

## KILLING FEVER TICKS.

Promising Experiments Undertaken by the Agricultural Department.

GUY ELLIOTT MITCHELL.

To stamp out Texas cattle fever. This is the hope of the Department of Agriculture. The Department has been working on the problem for some time, and it has almost been proved to the satisfaction of officials that the tick which causes the fever can be eradicated from a pasture simply by keeping cattle out of that pasture. The tick is not a herbivorous insect, and it will die out if the pasture is kept free of cattle. It is believed that if one pasture on a farm is always kept free of cattle over what might be termed the life period of the tick, it will furnish perfectly safe pasturage for uninfected animals in case fever breaks out in the rest of the herd.

Of course, the Department of Agriculture has no right to go into a State and enforce the free pasturage policy, and the matter cannot be, or at least is not, always dealt with satisfactorily by State officials. But in cases where the Department is officially invited to come into a State and take charge of cleaning it up, it is quite ready to do so. Tentative arrangements have already been made for this work with the authorities in some States, and it is believed that it will be quite possible to stamp out the fever and allow the free interstate transportation

that they will produce a fever-resisting strain that will be a valuable acquisition to the cattle men of the Southwest.

These two experiments of Uncle Sam's farm department hold out a promise of very great importance to the live-stock industry, and consequently to all meat consumers.

### The Manure Pit.

Where is the wise farmer who would sell to his neighbor a load of his finest corn or a load of some green crop for a dollar bill. Yet there are thousands of agriculturists all over the country who are doing practically this very thing when they dispose of their barnyard manure for \$1 a load. Others are wasting the most valuable constituents of the manure they save. The manure produced on the farm is its most valuable asset.

There are in the United States, in round numbers, 17,000,000 horses, 61,000,000 cattle, 47,000,000 hogs and 45,000,000 sheep. Experiments have shown that if these animals were kept in stalls or pens throughout the year and the manure, both liquid and solid, carefully saved, the approximate value of the manure produced by each horse

into practice the new idea that the manure should be as carefully preserved from unnecessary loss, as should any other farm product, after he has for twenty years stored the farmyard manure under the eaves upon the slope which forms one corner of the running brook.

Experiments made by various Government experiment stations show that the construction of sheds or covered yards for the protection of manure is well worth while. The manure from the horse and cattle stables and the sheep and calf pens should be spread



THE WASTE OF BARNYARD MANURE.

out evenly over these yards, covered with coarse litter, and the whole kept firmly packed by allowing animals to run over it, thus preventing injurious fermentation.

### To Save All the Fertility.

A more elaborate and expensive style of covered yard, a plan for which is furnished by the Department of Agriculture, provides not only for the required protection of both animals and manure, but also affords an excellent grain chamber where feed can be stored for convenient use. Under the side roofs is also afforded a chance for the storing of small tools and a great variety of articles that are continually in the way when lying about the farm buildings. It also provides splendid protection to animals when housed at night during the summer, this roof protecting them from heavy showers in the night and affording good chance for exercise in the winter, as all the sides, except that toward the south, can be protected against cold winds through temporary boarding.

Many stables are so situated that by adding a cheap lean-to, a manure "pit" is easily produced. The outside boarding of the lean-to should be, for a part of the way at least, put horizontally and hung in the form of flat doors, so that the manure can be easily loaded on a wagon standing on the outside of the building.

A great number of farmers who have adopted manure sheds and covered

stated that the value of the manure obtained in cattle feeding represents largely, if not entirely, the profit of the farm. There are sound scientific reasons for the high esteem in which farm manure is held. It contains all the fertilizing elements required by plants in quickly available forms that insure plentiful crops and permanent fertility. It supplies nitrogen, phosphoric acid and potash, and it also renders the stored-up materials of the soil more available, makes it more friable and warmer, and enables it to retain more moisture.

### Rattlesnake Den.

We were lumbering in central Pennsylvania during the summer of 1870, our portable steam mill standing in a piece of woodland, near a small stream and within a short half mile of a rocky ledge, known as "Rattlesnake Den."

During the hot days, rattlers were constantly met, and "Harry," who drove the daily stage through the "Narrows," had won quite a local reputation from having killed more than a score since the melting of the snows. The pretty young wife of our engineer had charge of the boarding house, and after the noon meal was served, the dishes cleared away and the house put in order, she was accustomed to bring her sewing into the shade near our Planer, which was the cleanest and coolest part of the mill, and sit for an hour or two before commencing the preparation of the supper.

She was a sweet, attractive slight that hot afternoon of which I speak, her beautiful arms and neck rivaling the whiteness of her simple frock, the only female in our camp of rough, brawny men, but one whom any of us would have defended from all harm at any risk.

Some of the men were rolling up the logs on the skid, some sawing them into boards, others carrying the boards to the yard, while my partner, Manuel Mota, was personally tending to the more skillful work at the planer, in



CATTLE INFECTED WITH TEXAS FEVER.

of cattle, which is now prohibited. The saving in money and the convenience to shippers of this arrangement can easily be understood.

### To Introduce Cattle from India.

While this quarantine and extraportion work is going on, a similar experiment on different lines directed to the same end will soon be under way. There have been imported to some of the Texas ranges specimens of the Indian sacred cattle, and it has been found that they were immune to the Texas fever. Apparently there is an oil in the skin that is repugnant to the tick. At any rate they will not harbor the parasite. The half-bloods and even animals containing but one-sixteenth part Indian blood have been found immune, and they make just as good beef cattle as can be found.

There are very stringent laws against the importation of foreign stock into this country without thorough examination and quarantine; therefore it is risky to import stock from so far away as India without especial provisions for its examination. Mr. A. S. Borden of Pierce, Tex., has arranged, however, with the Agricultural Department to make a large importation of the immune Indian cattle, and has already left for British India to pick them out. The Department of Agriculture will send a special veterinary after him, and the first shipment of about 100 head will be

annually would be \$27, by each head of cattle \$19, by each hog \$12 and by each sheep \$2. The fertilizing value of all the manure produced would, therefore, be for horses, \$459,000,000; cattle, \$1,153,000; hogs, \$564,000,000; and sheep, \$390,000,000, or a total of \$2,272,000,000.

These estimates are based on the values usually assigned to phosphoric acid, potash and nitrogen in commercial fertilizers, and are possibly somewhat too high from a practical standpoint. On the other hand, no account is here taken of the value of manure for improving the mechanical condition and drainage of soils which is almost as important a consideration as its direct fertilizing value. It is generally conceded that at least one-third of the value of manure is lost by present wasteful management or a total loss to the country of over \$750,000,000.

### Return Full Value to the Soil.

If a farmer desires to maintain the productivity of his land, it is essential that the amount of potash, phosphoric acid and nitrogen removed through the selling of meat, milk, grain, hay, fruits, vegetables, etc., should be restored through an intelligent conservation of the barnyard manure.

It seems to be a hard matter to induce the average farmer to abandon the time-honored practice of piling



A CONVENIENT COVERED BARNYARD.

yards have obtained unsatisfactory results, but the Department of Agriculture believes that this is probably due to the fact that these structures have generally been loosely put together, allowing a free circulation of air, which has dried out the manure. On this account barn cellars, so common in New England, possess decided advantages as receptacles for manure. The common practice of allowing swine to "work over" the manure in these cellars is a wise one, since it mixes the manure and keeps it well packed and moist. In fact, if these cellars are provided with impervious bottoms to hold the liquid manure, this system of storage is probably the most perfect practiced.

### Manure the Best Fertilizer.

Barnyard manure is the most effective means at the disposal of the average farmer to permanently improve his soil. No other fertilizer possesses to so great a degree the power of restoring worn out soils to productivity and giving them lasting fertility. It provides actual fertilizing constituents; it improves the physical properties of the soil, increasing the amount of humus, which is generally deficient in worn soils, bettering its texture and increasing its water-absorbing and water-holding power. Experiments have shown that the influence of manure may be perceptible twenty years after application. It directly represents fertility drawn from the soil and must be returned to it if productivity is to be maintained. In many cases it has been demon-

strated that the value of the manure obtained in cattle feeding represents largely, if not entirely, the profit of the farm. There are sound scientific reasons for the high esteem in which farm manure is held. It contains all the fertilizing elements required by plants in quickly available forms that insure plentiful crops and permanent fertility. It supplies nitrogen, phosphoric acid and potash, and it also renders the stored-up materials of the soil more available, makes it more friable and warmer, and enables it to retain more moisture.

front of which and facing it, May sat. I was just then acting as engineer and fireman, and as I happened to look in their direction, to my horror, saw an immense rattler, coiled within a foot or less of May's back, his body away to and fro, and his angry eyes shining like sparks of fire. I was literally paralyzed with terror, for though but twenty feet away, it seemed as if the blow would be struck before I could take even the first step. Mota must have seen the snake at the same moment, for I heard his voice clear and sharp above the roar of all the machinery. "May, there's a rattlesnake that will strike if you move; sit perfectly still." As he spoke he grabbed from a beam the bull whip, which we used for our ox team, and with the slightest movement of his powerful wrist snapped it at the reptile, as if striking at a fly. I remember I thought what a fool action that was, why didn't he dash forward and at least attract its attention! But I looked again and the body lay quivering and twisting, but with a broken neck.

"Pretty close call, May," he said cheerily, "but its easy when you know the trick."

May had been perfectly cool and obedient till the danger was past, and then, womanlike, she quietly swooned away, and for a day or two we did our own cooking.

Automobiles are now running a mile in less than half a minute, and two miles in one minute.



RYE GROWN ON WELL MANURED LAND. TYPICAL CROP WHERE MANURE IS WASTED.

examined before they are shipped, and then quarantined on one of the small islands of the gulf coast till it is determined that there is no danger of their bringing into this country some strange bovine affliction even worse perhaps than Texas fever.

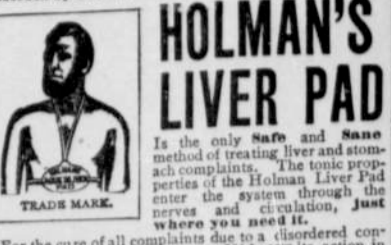
After the animals have been thoroughly proven, they will be introduced among the Texas herds, and it is hoped

manure in the open air, exposing it to leaching by rains and fermentation by hot mid-summer suns, and adopt rational scientific methods. He also hesitates to incur the necessary expense of building suitable receptacles for the storage of manure, frequently assuming that this expense is greater than it really is. Manure is considered a waste and it is hard for him to put

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