station was produced from a special strain originated from a selection from the Mansbury barley, originated at the college in 1906. The college has produced a considerable number of hybrid barleys by using the Mansbury as one of the parents. Of six varieties of two-rowed barleys grown for 14 years in succession two-rowed Canadian, Jarman, selected beardless and New Zealand Chevalier ranked first in yield, with 64.6, 63.8 and 62.2 bushels per acre, respectively.

Of the hullless variety grown for 14 years in succession, Guy Mayle ranked first with 48.3 bushels, Purple second with 45.4 bushels, and Black Hullless third with 44.9 bushels. The last mentioned variety is the most extensively grown throughout Ontario. Winter barley at the college for 11 years has given an average yield of 56.5 bushels of grain and 1.3 tons of straw per acre. In 1907, of three winter varieties, Tennessee was the most productive, yielding 53.4 bushels per acre. During the past 14 years winter barley has been completely killed out on three occasions.

Improving the Farm.--One of the quickest, best and cheapest ways to improve the farm is to put it down to clover, field by field, and pasture hogs upon it. Cowpeas can be used in the same way.

## One-Eyed Mosquito.

Not a few Sarawak mosquitoes would be worthy of notice as being peculiar, but space forbids mention of more than one, *Oculoseomyia sarawaki*. Like the monster Cyclops of fable, this mosquito is remarkable in being one-eyed. The insect was discovered a year or two ago by Dr. Barker, and the curator of the museum at Kuching considers that this specimen must be unique, as he has never seen another. --London Standard.