

Machine Made Farms To Cut The Cost of Living.

New Thousands of Square Miles for Food Raising Made Available by Agriculture's Tardy Recognition of Mechanical Progress.

It has been said that there is nothing so backward as farming; that while every other occupation has taken advantage of the great modern advance in mechanical invention the average farmer still depends largely upon his own muscles and those of his farm animals much as his predecessors did in the days of the Pharaohs.

Examiners into the causes for the rapid continuous rise in the cost of living have found one factor in this backwardness of the farmer. Prices are regulated by the law of supply and demand, and it is obvious that if the production of the farms does not keep up with the constantly increasing population of the earth food will keep growing scarcer and prices will soar accordingly. Besides that the drudgery of the farm, which could be so lightened by machinery, drives away the sons of the farmer into the cities and prevents him from getting even adequate man power.

The Year Book of the Department of Agriculture points out this situation of affairs, but at the same time it calls attention to an awakening of the farmer to the necessity of the machine-made farm. In certain parts of the country such an awakening seems to be already well advanced, and the steam engine, the electric motor, the gasoline engine, but particularly the oil-burning engine, are doing the work of opening up countless more acres to cultivation.

Of the crushing burdens of farming, that of plowing is the greatest. To turn a single acre of land with a twelve-inch plow it is necessary that the farmer and his team travel eight and one-fourth miles. The wheat acreage of the United States averages 45,500,000 acres annually. If this were all plowed each year with ordinary plows the plowmen of America would have to travel a total of 883,625,000 miles. If we add to this the hundreds of millions of acres of land that must be plowed annually for the country's crops of

corn, oats, barley, rye, buckwheat, cotton, tobacco, potatoes and other products, the number of miles of weary plodding necessary that the people of our country may have their wants satisfied runs up to an inconceivable total.

The first farm task to which mechanical power was generally applied throughout the country was threshing grain. Most persons familiar with country life who have reached middle age can remember when wheat, oats, barley and other small grains were threshed by horse-power with old-fashioned "chaff-piling" threshing machines. Then the farmer and his sons or hired hands spent days or weeks winnowing the grain with a fanning mill turned by hand. This laborious and inefficient method of threshing and winnowing grain has now been rendered practically obsolete in America by numberless steam threshing "outfits" that traverse the country roads throughout the land after harvest, stopping at the farms along their routes and doing the work at a stated sum per bushel. Threshing and cleaning the grain are now done in a fraction of the time formerly required and at much less cost.

The next innovation in the way of power-driven machinery for the performance of farm labor to come into general use was the hay and straw baler, followed quickly by machines for shelling corn and shredding fodder. These machines, like the threshers, are taken through the country by traction engines, and perform their several tasks much more quickly, efficiently and economically than they could be performed by horse.

Then, ten years or so ago, an epoch in Western development was marked by the introduction of the steam plow upon the great farms and ranches of the West. However, coal is heavy and cumbersome and in many regions water is scarce and precious. So the application of the gasoline engine to farm purposes was hailed as a triumph of inventive

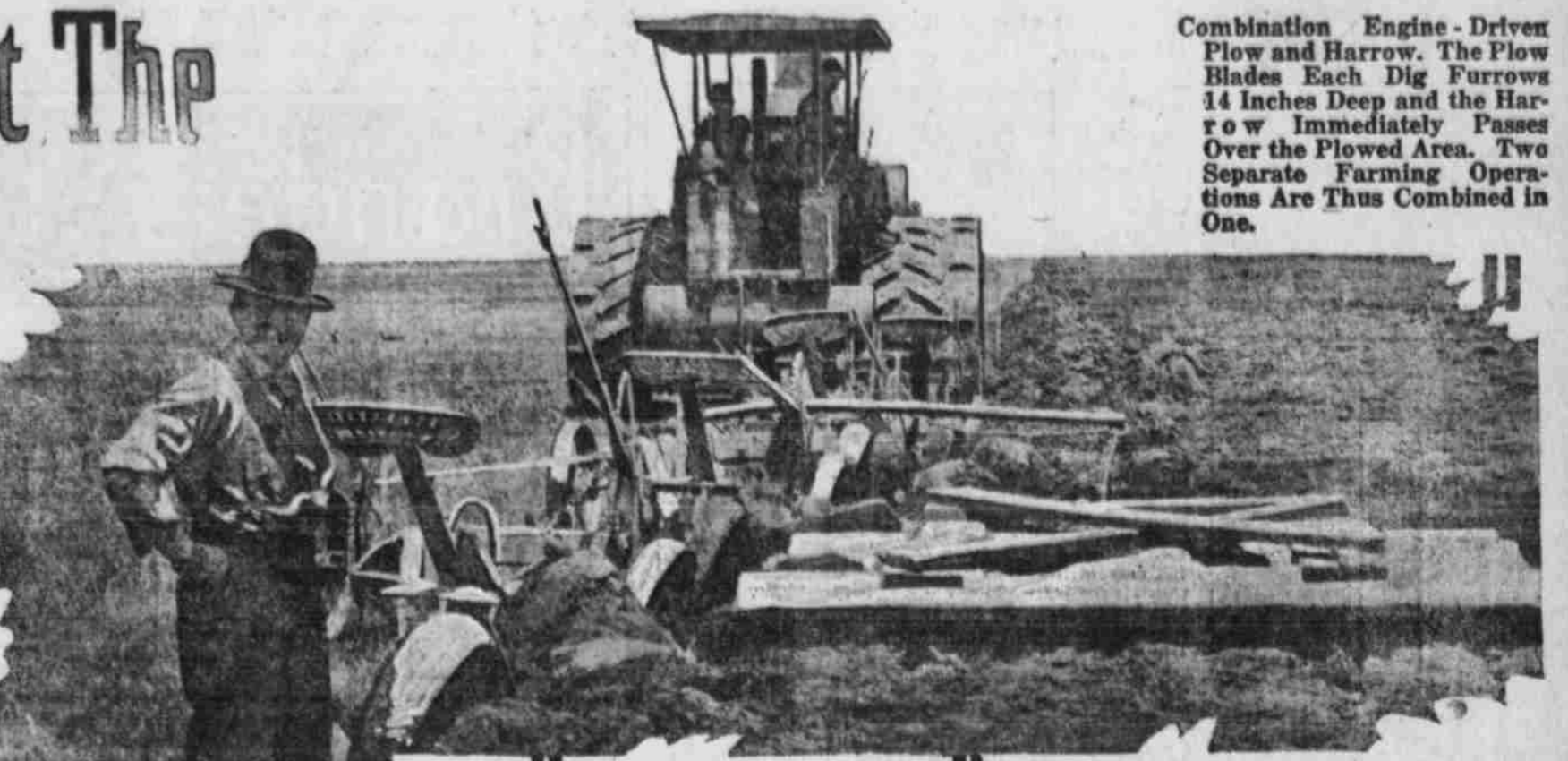
genius. But the great objection to the gasoline engine on the farm is that gasoline is an expensive fuel. So the American inventor perfected the oil-burning engine. Oil is the cheapest and most perfect of all fuels. The latest type of oil-burning engine is as efficient as the gasoline engine and can be operated much more economically.

It now seems reasonable to predict that the oil-burning engine will work as great a revolution in American agriculture as was worked by the automatic harvester.

One writer has stated the situation thus: "With horses, every plow needs a man, but with a good engine two men can operate eight plows and hold controlled in their hands the power of eighty horses that never tire."

On some of the larger ranches the power plowing machine is run night and day, with only a change of men. At night a headlight like that of a locomotive shows the way. Sometimes the number of plows is reduced and grain drills and harrows are attached behind the plows. The land is thus plowed, seeded and harrowed with one passing of the engine. Then, when the grain is ripe, the same engine may be hitched behind from three to six combined harvesters. The engine threshes and winnows the grain and is sometimes used for hauling it to market, easily drawing from seven to ten heavily loaded farm wagons. If agriculture is to score the same progress that has been made in almost every other line of human endeavor and if the rise in the cost of the necessities of life is to be checked, power farming of this description must become the rule instead of the very rare exception.

The only valid objection to the general use of mechanical power on the farms is in the ground of the cost of suitable traction engines. Some of the steam traction engines now used for plowing on the great plains region cost \$2,500 each. They are similar in construction to freight locomotives and will climb steep



Combination Engine-Driven Plow and Harrow. The Plow Blades Each Dig Furrows 14 Inches Deep and the Harrow Immediately Passes Over the Plowed Area. Two Separate Farming Operations Are Thus Combined in One.



hills with ease. None but the owners of great ranches of thousands of acres are justified in putting so large a sum of money in a traction engine, even though, unlike the horse, it "eats only when it works."

But this objection is being overcome in the West by men who have bought power plowing "outfits" and who travel from farm to farm plowing on contract at a stated sum per acre.

Then, too, much the same sort of an evolution that has taken place in the automobile trade is in progress in the manufacture of power farming machinery. Lighter and cheaper engines, that are still capable of performing the work on an ordinary farm with ease and efficiency, are being manufactured.

Mechanical power is employed in the West and Southwest to a greater extent for farming purposes than in any other part of the country. For several years a large ranch in Montana has dispensed with horses entirely, employing power-driven machinery for all purposes for which horses are usually considered necessary. It is truly a "horseless farm."



Oil-Burning Plow Operating 24 Blades and Digging 24 Furrows 16 Feet Wide and 7 Inches Deep, at a Time.

There are now 25,000,000 farm horses in America. These consume \$2,500,000,000 of the farmers' feed and labor. One-fifth of all the cultivated land in America is devoted to the upkeep of farm horses. If mechanical power can displace only one-half of these horses it will make power.

tens of millions of acres of land now used for the upkeep of horses available for the production of foodstuffs. In 1898 Sir William Crookes, president of the British Association for the Advancement of Science, compiled statistics that appeared to prove that widespread famine was imminent. At that time the world's wheat acreage was about 165,000,000 acres and the annual production amounted to about 2,070,000,000 bushels. He asserted that the world's wheat acreage could not be materially increased and that in thirty years the world's requirements would call for 3,260,000,000 bushels of wheat annually. To produce this quantity of wheat from the acreage available would call for the addition to the soil of 12,000,000 tons of nitrate annually. He believed that this quantity of nitrate could not possibly be obtained, hence the conclusion was inevitable that widespread famine was certain in the not distant future for the human race.

Only fifteen years have passed since the British scientist made public his dismal forebodings. Yet the world's wheat acreage has already increased to something like 235,000,000 acres and the annual production to about 3,500,000,000 bushels. The nitrate beds of Chile are still far from exhaustion and a practicable method of extracting nitrogen from the atmosphere has been perfected, and is used on a commercial scale. The problem of the world's food supply for centuries to come involves no question of a scarcity of land or a shortage of fertilizer. It is solely a problem of the economical and efficient application of mechanical power.

How They Get Cheaper Meat in Europe

"Chevaline" (Horse Meat) Approved by Physicians, Preferred as Sweeter and More Tender by Those Who Have Eaten It and Could Be Sold in America Much Lower Than Beef



"In Paris or Berlin the brains of

the horse are preferred to sweet breads."

Kid and goat are commonly found on Spanish and Portuguese tables.

Horse sausages are openly sold as such from England to Algeria, thousands of cases being exported from packing houses adjacent to the Paris slaughter houses for horses. In Spain a council of scientists and hygienists is pursuing a systematized effort to introduce hippophagy—the consumption of horse meat—for the revivifying of a decadent people.

The Public Charities of the French capital dispense daily 1,000 pounds of horse flesh in the free hospitals and asylums. Its lower cost has made it accessible to the sick poor, who accredit it with tonic properties superior to those of any other meat. Certain pharmaceutical establishments employ the products of the horse in the compounding of tonics, hemoglobines, peptones, extracts of meat and meat powders which are in demand in both Europe and the United States.

Scarcely a baker or delicatessen shop in Paris or Berlin but prefers the brains of the horse to sweet breads in concocting meat pastes, and the delicacies known to tourists from abroad as well as to native patrons as *col au vent* and *Humbles Jusseliers*. The decanted fat of the horse is rendered into an oil which in certain famous restaurants goes into the making of a highly regarded mayonnaise. But the fat is chiefly used in frying the crisp and succulent potato in hotel and restaurant kitchens and at the hundreds of street stands which adventurous travelers sometimes patronize in and about Paris.

Horse tripe, cut in strips, constitutes the "andouilles" which, rolled and breaded, are daintily displayed on parsley-trimmed platters in many a *charcuterie* window. Mixed with beef or pork, or utilized alone, horse meat is said to make excellent sausage. The trade speaks of a thin horse destined for this end as "a sausage." No prejudice exists against these viands, which sell in the most pretentious shops of Bel-

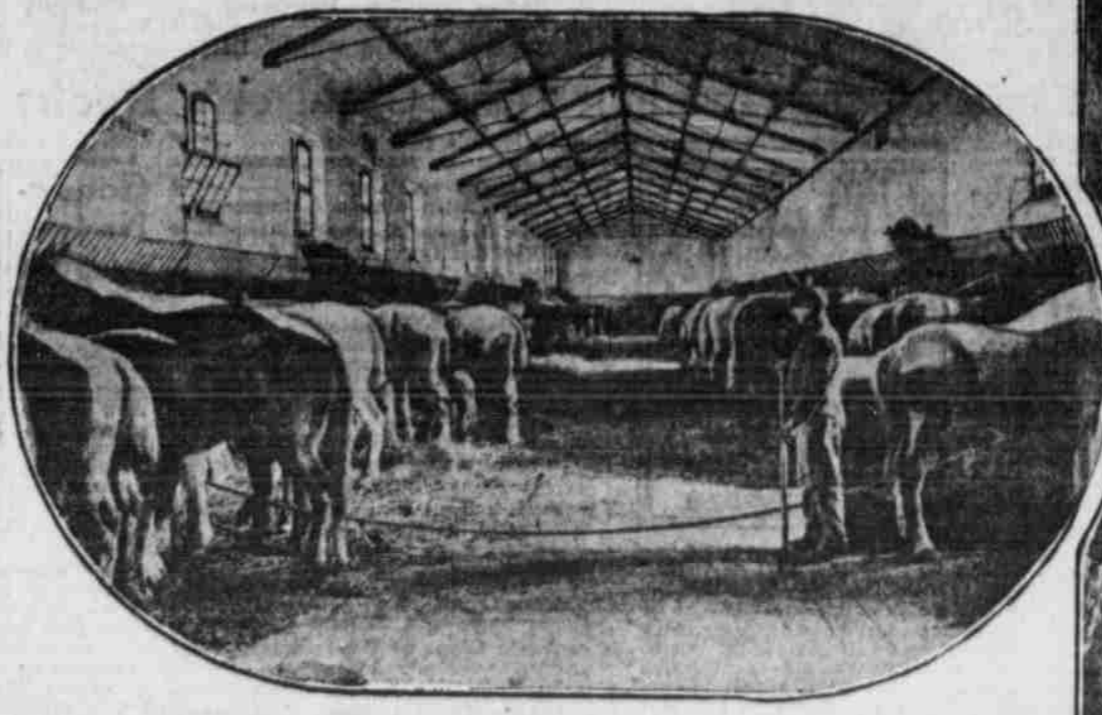
gium and France as "saucisses d'Arles" or "Lowain."

Periods of siege and hardship first taught the use of the horse as food. During the wars of the French Republic and Empire, and during the Prussian occupation of Paris in 1870, the soldiers knew of no other meat. When the nation was at peace the demand for it continued because its consumers had learned that, while it cost less than beef, it was more salutary, more strengthening, more tender, and, so say its devotees, more palatable.

Physicians called attention to the herbivorous habits of the horse, and to the fact that, in distinction to many other animals eaten with relish, the horse is fastidious as to forage and drinking water. The constitution of the muscles is absolutely similar to that of other beasts. Statistics demonstrate that but one horse in 10,000 has tuberculosis, and that even the raw meat transmits no disease to man.

In 1885 the first horse meat shop was licensed in Paris, and the first police ordinance was framed relative to the new industry. Then other stalls were opened throughout the city with the stipulation that they sell horse products only and announce their specialty by a characteristic sign.

At the abattoir then, as now, careful inspection was the rule, no horse being accepted which had not been killed under the eye of the appointed authorities, or which was afflicted by



Horses at Paris Abattoir Awaiting Their Turn to Be Slaughtered for Meat. Each Animal Has Been Rigidly Inspected by Government Officials to Make Sure That It Is Free from Disease and That It Is Not Too Emaciated to Make Satisfactory Food.

any disease whatsoever, even of the hoof. Emaciated animals were also rejected.

The time came when this meat of the poor and distressed grew in favor with the more fortunate. Horses were scientifically fed and selected with a resulting improvement in quality. To-day in many European cities meat superior to that which was formerly acceptable is sold at a price which is fast approaching that of the best beef.

The retail price of first cuts is about the same as second cuts of beef, or twenty to twenty-four cents a pound.

Consumers of horse meat are peculiarly loyal, boasting its dependability, no matter what the age, and disdaining the tough and tasteless beef which finds its way to city markets.

The price paid for an average

horse is \$80, and for a mule \$40. In choosing the animals mares and geldings are given the preference, the flesh of stallions being considered more fibrous; white and gray horses are not liked so well as those with a colored coat. The horse renders a higher proportion of meat than the cow, bull or ox.

In the street market of Montmartre, which extends for half a mile through one of the outer boulevards of Paris, the poor workmen lay down their "little sou" for the "bifteck" and soup meat furnished by man's helpmate. In the huge central markets of Paris, of Berlin, of Brussels, Vienna and Madrid there are stalls devoted exclusively to the sale of chevaline delicacies. The same cities and many smaller towns support hundreds of shops, usually distinguished by a horse's head, which vaunt a large and respectable,



One of the 800 Shops Licensed by the French Government Where Nothing but Horse Meat is Sold.

even a fastidious clientele—a clientele which counts the consumption of horse and mule no more shocking than the eating of the plaintive lamb, the mild-eyed calf, the noisome pig and the cow with tubercular tendencies. The prejudice against horse meat

in America is purely sentimental, and there seems no good reason why it should not be introduced to our markets and our tables. The extended use of horse flesh would indefinitely postpone the danger of a meat famine and might do a good deal toward lowering the cost of living.