NATION'S NATURAL FERTILIZER WEALTH WASTED

by Robert H. Moulton

Fertilizers are going to be higher than they have ever been. A famine impends. Yet the American farmer wasted more than four hundred million dollars' worth of manure, the best fertilizer, last year.

ALL MANURE USED FOR FERTILIZER HERE

MANURE FERTILIZED CABBAGE PATCH

CORN GROWN WITH MANURE FERTILIZER

CORN GROWN WITHOUT MANURE FERTILIZER

THESE CATTLE WOULD FERTILIZE A HUNDRED-ACRE FARM

FERTILIZERS are going to be higher than they have ever been before, owing to the war. So acute has the potash situation become that Uncle Sam, among all his other diplomatic troubles, has been dickering with the allies and with Germany to let a little miserable shipment of 10 tons of potash fertilizer come through the blockade for the use of the department of agriculture's farm experiment work. Yet with such a fertilizer famine staring the American farmer in the face, he has deliberately wasted during the last year between four hundred million and four hundred and fifty million dollars' worth of manure, the best of all fertilizers. And this, according to authorities on agriculture and fertilizer, is a regular yearly occurrence. It is not theoretical; it is actual loss, and the strangest part of the story is that the great bulk, if not all, of this waste, could be saved just as easily as not. In fact, most of it would be saved if American farmers were, for instance, Dutch or German farmers. It would be saved by the farmers of any of the old countries, where every pound of soil fertility is conserved as automatically and as naturally as though it were minted money. In Germany the size of the manure pile has long been an index to the wealth of the farmer.

What the value would be of the increased crops that would result from this American plant food, now wasted, can hardly be estimated, but the increased yields of corn, wheat, potatoes, and all farm crops would amount to something enormous. On the basis of using this needlessly wasted strength in manure on the corn crop alone it is estimated that the yield would be increased at least a billion and a half bushels, besides permanently improving the condition of the soil to a tremendous degree. In fact, a good many cornfields of the present day would be so surprised at receiving their quota of this wasted soil fertility that they would not recognize themselves. And yet the Dutch or the German way of handling manure, efficient as it is, is not the best. Americans have discovered the way to prevent all waste in manure and it involves no more labor or expense on the part of the farmer than his present methods through which he loses annually nearly half a billion dollars.

The average successful farmer or gardener will say that this statement doesn't apply to him; that he knows the value of good manure and uses every bit of it that he can get. But is he certain that he makes the best use of all his manure? When he hauls a ton of manure on to the field, is its fertilizing content all that it should be and is he sure that from 10 to 50 per cent of its crop-producing strength has not been dissipated through leaching, fire-fanging, or lack of provision to absorb or conserve the animal urine?

Take as an instance the case of urine alone: A cow will produce 45 to 50 pounds of solid manure a day, but she will also make from 20 to 30 pounds of urine and fully one-half of the nitrogen in her ration goes into that urine. So it is most important to conserve the urine, for nitrogen is the most expensive element of manure or fertilizer. The other two important plant foods are potash and phosphorus.

Even though manure is highly regarded by all good farmers, nevertheless there is probably no product of equal value which is so miserably neglected and regarding which such real ignorance prevails. The first great source of loss is through the incomplete absorption of the urine, and it is not infrequent to see no attempt being made to save this portion of the manure in spite of the fact that it is richer in both nitrogen and potash than is the dung, and in spite of the fact that these fertilizers are more available for the plant in the urine than in the dung.

The second greatest source of waste of manure is the loss incurred by leaching. If a good-sized manure pile is stacked up against the side of the stable where the water from the eaves can drip on it, or if it is piled on a slope or other exposed place, every heavy rain washes away crisp bank notes in the form of nitrogen and potash. These leached chemicals are the most valuable portions of the pile, the most available for plant forcing.

The third common source of loss is that incurred by heating and fermenting. When manure is put in piles it soon heats and throws off more or less gas and vapor. The fermentation which produces these gases is caused by the action of bacteria, or minute organisms. The bacteria which produce the most rapid fermentation in manure, in order to work their best, need plenty of air, or, more strictly, oxygen. Therefore, fermentation will be most rapid in loosely piled manure. Heat and some moisture are necessary for fermentation, but, if the manure is wet and heavy, fermentation is checked because the temperature is lowered and much of the oxygen excluded from the pile. The strong odor of ammonia, so common around a stable, is a simple evidence of the fermentation and the loss of nitrogen which is going on.

Fresh manure loses in the process of decay from 40 to 70 per cent of its original weight. An 80-ton heap of cow manure left exposed for one year lost 66 per cent of its dry substance. Some tests conducted by the United States department of agriculture showed that two tons of horse manure exposed in a pile for five months lost 57 per cent of its gross weight, 60 per cent of its nitrogen, 47 per cent of its phosphoric acid and 76 per cent of its potash, or an average loss of three-fifths.

Five tons of cow manure exposed for the same length of time in a compact pile lost, through leaching and dissipation of gases, 49 per cent in gross weight, 41 per cent of its nitrogen, 19 per cent of its phosphoric acid and 8 per cent of its potash. Here was a terrific waste, veritably, yet not greater than is to be found in most common farm practice. What would any business man or any farmer think of a city real estate investment or a land investment which depreciated in value in this wise? And what if he discovered that he could have prevented it at almost no cost or extra effort to himself?

The farm scientists and the theorists can preach all they want to about the economy of the farmer building fine, big sheds to keep the rain off the manure or other such plans, but it goes without saying that the average farmer isn't going to see it that way. But he doesn't have to! The remedy for such losses is simple in the extreme. In fact, exactly the right way of handling manure so as to save all this loss is about the cheapest, cleanest and altogether the easiest way to handle manure.

The first step to prevent the loss of the fertilizing elements in manure is to provide plenty of bedding or litter in the stable to absorb and save all the liquid. The losses due to fermentation can be greatly checked by mixing horse manure with cow manure and making the temporary piles compact to as to exclude the air, and by thoroughly wetting the manure, which will assist in excluding the air and also reduce the temperature.

The ideal way on the average farm is to follow the plan, all through the year, of hauling manure directly from the stable and spreading it at once. There is a generally prevailing notion among farmers that if manure is hauled and spread in midsummer, the sun will scorch it to a cinder and burn all the good out of it. The government agricultural station in Maryland, just outside of Washington, decided to determine this matter accurately, and its analytical experiments have exploded two very common beliefs, the summer-burning theory being one of them. The other common belief which has been blown to atoms is that it is better to plow manure under in the fall than to leave it exposed on the land's surface during the winter and then plow it under in the spring.

In the first instance manure spread in "burning" July and allowed to stand until the following spring gave better results in carefully checked experiments than that spread in the following spring just before plowing. In the second series of experiments, better yields were secured after allowing the manure to lie on top of the land all winter and plowing it under in the spring than were obtained from plowing it under in the fall.

LANSING, PRESIDENT FOR JUST ONE DAY

The next president of the United States will be Robert Lansing of New York, the present secretary of state.

Mr. Lansing's term of office does not depend upon the action of any political convention; it is likewise irrespective of any primary or direct election. In point of fact, it dates back to January 19, 1886, when congress passed an act providing that, in the event of the death, removal, resignation or inability of both the president and the vice president of the United States, the secretary of state shall act as president.

March 4, 1917, will fall upon a Sunday, and it is contrary to all precedent—although not in opposition to any law—to hold an inauguration on Sunday. Therefore the incoming chief executive will take the oath of office and commence his term shortly after noon on March 5. President Wilson's term commenced at noon on March 4, 1913; therefore, according to the Constitution, which defines the term of a president as "four years," his tenure of office will be over at noon on March 4, and, even if he is elected to succeed himself, he cannot take the oath of office until noon on the following day. Vice President Marshall, of course, is under the same disability as the president. Therefore the secretary of state, Mr. Lansing, will be president of the United States for the 24 hours and some minutes elapsing between noon on Sunday, March 4, and the time that the new president takes the oath of office on the following day.

This brief term of office is not a mere formality. It is an actual occupation of the power of president, with all his authorities and prerogatives. Mr. Lansing—"President Lansing," for the day—will be empowered to occupy the White House, to issue pardons, to attend to all the other business of which the chief executive has control, and to ride to the capitol, should he desire, as the outgoing president on inauguration day.

Moreover, this is the first time in the history of the nation that a secretary of state has had this honor bestowed upon him and only the second time in the 140 years of the existence of the United States that the office has been held by anyone other than the president and vice president.

THE MARK OF THE DEATH'S HEAD.

From the day of the medieval archer, who notched his crossbow, to the day of the Western bad man, who notched his gun, men have always sought to preserve some mark of military prowess, some tally of their victims. This war has not changed human nature. The modern military aviator, the only soldier who still fights single-handed, does not notch his gun; but he paints a death's head on the wing of his 'plane to show that he has vanquished his foe in open combat.

TRAINING TODAY'S BOYS AND GIRLS

They Should Be Taught the Meaning of Thrift.

FROM A NEW POINT OF VIEW

Child Must Be Encouraged to Think of Cost in Terms of Human Effort, Rather Than of Price.

By SIDONIE M. GRUENBERG.

WHATEVER benefits may flow from the training of children, they are supposed to have some relation to the future; but the training itself is founded upon the experience of the past. That educating children to live tomorrow according to the wisdom of yesterday is not always a sound procedure is illustrated by the prevailing attitude toward "thrift." Everyone, nearly, pays formal homage to the supposed virtue of thrift, and everyone, nearly, resents in his inmost heart the niggardliness and narrowness suggested by the word.

In this country thrift has traditionally meant the scheme of savings worked out under pioneer conditions during Colonial times. It applies, of course, to the whole economic outlook, but it is especially prominent in connection with the idea of saving. The early settlers found plenty of land and plenty of timber; but the products of labor were to be attained only with much effort. Raw materials that involved labor, such as wool and linen and all of the metals, which had to be brought from Europe, were carefully hoarded. Clothes were mended and patched until they simply could not hold together any longer, and then the rags were saved for carpets and quilts, or for making paper. A patch was an evidence of "thrift," and thrift was a commendable virtue.

But the cultivation of land was carried on in a most wasteful manner, and good timber was burned and destroyed with wanton disregard for the future needs of the country. These facts only emphasize the fallacy of the common notion that we may teach such an abstraction as a "virtue" and then expect it to perform its function in the regulation of human life. Thrift was very earnestly cultivated, but it had no meaning except in relation to particular kinds of commodities. Fire and fat had to be saved, but whatever was plentiful was disregarded as carelessly as the present generation disregards matches and paper.

Yet every generation has to teach its young the best that it knows about the handling of the material basis of life. The difficulty lies in not recognizing that economic changes are constantly going on, and that it is necessary to readjust past experience to new situations. A little boy who had acquired an interest in spending money

A Patch Was an Evidence of Thrift, and Thrift Was a Commendable Virtue.

was given an opportunity to exercise this interest by being sent to the neighborhood stores to buy as much as possible for the household. His father, thinking to combine the business of learning with the pleasure of spending, suggested that the child keep a record of all that he bought for his mother. "When I was your age," he said, "I kept an account of all of grandmother's household expenses." The child's mother was at a loss. She approved of the boy's writing and adding; but she also realized the difficulty she had in making her husband understand that the prices with which he became familiar as a boy were no longer current. She wished that he had never been so thoroughly drilled in the prices of the early 80's of the last century.

This father, like so many others, continued to think of cost and saving in terms that no longer apply. In the same way, every family cultivates its pet economies—and its pet extravagances. In a certain family sugar is looked upon as the index of frugality; whoever takes two or more lumps of sugar to the cup is extravagant, and whoever takes one or none is thrifty. In this same family are trunks full of old clothes that no one will ever use, and the rental cost of storing them is equivalent to more than a tenth of the total cost of the dwelling. Yet these people think nothing of spending several thousand dollars a year on motor cars—because motor cars came into their lives after the standards of thrift had become established.

We shall have to teach thrift, or its present-day equivalent, from a new point of view. We have learned that materials of all kinds have value in proportion to their contribution to human welfare, and not in proportion to their prices. On the other hand, we have learned to think of cost in terms of human effort, rather than in terms of price. The children can learn to think of their surroundings in the same way, although it is almost impossible to escape the idea of price entirely.

A teacher once observed a child crumpling up a piece of paper that she had "spoiled" by a few slight pencil marks. On being reproved, the girl affected an injured air—it seemed to her rather small to make a fuss about a cheap piece of paper. The teacher got the attention of the class and set before it a new problem in arithmetic. There are so many sheets of this kind of paper in a pad, and the board of education pays so many cents a pad. The little girl who precipitated this problem curled up her lips triumphantly—the sheet she had spoiled cost a very tiny fraction of a cent! But, the teacher continued, there were several hundred thousand pupils in the schools of the city, and the average attendance was about 175 days a year. What would it cost the city to give each child an additional sheet of this paper each day?

The fraction of a cent is not worth considering; but the wanton and unnecessary waste of materials is worth very seriously considering. Instead, however, of fixing the child's attention

Suggested That He Keep a Record of All That He Bought.

upon the sugar or the paper, we should try, as quickly as possible, to get him to think in the larger aspects of the problem. A child of seven or eight is usually quite capable of understanding the principle of avoiding waste, and of applying it quite generally to all kinds of materials. The other side of our problem is to establish through the routine of the home a sane attitude toward the whole question of the use of materials. It is not enough to repeat from time to time the adage about being "penny wise and pound foolish." It is necessary constantly to keep before the children the idea that the justification for getting is not having, but using. Material wealth is to contribute not to our repute, not to our power over others, but to life more abundant.

Feeding the Infant.

The infant is born with a store of iron within its body. During the nursing period this store is gradually depleted, since the milk contains little iron.

At weaning time the infant stands in need of iron. This is usually supplied in egg yolk, beef press juice, scraped beef, prunes, whole wheat foods and oatmeal, and some physicians of unquestionable standing recommend spinach.

Egg yolk is of especial value as a source of iron, calcium, phosphorus and lecithin. But it is an exceedingly rich food. It must be fed with great care on two accounts, first, to avoid making the baby sick, because while it is usually well taken it acts like poison to some infants, and second, because the value of egg is so great that it is especially unfortunate if you upset the infant by an overallowance, since it may be a long time before it will regain its toleranee for this food.

Reconciliation.

In most families and among friends, differences sometimes arise that are decidedly unpleasant. In nearly all cases these differences spring from misunderstandings. A time comes when explanations, apologies and reasons are in order, and a reconciliation takes place. This is a thing much to be desired, and when it comes, wash the slate clean. Leave no fragments, no left-overs to be brought up at another time. Wash the slate clean as you would wipe out a faulty example. Cleanse the heart of the last drop of bitterness or resentment. Let love and good will prevail. A genial spirit brings more real happiness than a manner so reserved as to raise doubt of the pleasure of meeting, doubt that reconciliation was mutual. So forgive as to forget. It has been done and can be done. Such forgiveness wins good will and cements friendships that fill life with joy. Hold yourself ready to "wash the slate clean."

Quest for Youth.

One child of the period was curious to know what became of the old moons. A greater puzzle is what becomes of the old men and women.

People refuse to grow old; perhaps because they are afraid to. They are like the wonderful one-horse shay, proof against the ordinary process of gradual depreciation. They last so many years, seemingly unchanged and unchangeable, and then—suddenly dro into pieces.

Old age is unfashionable, and gravity pardonable only in the very young. It is said that the majority of tango students are well over fifty.

A boy may delight in bluebooks, a Greuzelike young girl may addict herself to the study of eugenics; but that way fogeyism and frumpishness lie for the man or woman over forty.