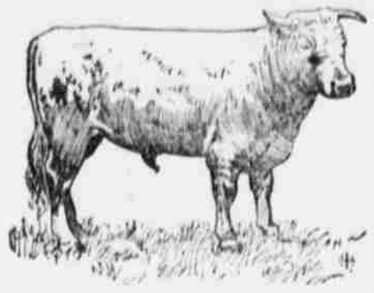
AMERICAN FINE STOCK

In speaking of the interest that men of large means are taking in the improvement of live stock in this country Professor Thomas Shaw makes mention in Orange Judd Farmer of a notable Minnesota herd.

Woodhill herd was established by Mr. W. H. Dunwoody in 1901 with stock carefully selected and rich in the blood of the Cruickshank Shorthorns, the latter being cattle that revo-



LAVENDER CLIPPER.
[A son of Choice Goods.]

lutionized and modernized the old time type of Shorthorns. Professor Shaw was struck by the uniform excellence of the young animals and saw "not a single cull or even an inferior individual."

Every animal in the show herd save one was bred at Woodhill. Even the bull, Lavender Clipper, 203,771, is a Woodhill product. This bull is a son of the unconquered Choice Goods, 76,350. The ability to bring out a show herd fit to appear in any company from a herd so recently formed is, according to Professor Shaw, probably without a parallel in the breeding of American Shorthorns.

FEEDING FOR BACON.

Best English Producers Use Dairy Byproducts Largely.

The writer is inclined to believe that pounds of gain in the bacon hog cannot be produced as economically as in the case of the fat or lard hog. This is due to the fact that a much more limited range of feed can be used with safety in feeding the bacon pig, and some of the best feeds for the production of heavy gains, such as corn, must be fed with great care. In England practically all the best bacon producers lay a great deal of stress on the use of dairy byproducts. From the standpoint of quality of the bacon produced no rations have proved more satisfactory than barley meal and skim milk, shorts and skim milk, equal parts barley meal and shorts with skim milk or equal parts ground peas, ground barley and shorts with skim milk. All of these rations have produced good farm bacon, white in color and free from oil or flabbiness. Some feeders use equal parts ground barley and corn meal with skim milk or whey. This ration is said to produce heavier and more economical gains, but the quality of the product is inferior.—W. J. Kennedy.

Early Life of Pigs.

At no time is the development of the pigs so easily influenced as while they are dependent on the sow's milk—the first month of life. Excepting the ravages of epidemics, perhaps the greatest death losses in the herd occur during this time, including farrowing. The accidents during farrowing, an attack of scours due to the milk of the dam or a chill while following the sow in pasture on a wet day, may stop growth temporarily, leaving a permanently stunted pig, or result fatally.

As the pigs learn to eat the feed may be increased. Skim milk should be used liberally, using rather large quantities at first, from six to twelve pounds of milk to each pound of grain. During this period comparatively little corn should be fed, as a rule. More growth can be obtained with a narrow ration, and the corn should be withheld until the fattening period comes.—G. M. Rommel.

The Era of Youth in Beef.

Aged beef type steers are scarce. This fact is generally admitted by trade authorities. Kansas buyers who have been in Texas on buying expeditions lately have been made to realize this. In the new era of cattle production the calf, the short and long yearling and the short two-year-old will displace the aged steer. Panhandle herds have been drawn on recently to such an extent that there will be a shortage of two-year-olds this spring, but dealers and finishers who are partial to the aged steer must transfer their commercial affections to some other spot, says Breeder's Gazette.

The Dreaded Sheep Parasite.

While no one knows certainly, the evidence, according to Wing, all points to the probability that stomach parasites of sheep do not live over winter in the soil.

Cattle Minus Fine Finish.

Market handlers of cattle are constantly rebuking feeders for sending in cattle minus the finish buyers demand, remarks a Chicago live stock authority.

Notes From Farm Journal.

Just as likely as not the pigpen is unclean. See to it.

A sheep is a fine animal to have on the farm, but it is best to keep on the safe side of a boom.

Don't like sheep? Then never try to keep them. Might as well marry a woman you do not love.

The exchanging of scrub for blooded stock has often turned loss into profit. The best is none too good.

Any old thing thrown in for them to eat, in any old place, won't make the pigs pay.

TELESCOPES.

The Difference Between Reflecting and Refracting Kinds.

A very pretty little experiment which illustrates the two methods of forming an optical image and by way of corollary illustrates the essential difference between refracting and reflecting telescopes may be performed by any one who possesses a reading glass and a magnifying hand mirror. In a room that is not too brightly illuminated pin a sheet of white paper on the wall opposite to a window that by preference should face the north or away from the position of the sun. Taking first the reading glass, hold it between the window and the wall parallel to the sheet of paper and a foot or more distant from the latter. By moving it to and fro a little you will be able to find a distance corresponding to the focal length of the lens, at which a picture of the window is formed on the paper. This picture, or image, will be upside down because the rays of light cross at the focus. By moving the glass a little closer to the wall you will cause the picture of the window to become indistinct, while a beautiful image of the houses, trees or other objects of the outdoor world beyond will be formed upon the paper. We thus learn that the distance of the image from the lens varies with the distance of the object whose image is formed. In precisely a similar manner an image is formed at the focus of the object glass of a refracting telescope.

Take next your magnifying or concave mirror, and, detaching the sheet of paper from the wall, hold it nearly in front of the mirror between the latter and the window. When you have adjusted the distance to the focal length of the mirror, you will see an image of the window projected on the paper. By varying the distance as before you will be able to produce at will pictures of nearer or more remote objects. It is in this way that images are formed at the focus of the mirror of a reflecting telescope.

SUBMERGED GUNS.

The Experiment of Firing a Cannon Buried Under Water.

The most curious experiment ever made with a piece of ordnance was at Portsmouth, England. A stage was erected in the harbor within the tide mark. On this an Armstrong gun of the 110 pound pattern was mounted. The gun was then loaded and carefully aimed at a target—all this, of course, during the time of low tide. A few hours later, when the gun and the target were both covered with water to a depth of six feet, the gun was fired by means of electricity. We said "aimed at a target," but the facts are that there were two targets, but only one was erected for this special experiment, the other being the hull of an old vessel, the Griper, which lay directly behind the target and in range of the ball. The target itself was placed only twenty-five feet from the muzzle of the gun. It was composed of oak beams and planks and was twenty-one inches thick.

In order to make the old Griper invulnerable a sheet of boiler plate three inches thick was riveted to the waterlogged hull in direct range with the course the ball was expected to take if not deflected by the water. On all of these—the oaken target, the boiler plates and the old vessel hull—the effect of the shot from the submerged gun was really startling. The wooden target was pierced through and through, and the boiler iron target was broken into pieces and driven into its "backing," the ball passing right on through both sides of the vessel, making a huge hole, through which the water poured in torrents. Taken altogether, the experiment was an entire success, demonstrating, as it did, the feasibility of placing submerged guns in harbors in time of war and doing great damage to the vessels which an enemy might dispatch to such points for the purpose of shelling cities.—London Spectator.

The Sacred Bo Tree.

On the night of Oct. 7, 1887, the tree worshipers of Ceylon met with an irreparable calamity. During one of the worst storms that ever raged on the island their sacred bo tree was thrown to the ground. The oldest written description of this wonderful tree known to exist is that by Fa Hiam, a Chinese historian and traveler, who visited the tree in the year 414 A. D. According to the learned Chinaman, it was then 702 years old, having been planted by King Devinipiatissa in the year 288 before our era began. If the above data be correct, and there is no reason for doubting it, the bo tree was more than 2,175 years old when the storm ended its career on the date mentioned above.

Shifting the Blame.

It is the custom of the Khonds in the Madras presidency to offer a buffalo in sacrifice in substitution for the human victim, but in doing so they make long apologies to the deity, explaining that they themselves would willingly make the customary sacrifice, but are prevented by the British government, on whose head they pray that any anger at their neglect of duty may be visited.—Calcutta Englishman.

Why He Quit.

"Did you read my novel, Criticus?"

"Well, I read as far as the chapter where the hero was shot, and then I quit."

"Oh, but the hero recovers in the next chapter."

"I was afraid he would. That's why I quit."

One may dominate moral sufferings only by labor. Study saves from discouragement.—Abrantes.

Land Notice.

JOHN MULLAN,
Attorney and Counselor at Law.
1310 Conneticut Avenue
Washington, D. C.

All persons who have heretofore made FINAL PROOF in any kind of Land, Mineral or Timber Entries, which has been accepted by the Register or Receiver of any U. S. Land Office, can have the issuance of their U. S. Patent for said Lands promptly attended to by sending me their Duplicate Receists, or Certificates of Entry, and an agreement to pay me $10 whenever said Patents shall issue.

JOHN MULLAN,
Oregon, California and Nevada State Agent

Excursion Rates to Pacific Coast

Notify your friends in the east that reduced round-trip excursion rates will go into effect June 1, 1906, and tickets will be on sale daily until September 15, 1906.

Final return limit October 31, 1906.

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" Sioux City.....$62.00
" Denver, Colorado Springs, Pueblo and Trinidad.....$50.00
" St. Louis.....$69.00
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STONE ROAD BUILDING

MICHIGAN MAN'S MACADAMIZING METHODS ON SANDY SOIL.

Thorough and Ample Drainage the First Requisite For Permanence. The Stones Should Be Scattered From Wagons and Not Dumped.

Michigan is operating a system of road improvement which is termed "state reward," as opposed to what is generally known as "state aid," says the Good Roads Magazine. It amounts to a similar assistance from the state to the locality, but with less supervision by the state commissioner in the inception and progress of the work of building a road. If the finished road appears to conform to certain requirements the "aid" is forthcoming in a payment from the state treasury of a certain proportion of its cost.

Joseph W. Kerns is the road commissioner of Saginaw county and is one of the most successful of the road builders of the state. In answer to questions regarding the methods he employs in making macadam roads on the naturally sandy soil of his locality he gives these following points, which will be suggestive to road builders everywhere operating under similar conditions:

The first point to be considered in Saginaw county, as in every other place, is the question of drainage. Good and efficient drainage is the first requisite for permanence in macadam construction. If there is any place where it need not be quite as thoroughly established as another it is on sandy soil, for a little water is a benefit to the sand and causes it to pack, and, too, macadam needs some moisture. But the danger is all on the side of insufficient drainage, and so Mr. Kerns demands thoroughness in this particular as of the first importance even in sand.

The center of the highway is accurately determined, and from this point the roadway to be metaled is marked off four and one-half feet each side, making it nine feet in width. It is then plowed, the furrow being

STONE ROAD, SAGINAW COUNTY, MICH., UNDER CONSTRUCTION.

thrown toward the center of the road, for this width and for sections of about forty rods in length. No earth is removed, however, and no excavation is made to receive the stone.

After plowing the road grader is started and the loose dirt thrown by this means to the shoulders. The crown is formed to a curve of about one and one-fourth inch to the foot from the center to the side ditches. The roadway is then rolled thoroughly.

Crushed stone not exceeding a four inch size is spread to a depth of four inches and thoroughly rolled. The stone is scattered from spreading wagons and not dumped on the road to be drawn out with rakes, and it will be noted that for the first layer it is of large size, three inch stone being more nearly the usual size.

Four inches of two and one-half inch stone are then spread and brought to even grade, and before this course is rolled a large quantity of screenings and dust is spread over and scraped into the interstices of the stone by means of the points of the square shovels. The road is then thoroughly sprinkled and rolled. Then more screenings are added for the surface course.

This method requires from 1,250 to 1,600 cubic yards of broken stone per mile, the amount depending upon the soil on which the road is built. Sandy soil does not require as much stone as a soil of clay or muck. The stone must all be shipped into Saginaw county and costs $1.35 per cubic yard delivered at Saginaw, and the total cost of turnpiking, ditching, grading and macadamizing amounts to from $3,000 to $4,000 per mile. Most of the drawing is done with traction engines.

When "hard heads" are crushed for stone road material Mr. Kerns recommends the use of a 25 per cent clay gravel as a filler instead of limestone screenings. And he also says: "I would advise counties taking up road building to secure a man to manage their work who has practical and mechanical ideas. I do not consider it necessary that he should be a civil engineer, but he should be a good manager and a man who understands handling men and work. 'Roads built on paper are not very satisfactory to taxpayers,' so it is essential that the proper man be selected.

"To sum it all up, I would say that there are four principles involved. The first is drainage, which must be thorough and ample; the second is scientific grading in order that the roadway may have a waterproof roof; the third is 'horse sense' in mechanical ideas relative to roads, and the last is executive ability to handle the work expeditiously, making the cost as light as possible to the taxpayers and at the same time finishing the road in a way to make the improvement permanent."