

**HOLSTEIN CATTLE.**

Much confusion seems to exist in the minds of many concerning the Holstein and the Dutch belted cattle, a splendid example of which was published in the SCIENTIFIC AMERICAN a few weeks ago. The difference between the two varieties is quite marked, as may be observed by comparing the two illustrations. The Holsteins were a prominent feature of the late cattle show in New York City, and attracted universal attention. They are wonderful milkers, and although the milk is not of the richest quality, this breed has come much into public favor. The cow in the accompanying cut, Mechtchilde (6,718 H. H. B.), is the property of Mr. F. C. Stevens, of Utica, N. Y., and, as a three year old, she has made a record of 83½ lb. of milk in one day, 2,100 lb. in one month, and 9,033 lb. in five months, all of which demonstrates her capacity as a milker. The bull Sir Mechtchilde (3,727 H. F. H. B.) tipped the scales at 1,240 lb. when only twelve and one-half months old.



**HOLSTEIN FRIESIAN COW MECHTCHILDE AND BULL SIR MECHTCHILDE.**

*Le Progres Militaire*, in an article on "The Proportion of Artillery," argues that one of the principal causes of the defeats of the French in 1870 was the inefficiency of guns, both in number and material. The new calculations give 17 batteries to each *corps d'armee*, but the Germans are working to furnish each corps with 20 batteries, or 120 guns. The essential tactic of the arm is admitted to be the entry into action of the whole force *en bloc*.

**THE TWO GRAY SEALS IN THE ZOOLOGICAL GARDEN IN BERLIN.**

The seals' tank in the Berlin Zoological Garden, which was empty for so long, has been occupied since Easter of last year by two young gray seals, which have attracted much attention from zoologists, as well

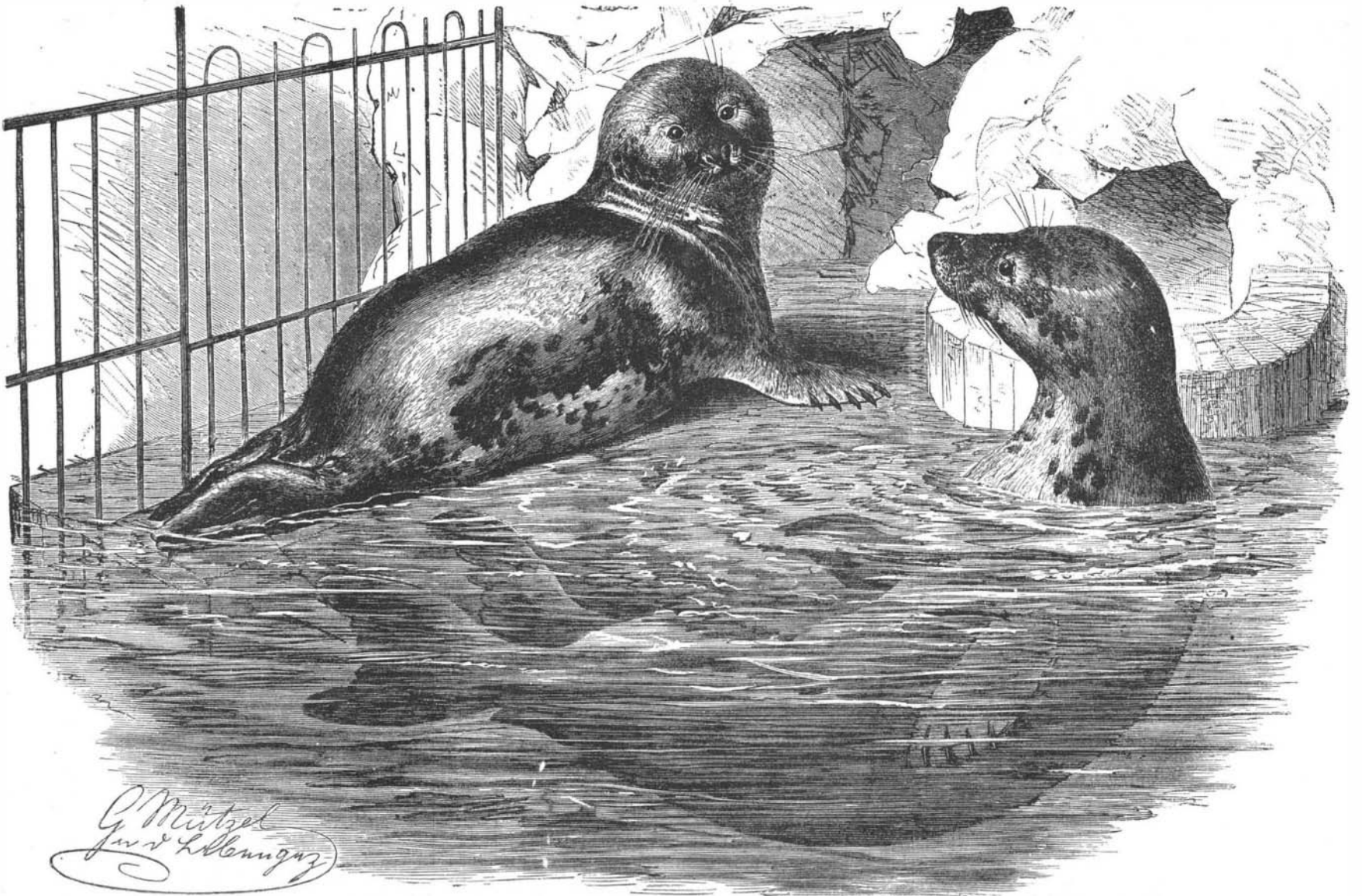
as the general public, forming, in fact, the chief point of interest in the garden. These two seals came from the Baltic Sea. They were caught near Dantzic by Gross-Plehnendorf, and were sold to the garden as common seals, or "sea dogs;" but there can be no doubt that they are two young gray seals. The gray seal (*Halichorus gryphus*) lives on the

coasts of the countries bordering the Baltic Sea, also on the shores of Great Britain, Norway, Iceland, New Caledonia, Labrador, and, perhaps, southern Greenland. They are specially abundant in parts of the Baltic Sea, but are not found in the most frigid regions. Young specimens of the gray seal may easily be mistaken for the common seal; but old ones, specially males, can be readily distinguished because of their great size. They attain a length of from 8 to 9 feet, and a weight of from 400 to 500 pounds; while the common seal is seldom more than 4 or 5 feet long, and weighs only from 100 to 150 pounds. To a connoisseur there are other points of distinction which are marked; for instance, the shape of the head, the teeth, and the coloring of the fur. In the gray seal the snout forms the largest part of the head, this feature becoming more marked as the animal grows older; but in the seals of the *Phoca* genus the brain is much larger.

The predominating color of the fur is gray—dark on the back and lighter on the belly—with many modifications, according to the age and sex of the creature.

The females are lighter in color than the males, and in older specimens the coloring is usually more uniform; that is, less mottled than in the young. With the latter a great number of dark spots are to be found scattered over the gray ground, specially on the neck and flanks, as shown in the accompanying cut. As they grow older, the spots gradually disappear.

It is a notable fact that the gray seals, unlike most



**THE TWO GRAY SEALS IN THE ZOOLOGICAL GARDEN IN BERLIN.**

web-footed creatures, do not easily accustom themselves to captivity. In zoological works they are set down as untamable animals, unable to endure confinement. It is known that common seals can easily be tamed. No former attempts, within the knowledge of science, to keep gray seals have been successful. They generally refuse nourishment, try to bite any one who goes near them, and die in a few weeks. At first the two in Berlin refused food, one fasting for about two weeks and the other for three or four weeks, so that they were nearly starved; but finally the instinct of self-preservation triumphed, they took the food offered, and since then they have thrived.

Eels and herrings constitute their favorite food, though they like torsk and shellfish; but they will not eat the many-boned river fish. The herrings and young eels are swallowed whole, while the other fish are torn to pieces with their claws and teeth. While eating, the seals keep their heads and paws above the water, presenting a very droll appearance. When in their native waters, the gray seals eat many mollusks, crabs, etc.

Many people gather at their tank every day toward evening to see them feed, and on these occasions they are very energetic, displaying much elegance of motion. They have learned to take fish from their keeper's hand, but cannot be taught any tricks. They have endured the cold of winter in their element under the open sky, although the thermometer fell some nights to 5° F. It is to be hoped that these animals will long add to the interest of the Berlin garden.—*Illustrirte Zeitung.*

#### Milk and Scarlet Fever.

At the Royal Institution recently Dr. Klein, the eminent microbist, submitted a paper of the utmost importance in regard to the etiology of scarlet fever. Not long since Mr. Power, a medical inspector of the Local Government Board, investigated an epidemic of scarlet fever which had occurred in the north of London, and which was traced directly to milk supplied from a certain dairy at Hendon. Very complete evidence was collected, which seemed to negative the possibility of infection of the milk from a human source or by insanitary conditions, and Mr. Power further proved that the cows which yielded the milk were in a diseased condition, that the first signs of this disease had appeared in cows which had been recently imported from Derbyshire, and that it spread from them to the other cows milked at this Hendon dairy. The disease consisted in the presence of sores on different parts of the skin, with loss of hair in patches, ulcerations on the udder and teats, and a visceral disease, notably of the lungs, liver, kidneys, and spleen, which, although milder in character, very much resembled the visceral lesions occurring in cases of human scarlet fever. By experiment it was shown that the matter of the ulcers of the udder is possessed of infective power, inasmuch as on inoculation into the skin of calves the same ulcers are reproduced; further it was shown that in the ulcers of the cow there existed in large numbers a species of micrococcus which, on being planted on artificial nutritive media, such as are used for the study of bacteria, produces in a few days a crop of micrococci, possessed of very distinct characters, by which they are distinguishable from other bacteria. When calves are inoculated from a cultivation of this micrococcus, they become after an incubation period affected with a cutaneous and visceral disease the same as the disease of the Hendon cows. Since Mr. Power's investigations Dr. Klein has studied the diseased condition, and his experiments have shown that in the blood and tissues of persons affected with scarlet fever there occurs the same micrococcus as was present in the cow, both being identical in microscopical and in cultural characters. He has also proved that the action of this microbe on animals is exactly the same as the micrococcus found in the Hendon cows. It seems to be fully established, therefore, that this microbe, *micrococcus scarlatinae*, is the cause of human scarlet fever; that it produces in bovine animals a disease identical with the Hendon disease and human scarlet fever, and that consequently, while the cow is susceptible to infection with human scarlet fever, it can in its turn be the source of contagium for the human species. Dr. Klein has found the same microbe in tins of condensed milk sold under the name of Rose brand. This milk was under suspicion of having produced scarlet fever in a number of persons who had partaken of it. When the microbe of the condensed milk was tested on animals, calves, and mice, it produced the identical disease which was produced by the microbe of human scarlet fever and of the Hendon cows. This Rose brand of condensed milk, Dr. Klein states, is a cheap article, meant for the poorer classes; probably it has not been sufficiently heated in the tins before sealing the latter.

Scientific investigation has, therefore, now made a distinct and very important advance. It is, of course, well known that scarlet fever, as well as diphtheria and typhoid fever epidemics, have been frequently spread by means of the milk supply. The typhoid

microbes, indeed, as far as is known, have not been conveyed by the milk itself, but by the water added to it, or, as the milkmen themselves say, by the water used for washing out the cans. It has been hitherto assumed that scarlet fever has been conveyed in milk only by some personal contact from persons who had had the disease or who had been with others who had been so infected. The knowledge now acquired is to the effect that cows themselves suffer from a mild disease identical with scarlet fever, and communicable by their milk to the human subject.

This disease, although hitherto unnoticed by veterinary practitioners, can be easily detected, and is, no doubt, the source of a large proportion of the cases of scarlet fever in this country. From that disease alone an average of 854 persons per million living in the United Kingdom die annually, and some twelve times as many go through the illness. When we remember that many of these deaths, together with, perhaps, most of the typhoid and probably some of the diphtheria epidemics, are due to carelessness or ignorance at the dairies, the conclusion that some efficient system of control of our milk supply is called for seems inevitable. Out of consideration for public safety, the legislature has rightly shown itself anxious in regard to the sale of poisons; but for hundreds slain by poisons, tens of thousands die from unwholesome milk, and a proper system of official supervision of the milk trade is therefore one of the most urgent of hygienic requirements.—*Chemist and Druggist.*

#### Prizes for an Improved Saddle.

Two prizes, of 6,000 marks (\$1,500) and 3,000 marks (\$750) respectively, are offered by the German government for the best pattern of a saddle for the cavalry. The conditions are briefly as follows: 1. It must afford an easy and natural seat to the trooper. 2. It must not in any way impede his movements. 3. It must be simple in construction. 4. It must be serviceable. 5. It must be light. All patterns heavier than the Hungarian saddle at present in use are condemned in advance. It must, moreover, be cheap, and be so constructed that the various articles of equipment—mantle, carbine, *sac a fourrage*, etc.—may be easily carried. The German military authorities reserve to themselves the right of subjecting the patterns sent in to any desirable tests, and of manufacturing a certain number of those selected, to be distributed to the army for trial, without any payment to the inventor. The pattern must be sent in before November 30 next, and the result of the competition will be published in the *Armeen Verordnungsblatt* and other journals in October, 1888.

The most curious thing about this proposal is the paltry sum offered as a prize; this, indeed, is the trouble in nearly every case where new inventions are called for. Whether it is a great government or a large manufacturing concern, the idea seems to prevail that it is a piece of generosity to offer \$1,500 as a prize to an inventor who will produce and surrender a new invention worth, perhaps, a million dollars in cash. Suppose, in this case, a man should produce a military saddle more easy, more free, simpler, two to five pounds lighter, and one or two dollars cheaper than the common saddle, would not such a saddle be worth half a million dollars, at the least calculation, to any government? The offered prize of \$1,500 is far insufficient.

#### Attend to Your Horses.\*

When a horse refuses to drink, and coughs after swallowing a little, it indicates sore throat or swelling of the glands of the neck. It is one of the symptoms of distemper, which is prevalent at this season. Give the horse a warm bran mash, with one drachm of chlorate of potash in it, daily for a week or ten days. There is nothing serious to be apprehended.

For a horse which is weak in the knees, rub the limbs briskly with a woolen cloth, then bathe with salt and water, wipe dry, and apply a mixture of one pint of alcohol and one drachm of tincture of Spanish fly, rubbing in a tablespoonful twice a day with the hand. Let the horse run in a loose stall, deeply littered with sawdust or dry swamp muck, or on an earth floor. Skunk's oil, beef brine, and other trash of the kind are useless.

Piles are caused by dilatations of the blood vessels of the lower gut or rectum and the formation of tumors. In horses they are rare, and melanotic tumors on the lining membrane are often confounded with them. The treatment is as follows: Give daily three ounces of Glauber salts and common salt; also, bran and linseed mashes, with one drachm each of sulphate of iron and ground gentian root. If the piles appear outwardly, or there is much irritation, and the horse rubs the tail, inject one ounce of a solution of a drachm of sugar of lead in a pint of water.

A horse can be fed on grain and bran, if he is not overfed. These foods are concentrated, and need to be given with caution. Cottonseed meal is not a safe food, but the whole seed, if quite free from lint, may be given

\* These hints on the care of horses we find in the *Ohio Valley Journal*. The information seems practical, and accords so well with our experience in the care of horses that we are sorry not to be able to give the unknown writer of the article full credit.—*Ed.*

in moderation. Some coarse fodder is desirable, if it can be procured, and a supply should be grown either of millet, corn fodder, or pea vines, and cut when in blossom and cured for hay. If a little roughness is given, six pounds of bran and the same of some kind of grain, and two pounds of whole clean cottonseed would make sufficient food for a thousand pound horse. Five pounds of hay daily given with this grain would be quite sufficient.

Green food in the summer is often the cause of serious indigestion, with its common results—colic and rupture of the stomach, which is inevitably fatal. Such food should never be given wet, or heated by fermentation after cutting, or in excessive quantity, nor when a horse is weary. Clover or rye should be cut after the dew is off and before the heat of the day, and spread in the shade to wilt, or in the afternoon, and left to wilt until the next day. A sprinkling of salt will tend to avoid trouble with such food, as it prevents fermentation.

Water should always be given before feeding, and never immediately afterward. Colic is often produced by copious watering soon after eating, and also by watering when the animal is hot and weary from work. The stomach being chilled is for the time incapable of digesting any food. Light feeding is to be given during hard or rapid work, and the full feed is only given after sufficient rest. Overfeeding is to be specially avoided, and regularity is very important. One 12 quart pailful of cut hay and four pounds of meal is a full feed for a thousand pound horse, given twice a day, with an equivalent feeding between of oats or corn and long hay. Orchard grass hay, cut just at the blossoming, is excellent for horses. Ripe timothy is the next best, and corn blades, pulled green and well cured, make as good feed as any. Dusty or mouldy food is to be specially avoided, not only for its effect upon the digestive organs, but for its evil results upon the respiratory functions. Idleness is conducive to indigestion, and during the present season particularly horses should be turned out several hours for exercise every day.

The shrinkage of the muscles of the shoulder, and which is commonly called "weeny," is due to some lameness of the foot or limb, which induces the horse to favor the shoulder and throw the muscles out of use. This inaction causes the muscles to decrease in substance, and the shoulder flattens or becomes hollowed. The remedy for this disfigurement is to relieve the lameness and restore the shoulder to proper activity. The seat of the trouble may be in the shoulder, which may have been sprained. If this is the case, pressure with the knuckles on the shoulder will show it; if not, it will most probably be found in the foot or the pastern joint. Navicular disease is the most frequent cause of this shrinking of the shoulder muscles. This disease is indicated by the animal pointing the toe of the foot forward, and by going lame at starting and soon recovering. Driving fast down hill is the usual cause of trouble with the shoulder by injury to the joint or to the feet.

#### Wages in 1800.

The condition of the wage class of that day may be well examined; it is full of instruction for social agitators. In the great cities unskilled workmen were hired by the day, bought their own food, and found their own lodgings. But in the country, on the farms, or wherever a hand was employed on some public work, they were fed and lodged by the employer and given a few dollars a month. On the Pennsylvania canals the diggers ate the coarsest diet, were housed in the rudest sheds, and paid \$6 a month from May to November, and \$5 a month from November to May. Hod carriers and mortar mixers, diggers and choppers, who, from 1793 to 1800, labored on the public buildings and cut the streets and avenues of Washington City, received \$70 a year, or if they wished, \$60 for all the work they could perform from March 1 to December 20. The hours of work were invariably from sunrise to sunset. Wages at Albany and New York were 3 shillings, or, as money then went, 40 cents a day; at Lancaster, \$8 to \$10 a month; else where in Pennsylvania workmen were content with \$6 in summer and \$5 in winter. At Baltimore men were glad to be hired at 18 pence a day. None, by the month, asked more than \$6. At Fredricksburg the price of labor was from \$5 to \$7. In Virginia white men employed by the year were given £16 currency; slaves, when hired, were clothed and their masters paid £1 a month. A pound Virginia money was, in Federal money, \$3.33. The average rate of wages the land over was, therefore, \$65 a year, with food and, perhaps, lodging. Out of this small sum the workman must, with his wife's help, maintain his family.—*McMaster's History.*

#### Gas Wells near Montreal, Canada.

It is said that a large vein of gas has been struck, at a depth of 490 feet, at Louiseville, a small town on the north shore of the river St. Lawrence, sixty miles below Montreal, and that another well two miles below Montreal also shows a large reservoir of gas. A Quebec company has been incorporated to put down wells within the supposed gas-bearing district and furnish the gas for manufacturing and domestic use.