save perhaps in the case of the potato beetle. We have a known and efficient remedy for combatting this pest; then why does it cost the farmer from $15 to $20 every year to spray his potato field? If spraying was thoroughly and efficiently done, and greater attention paid to spraying the second brood of beetles, much of this cost would be eliminated. We would do well to pay a little more attention to this pest.

One thing is quite certain, we must restore the balance that has been upset, incident upon the high prices of certain crops. We must farm, not merely look to the harvesting of big crops. A different policy must be resorted to. We must change our system of farm planning, and the time is now ripe for growers to give this matter some careful thought ere spring arrives.

The writer would like to see the introduction of a clean-up week on the farm; the whitewashing and disinfecting of all stables, cow houses, pig pens, chicken runs, the burning up of all rubbish, war on rats and mice, and proper storage facilities for seed and feed grain. A little care now will save a great deal of trouble later on.

Entomological Branch ,Ottawa. H. F. HUDSON

Farm Boy Raising and the Canadian Market.

EDITOR "THE FARMER'S ADVOCATE":

Nowadays we very frequently hear about baby-beef raising and hog raising (especially since the advent of the Canada Food Board), but we are seldom advised on the business of boy raising on the farm. Our agricultural officials evidently seem to consider that this is a very well-known subject, in fact so well known that no special thought need be spent on it; yet we look disparingly at the annual statistics showing the number of boys and young men who have turned their backs on the soil, and are now engaged in urban occupations.

For the decrease in rural population, let us refer to the report of the Public Roads and Highway Commission issued in 1914: here we find that in many sections of rural Ontario the population has decreased as much as ten per cent. since the year nineteen-one to nineteen-eleven, and that on the whole the population has considerably fallen off. Where have they gone? Well, some have gone to the Prairie Provinces to follow their regular occupation, but the larger number are situated in Canadian cities. During more recent years, 1914 to 1918, the tendency is far more marked for the young man to move off to town. Munition factories have offered and paid very large wages to competent young men. Then on account of the war many clerical positions have opened up to the young people, with the result that these young farmers attended business college for six months or so, then found positions ready waiting for them. What was the final result? These young men returned home for vacation, and narrated with liquid fluency their wonderous opportunities and experiences in their new occupations; they told of the numberless sports and pleasures of urban life. This had more effect than any ordinary recruiting meeting, and in the course of two years about fifty per cent. of the young people were either in the city or trying to locate a position there. But, what will the final outcome be? Canada, during war-time, has developed a wonderful manufacturing trade, and while the munition making will cease at the termination of the war, this manufacturing will continue in other channels. Will Canada's manufacturing trade cease? Never. This war has just given the necessary impetus to make a good start, and now it is down an inclined plane. While capital may be scarce for a few years, it will soon regain its initial momentum, and will then continue at a greater rapidity after the slight rest. Don't doubt it, Canada is too well supplied with cheap power and natural resources for anything else to be the outcome. Hence this will necessitate the keeping-up and increasing of the office and manual labor staffs of these manufacturing concerns. You look to mechanical labor for help, but who is going to make the extra machinery? This means that in a short time the rural population will be condensed to what some of our pacificists call a "model farming scheme;" but let us see what they mean by model—"a small imitation of the real thing," in reality it would mean that each man would farm about five hundred acres.

The rural population must not be depleted or the results may be serious, both to the industry and to the Canadian people as a whole. The only remedy lies in raising farm boys. This is done by educating the boys to stay on the old homestead in place of deporting themselves to the city. We are frequently advised by urban real estate agents and such, of the wonderful education systems offered by the cities; but, when the matter is carefully scrutinized we find that a much larger percentage of farm children receive a similar education, than do their city brothers and sisters. That, however, is another leak. Many go from the country to school in town "just to be educated," but alas, when their school career is ended they stay there.

You may argue that urban wages will decrease at the termination of the war. This may be so, but I am afraid that there will not be an influx of city help for the farm; if urban wages decrease other commodities of life will decrease in similar proportion which will mean the same thing in the end. At any rate, I do not believe it was high wages that allured the boys away from the farm. If that was their cherished desire many are sadly disappointed; $75 wages per month, $30 for board, $10 for clothing, $10 for amusements, $5 for miscellaneous—what have you left? $20. It is impossible to realize what it cost to live in the city until you are situated there. Then, imagine a man, with a family, receiving a monthly wage of $125; wouldn't the same man be better if he were on a farm and clearing only $15 in the same period?

Then you ask, why do our boys leave the soil? The writer would refer you to the report of the Caledon survey, where 155 fathers said they were satisfied with farm life, 21 were not; 114 fathers wanted their children to stay on the farm, 13 did not. Here is the first reason, if you are not satisfied nor contented with a certain occupation, I say, "quit it." You can never

"As long as the river flows,
"As long as the heart has passions,
As long as life has woes,"

make a success of an occupation in which you are not interested. Now consider the 114 farmers who wanted their sons to remain on the farm. It all depends on those fathers as to whether or not they possess the necessary ingenuity and art of training those boys to look upon the farm work as play; and this determines whether the sons will continue the hereditary occupation of their fathers. The first thing that is necessary is a complete and extensive understanding between father and son; otherwise they both work in the dark and their efforts are fruitless.

Speaking personally to the fathers, the son's ideas and suggestions should be given as much consideration as your own; remember Stevenson, as a boy he played with the tea-pot, he worked the whole thing out in his own brain, he did not invent the steam engine from any advice or theory of his father's composition. If you consider that you have better ideas than your son, offer suggestions, show him where he is wrong, debate the matter, but never become autocratic. "Great things are not begotten in an hour." Do not entertain for a moment the impossibles, they are not worth losing time on; it is better to start small and grow large than to try to reach the crowning summit at the first stride.

Remember that attractive surroundings, modern conveniences in house and barn, recreation, machinery, partnership, etc., do much to keep the young people on the farm. The writer realizes that all this cannot be attained immediately, but by adopting, installing, reconstructing, bit by bit, the whole will be arrived at sooner or later. You must also remember that the young people are not content to work with the heirlooms of their grandfathers, which is a point to their credit. Compilation of money should be a matter of secondary thought. I believe in keeping out of debt and having a balance for the rainy day, but fail to entertain the idea of piling up the "rolled hay," where moth and rust doth corrupt, and where thieves break in and steal away. "For where your treasure is, there will your heart be also." Do not be afraid of spending a little money in your son's cause. It is well illustrated by a story recently told at a club meeting—the son had always been watching his father sharpen saws; one day the son wished to be taught the art too, the father refused at first but afterwards consented—to-day that son is an expert saw sharpener, the father ended the story with, "that first practice spoiled the saw, but thank heaven, it made my son what he is to-day." The little extra time and patience is repaid with a high rate of interest; much higher than any commercial concern can offer on the amount invested. Never be a slacker in the training scheme, win the son's confidence and "Play up, play up, and play the game."

MACK PINE.

Automobiles, Farm Machinery and Farm Motors.

Winter Care.

Now is the time when the motorist must decide quickly whether he intends to operate his car during the winter months or store it away until spring. Should he decide to keep it running, provision must be made against freezing of the radiator. If your garage is heated at all times you can drive your machine under exactly the same conditions in winter that you employ in the summer. If your garage is not heated drain the radiator and fill it with a solution that will not freeze. We recommend mixtures of denatured alcohol and water composed as follows: 10 above zero, 20 per cent. alcohol and 80 per cent. water; 5 above zero, 30 per cent. alcohol and 70 per cent. water; 20 below zero, 40 per cent. alcohol and 60 per cent. water; 35 below zero, 50 per cent. alcohol and 50 per cent. water. Four ounces of glycerine added to these mixtures will retard the evaporation of the alcohol to some extent, but the alcohol will always evaporate more rapidly than the water and more should be added at frequent intervals to keep the mixture up to strength.

There are many minor things that should be remembered by the owner who intends to use his car in the winter months. It is imperative that the oil should not congeal or harden, and so the greatest care must be exercised to secure an oil suitable for low temperatures. It is well to bear in mind that the quality of gasoline being sold at the present time is not as good as that in use a few years ago. It contains a larger percentage of kerosene. With the present gasoline the motor does not start as readily when it is cold. This means that unburned kerosene gets past the piston rings and into the crank case. You should, therefore, change the oil in the crank case at frequent intervals, because the kerosene injures the lubricating quality of the oil. You, perhaps, have not realized that steam condensation from the moisture taken in with the gasoline charge often builds up a serious condition. We strongly recommend covers for the engine hood and a curtain that can be pulled down over the radiator.

Your carburetor has, in all probability, been using a thin mixture during the summer months. A thicker mixture is required for the winter time, but do not adjust the carburetor needle for a stronger combination than you require. A heavy mixture causes carbon deposits and makes it necessary to grind the valves continually. Do not insist that your car should start immediately under cold conditions. Exercise a certain amount of patience and give the motor a chance to warm up. If for any reason you are compelled to leave you car out in the cold for a considerable period do not exhaust the battery by forcing it to turn over the motor for a long time. It will save you time if you apply cloths drenched with hot water to the intake manifold or you can apply a hot iron to the intake manifold. If hot water is used be careful not to get any of it into the carburetor.

Give your battery more attention in the winter than you have in the summer, because a cold motor is harder to turn over and the efficiency of the battery is reduced in low temperature. Always be certain that the battery shows a specific gravity around 1275, and never allow a shortage of distilled water to exist. If a green substance gathers at the battery terminals you can rest assured that there is a poor connection. Disconnect the terminals and wash them with a strong solution of baking-soda. Subsequently a coating of vaseline should be applied.

If you intend to lay your car up for the winter, drain the cooling system, the gas tank, and the vacuum tank. Of course, there are cars with gravity and pressure feed, and these do not employ a vacuum tank. The best way to drain a radiator is to allow the water to run away while the motor is still in operation. After the last drop has been exhausted the heat of the running motor will dry up all the moisture that may be left. It is always well to remember to take out the spark plugs and insert about two tablespoons of lard oil on the top of the pistons and then turn the motor over by hand a few times. This operation covers the cylinder walls with oil and prevents them from rusting. It is advisable to grease all the nickel parts of the car with vaseline. Take out the battery and have it left in some garage where an expert can have it under his care. Jack up the car and remove the tires, leaving the tubes in them. Wrap the casings in cloth and see to it that they, as well as the car, are away from any sunlight.

AUTO.

Although the supply of hogs and sheep after the war may, owing to competition, exceed the demand within a short time, it may easily take 8 or 10 years before the stock of cattle in Europe is restored to its pre-war size.

The Useful Pipe Wrench.

One of the handiest of all-round wrenches for a farmer is the pipe wrench. He can repair pumps and do a great deal of repair work on the farm plumbing with it. It is particularly convenient in removing taps that have rusted tight on bolt threads. If the square shoulder of a wood bolt turns in the wood so that the whole bolt turns when the top is caught with a monkey wrench, the head of the bolt can be held securely with a pipe wrench and the reluctant tap removed. Or if the threads extend half an inch beyond the tap a good purchase can be made on these with a pipe wrench until the tap is loosened.

If the corners of a nut are worn so that a monkey wrench will not grip the nut, the pipe wrench will grip it securely. In automobile and tractor repair work a pipe wrench is practically indispensable. Its uses are many, and once a man owns one he will count it a fixture in his shop. Pipe wrenches are made as light as monkey wrenches and those having jaws that extend two inches will easily hold a rod as small as a quarter of an inch. It is not advisable to get one with too wide an extension or one to large unless there is special plumming to be done. We find one with a jaw extension of about one and a half inches satisfactory about the farm.

Water Pressure.

A claims that the water pressure from an elevated tank depends on the amount of water contained in the tank, irrespective of the depth of water; B claims that the pressure depends on the depth of the column of water directly above the outlet pipe; in other words, A claims that a tank 6 feet across and 4 feet in height will give more pressure than a tank 4 feet across and 6 feet in height because it contains more water. B claims the opposite. Which is correct? M. O. B.

Ans.—"A" is wrong. The quantity of water has really nothing to do with the pressure per square inch—the depth and the depth only determines this.

W. H. D.