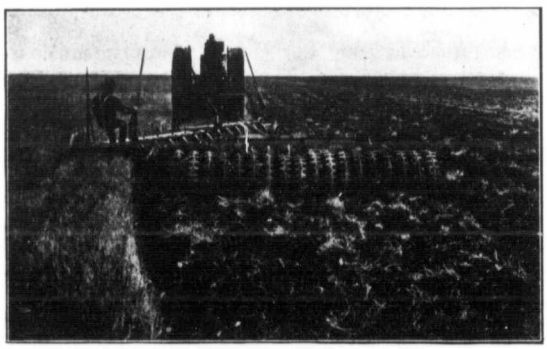
made to copy certain tractors of known success. This attempt being in the hands of men who had not mastered the subject resulted in clumsy, complicated and over weighted machines. Such machines, poorly proportioned and untried, were forced upon an eager but uneducated rural public in great numbers. This exploitation, with its five factories, and million dollar advertising campaigns, excited other organizations of its kind and stimulated other manufacturers until the tractor industry became a mad frenzy. The horse power that these tractors possessed was about right, most of them being around 60 brake horse power. A weight of 500 pounds per horse power, however, in itself brought about an inefficiency not possible to overcome. Extreme complication, inaccessibility, wrong construction, and overweight, not size, was what brought about failures.

Instead of realizing the true cause and effect, is it much wonder that out of all this cyclonic turmoil the farmer, the country banker, professor, expert and newspaper man should be somewhat mixed? Through all, the idea could not down that motor farming would survive. Because of the nature of the development which had failed it was but natural that all these good people should assign large size as the cause of failure. For a time a considerable prejudice against tractors in general existed. Then the notion suddenly took hold that failure had resulted because the tractors were big. Hard times, financial straits and inadvisability of large purchases gave more force to this idea until the prejudice against large tractors gained firm hold. Just why, if large tractors could not succeed, little ones could no one seemed to take time to investigate. However, "Down with the big tractor and up with the little tractor" became the cry of tractordom. Some of the same people who boomed the wrong kind of a big tractor were quite ready to change and commence the exploitation of little ones. "Right or wrong, give the people what they want" was their slogan and has become the slogan of many quite respectable concerns that should know better.

Reviewing briefly, we have seen a slow and careful development of sizeable tractors from 1902 until 1909. Then came a brief craze for light agricultural motors which quickly failed. There was a period of considerable success for large tractors. Then a frenzied production of large tractors which were failures. Buyers became hopelessly mixed in discerning the good from the bad. For no good reason all connected with the industry assumed a prejudice against large tractors. The scramble in pell mell rainbow chasing as to the little tractor has been on for the past two years. It is time for a little reason and common sense.



Plowing, pulverizing and packing in one operation

A little color of promise for little tractors has grown out of the development of the automobile motor into a wonderful little machine for its purpose. Theoretically it seems perfectly feasibly to apply such motors to tractors. Practically any such procedure is deceiving and can lead only to failure.

Another reason for the intense effort towards little tractors grows out of one of the finest traits of our American life. Everyone sympathizes with and wants to aid the little fellow. The thought having prevailed that tractors were good for large farmers, there was an intense desire on the part of the little farmer to own them. There was effort on the part of the press, college and manufacturer to have them produced. If, however, only large tractors can be successful and little ones are a snare and delusion, the course wished for is not the wise one to pursue.

Let us study facts and figures. Extra heavy tractors have proven failures. Weight must be looked at relative to horse power. Very light tractors, big or little, and those with the light automobile type motors, have proven to be failures. True lines then for tractors, lie with machines very simple, very accessible, and very strong and rugged. Weight should not exceed 350 pounds per brake horse power. If weight falls much below 300 pounds per horse power no form of wheels or cleats can be sufficient for power developed. If weight is too light it is apt to be at sacrifice of strength. Fuel of kerosene or heavier material is essential. The thought, frequently expressed, that large tractors pack the soil more than small ones is not necessarily correct. Cleat construction can be made for tractors, large or small, which, in a stubble field pulling plows, will not allow the rim to touch the ground. It is obvious that such tractors will do no packing of soil. It has been said that the starting of large tractors is much against them.

Getting with the manufacturer and studying his records and assuming that he is going to have an even line of tractors, with his large machine built well, of the best design and construction, it seems reasonable that his smallest machine should be equally good. To serve the purpose of this article we will assume that by large tractor we mean a 60 B.H.P. which is intermediate and a standard. By little tractor we will hereafter mean one of 15 or 18 B.H.P., which is a size which has been exceedingly popular and has been put out in thousands for the past two years. We might term the large one an eight plow tractor and the little one a two plow tractor. If we assume that the large tractor costs $2,700, the proper manufacturing ratio for the little tractor, built equally well, and in five times the quantity will cost not less than $1,000. For large tractors, as above indicated, a durability has already been thoroughly proven. The writer has had opportunity to study the tractor subject for more than 20 years and has held systematic record of thousands of tractors, noting all their repairs, upkeep and mishaps as well as their successes. From this experience, record, and judgment it is now known that certain lines of 60 horse power tractors have performed their work season by season for 13 years and are still good for several years more of useful effort. Such tractors will give at least 1,000 days work and such a life is satisfactory. The little tractor above mentioned built as well as these large ones, is more or less of an ideal and has hardly been produced. Most farmers and writers wind up the article of what is required in a small tractor by the assertion that it must be cheap. Success and cheapness in a tractor cannot go together. However, we wish to place the little tractor in the most favorable light and accordingly, we are assuming it as an ideal against the large tractor as an actuality. The writer has produced below a table of expenses of operation:

Doing a job that would tear the heart out of any horse team

Continued on page 49