

## Fertility of American Soils.

The term fertility, as now generally used by writers on agriculture, expresses the amount of plant food that is present in the soil in a form to be taken up by the growing crops. This fertility is best measured by the crops which the soil will produce, but owing to so many modifying causes, it is safe to judge of the state of fertility of any soil only after three or more crops have been grown. A soil may be rich, but for some other reason produce, for example, only a small crop of corn this year, owing, it may be, to excessive dryness or the reverse, to poor seed and other modifying causes.

It is a natural question to ask whence this fertility comes, and in what chemical elements and compounds it consists. In answering this question, the features of an infertile or barren, or as it is most frequently called, an exhausted soil, will be brought forward as the natural opposite of fertility. A fertile soil, one that is capable under favorable circumstances of producing a paying crop, must contain all of those elements of food that agricultural plants derive from the soil, and, as before stated, in available form. This last clause is of great importance, for the soil may contain a full complement of food elements, but have one or more locked up in some insoluble form, in which state it is of very little use. A soil that has all these elements of plant food, without their having been added by the hand of man, may be termed naturally fertile soil—one that of itself will produce good crops of grain, roots, etc. Such are the rich virgin soil of all new countries, as the vast areas of the Mississippi Valley, when they were first broken by the plow, and much of the far West that is now being brought into cultivation. A soil that is naturally poor or infertile may be made to produce paying crops, by adding the elements of plant food in the form of barnyard manure, or its equivalent in commercial fertilizers.

In the same way, a soil that was once naturally fertile, but has become poor or exhausted by constant cropping, may be restored to its original virgin fertility or kept in a sufficiently fertile state to produce good crops. This last is the work of the farmer in all old countries; the keeping up of the fertility of the soil is the problem, often perplexing and difficult, that all farmers upon old land have to work out during their whole lives. With them the soil is a "machine," or perhaps more evidently, a "factory," in which the plants work, and out of the crude materials supplied to the soil, together with those furnished by the air, they make the substance of their stem, leaf, fruit, and grain. In this sense a large farm may be a thousand-acre "factory" where grains and fruits, leaf and wool, are made from the crude materials, which must in good part be supplied by the farmer to the soil. All of the farming in the countries of the old world and much of that in the older-settled parts of the new is of this "factory" kind, where the most successful farmer is he who knows best how much of the raw material to put into the "factory," and how and when it is best to do it. He is also the one who runs the grain and leaf-producing "mill" with the greatest economy—with the least wear and tear upon the machinery, so to speak, and sells his goods at the right time and place, and therefore at the greatest profit.

There is another style of farming which is more largely practiced in America than anywhere else; namely, the farming upon new and rich soil—a soil that has a virgin fertility sufficient to grow large crops, and no addition of fertilizers of any kind is needed. The fact that we have such land and such farming is felt the world over, and gives the American virgin-soil farmer certain important advantages over all who must feed their soil before a crop can be raised with success. It is simply a process of taking off from the soil with no corresponding return, and for a time the products of grain, beef, etc., can be sold more cheaply than the same can be grown where an expenditure must be made in food for the soil. But as fertility is so largely dependent upon the amount of nitrogen in the soil, and this is stored up only by previous generations of plants, any severe cropping—in which more nitrogen is removed from the soil in the crop than is formed and stored up in the soil during the same period—will sooner or later bring the most fertile soil to a state of exhaustion. There is, therefore, an end, though it may be many years hence, to the virgin-soil farming in America. When this comes, all will engage in the "give and take" system, or "supply and demand" practice that is, supply the soil with its quota of food, and demand in return a fair compensation for the expenditure, in the shape of a paying crop. When this time comes, the competition between the farmers upon the new and the old lands will be more healthful, and our system of agriculture will become evident, because common to all.—*Cor. Country Gentleman.*

## How to Pack a Trunk.

The art of packing is by no means a common accomplishment, and the comic pictures which represent the girl of the period despairingly sitting on her trunk, while the maid-of-all-work vainly endeavors to lock it and the expressman clamors at the door, are scarcely as much exaggerated as one might suppose. It is always disagreeable and difficult to pack in a hurry; therefore, it is wise to begin in season, say at least a day before it seems at all necessary to do so. See that your trunks are in order, and allow ample time for any repairs which are to be made, for mechanics, as many of us know to our sorrow, are more apt to make fair promises than to keep them.

After the trunks are ready, get everything together which is to be packed, and then go quietly and systematically to work. Very large trunks are an abomination over which expressmen groan and swear not altogether without reason. Still, short ones are inconvenient, except for short journeys, and multiply expense, as the expressage is for each piece, be it Saratoga trunk or small valise, without regard to size. But whatever the size of the trunk, it should be filled, or at least packed full enough to prevent the contents from tossing about. If you are compelled to take a trunk which is too large for what you need to pack in it, fill it with crumpled paper, rather than leave it half empty. Even experienced travelers have only a partial idea of the rough usage to which baggage is subjected or how remorselessly trunks are pitched about. The train stops for two minutes, perhaps, and your new Saratoga is thrown—not lifted—from the baggage car down on the platform, and then knocked around, pitched first on one end and then on another, until it would seem as though every fastening must be wrenched out of place. In this condition of affairs, unless the trunk is closely packed the contents will be literally churned up and down, and the clothes, which you have carefully folded, will be tumbled to a degree, even if nothing worse comes to them.

There are expressmen, and expressmen, and it once happened to the writer to fall in with an accommodating one in a moment of extremity. At the last minute it was discovered that the key of a trunk was missing, having mysteriously disappeared from the lock, and to this hour it has never been found. "Got a stout rope, marm?" One was produced, and he proceeded to tie up the trunk across each way, knotting the cord scientifically. "There, now, that'll hold. You see it's better to have the rope both ways, so as the top can't come off. A trunk strap's pretty good but a rope's better, 'cause it goes both ways." In England baggage is always corded for long journeys.

Nothing heavy, like books, etc., should ever be put in the top of a trunk, since the more heavily it is weighted the more likely the hinges are to break. Dresses should be carefully folded, with the lounces laid smooth and drawing strings let out, the waist folded but once the wrong side out, with the sleeves laid over the back and the fronts over all. Then, if absolutely necessary, the blouse may be folded again down the middle seam of the back but never across.

Packing trunks for ball dresses come with several trays, one above the other, each capable of holding one dress and its accessories. At the Parisian modistes', where professional packers are employed, the art of dress-packing is carried to perfection. The dress is taken, and if it is separate from the corset, it can be laid in the tray with only a slight fold at the top of the skirt. The train is spread out first; then every puff or fold is kept up by soft wads of yellow tissue-paper, white having been found to darken white and delicately-tinted satins. This is to prevent the creasing or crushing to which velvet and satin are particularly liable. Large sheets of the paper are then placed over the whole. The waist is next taken and laid out flat, like a bat, upon the paper-covered skirt. The sleeves are filled with paper so as to retain the shape made by the arms; every button is covered with paper, and under bead fringes, etc., are laid pieces of paper to prevent discoloration or cutting. Over the whole is then placed a final layer. When the top tray is reached, and, perhaps, the next one also beside the paper a sheet of the finest cotton batting, such as florists use, is placed over it, and, in turn, over this a layer of oil silk. This is a precaution against the penetration of dampness or dust.

A clever American notion is that of adjustable trays which may be fitted to any trunk. These are merely tray bottoms formed of frames, with lace lattice-work, and are fitted in, when desired, by means of adjustable end-pieces, which hold them firmly in place.—*Philadelphia Press.*

## Sell by Weight.

Progress in some things is slow. Many years ago nearly everything was sold by measure—by the bushel, quart, gallon, etc. Fifty years ago salt was measured in a half bushel, and so was flour. But there has been great progress made in many articles. But there is a reform demanded in others. There is great injustice done to both buyer and seller to sell eggs by the dozen. The eggs of the improved breeds of hens are twice as heavy as are the product of the common scrub stock. There are constant frauds in the quart or fruit boxes of small fruits. There are shortages, stealings and leakings in every box. Honest scales will not thus cheat. Besides boxes, packages or measures which are professedly put up for a bushel, barrel, gallon, quart or pint, and which fall short, are a fraud on the public, and should be avoided by changing the rule to testing everything by standard measures or scales. There is as much certainty in selling wool by the fleece at a standard for all fleeces, as to sell eggs by the dozen, or hay by the load. The only right way of selling all farm products is by weight. Justice can be done in no other way. This is the best standard for so long potatoes, tomatoes, wheat, barley, oats, apples, berries, eggs, butter, chickens, turkeys, hogs and beaves. Let us have no exceptions. At present the exceptions are where the greatest frauds are perpetrated. Let us have an opportunity of ordering by telephone from our grocer ten pounds of eggs.—*Iowa State Register.*

## Summer Housekeeping.

It is in the dog-days that the souls of house-keepers are most severely tried. Appetites are capricious; dishes heartily eaten one day and sent away untasted the next, while the praiseworthy economy practiced at King Arthur's Court, where "what they could not eat that day, the Queen next morning fried," becomes an impossibility. Cooked meats will not keep long, even in the refrigerator, while cooked vegetables sour out of the ice-chest, or, if kept in it, become "flat, stale, and unprofitable."

In this state of affairs it is well to follow the example of dwellers in hot climates, who live principally on fruits and fresh vegetables. Dates and bread form the chief diet of the desert Arab, and the hardy East Indian coolie subsists almost entirely on rice. Bouillon, that is, light soup, fresh fruit, a salad, and coffee is the Frenchman's bill of fare for the hot weather. Indeed, nature in this respect as in others, is a law unto herself, and he who eats much meat in hot weather is apt to pay the penalty for it in a clogged brain and feeling of general heaviness. Breakfast, especially, should in warm weather be a light meal. Milk and oatmeal or cracked wheat, soft-boiled eggs, bread, which however, need not be stale, fresh butter and fruit are far more refreshing and healthy diet with the thermometer up among the nineties than hot cakes and fried meat, washed down with hot coffee.

The athletes in training for the Greek games were restricted to a diet of bread and milk and fruit, and in our own day the prospective prize-fighter is strictly limited in his supply of animal food. Dio Lewis gives it as his opinion that meats, except lamb and chicken, should be eschewed in hot weather, but then Dio Lewis would make oatmeal the staff of life, and ascribes most of the ills that flesh is heir to to intemperance in eating. Yet, while "one man's meat is another man's poison," the fact remains that in warm weather much less animal food is necessary than in cold, when the fires, so to speak, need to be kept up and an excess of carbon is required to keep us warm. In this state of affairs it is a matter of congratulation that Nature provides us with so many dainty dishes, all ready to be eaten. Strawberries, raspberries, blueberries, blackberries and peaches may all come to the table without the smell of fire having passed upon them, and, eaten with fresh country cream, are "a dainty dish to set before a King." Tomatoes, eaten raw, are a sovereign remedy for biliousness.

In the country, where fruit and milk are abundant, ice-cream, that most delicious of hot-weather dishes, costs but very little. Given a five minute freezer and a painful of ice, the rich milk, or still better, cream, has but to be mixed with the crushed fruit, sweetened, and left to freeze itself. Covered with an old blanket or piece of carpeting, the process of congealing will go on slowly but surely, with small aid from you, even if your freezer be but a tin bucket, only in that case you must cut up the cream two or three times from the bottom with a knife while freezing, in order to prevent the formation of crystals of ice in the freezer.

A popular fallacy condemns soup as too hot for warm weather. On the contrary, it is one of the best of summer dishes. In a well made soup the process of digestion is half accomplished, and nothing else, except beef-tea, containing as much nourishment can be eaten with so little effort. Vegetable soups are easily made, and well made are delicious. Against flies, that plague of summer, two weapons are powerful—cleanliness and darkness. The table should be cleaned as soon as meals are over and all crumbs carefully brushed up from table and floor. The dining-room should be kept dark between meals; but it will not do simply to shut up the room, shutting the flies in it. Close every door and window but one and drive the flies out through that. This is by no means so difficult as it appears upon paper, and practice enables one to become quite an expert at the task.

Air all sleeping rooms thoroughly every morning, and if possible sun the mattresses occasionally. Often at night, when the heat is unbearable, a wet cloth stretched over the window blind will cool the room as though a shower had fallen, and every one knows how watering the pavement in front of the door will freshen the hot, dry air. This principle of the reduction of the temperature by evaporation is capable of much practical application. In India and other tropical countries, where ice is almost unknown, the natives cool their water for drinking by suspending their water-bottles, which are of porous earthenware, in a brisk current of air, caused by the punkahs or large fans of the country, which process is said to cool it rapidly and thoroughly. But above all, the great secret of doing housework with comfort in warm weather is to do it as much as possible in the early morning, resting in the middle of the day.—*Philadelphia Press.*

## The First Discoverers of Petroleum.

It seems to be now pretty conclusively established that long before the discovery of petroleum in this country started the enormous speculation in oil wells which culminated ten or fifteen years ago, mineral oil had been obtained in Galicia, and its value as an illuminating agent demonstrated. Though we were the first to bring it prominently before the world, and to introduce it into general use, we must surrender to Galicia the honor of having first found out that mineral oil could be made to supply fuel for lamps.

An Austrian mining engineer, Herr Heinrich Walter, has lately contributed

to a scientific publication of his country two papers, in which he presents proofs gathered with the most patient industry, and made so complete that we cannot disregard them, to show that so far back as the early part of this century petroleum was obtained by two miners of Galicia, distilled, and successfully employed for illuminating purposes. They were Josef Hecker and Johann Mitis, and they found the mineral oil between 1810 and 1817 in the neighborhood of Trusceovich, where they were working sulphur and lead ore. The first mention of distilled petroleum occurs in the report of a lawsuit which took place in the latter year. In the same year "naphtha and mineral oil," probably distilled and raw petroleum, were formally tested by a commission organized by the Mayor of Prague. The account of the trial in the municipal records declares that "naphtha possesses great advantages, both as regards economy and intensity of light." Accordingly the Mayor ordered a supply of the oil of Hecker, to be delivered within a specified time, but the material came too late and was refused.

Nothing more was heard of petroleum until 1859, when it is mentioned as a mineral product in the account of a mining action at Starunia, and in the same year it was decided that the oil came under the classification of minerals subject to a State royalty. Little revenue, however, was received from that source, the product of the wells being used for wagon grease only. Petroleum was thus neglected until 1853 or 1854, when a man named Schreiner accidentally discovered its value as an illuminating agent, and as such it began to attract scientific attention in Austria. But before it had been brought into any use otherwise than experimentally, the discovery of petroleum in this country occurred. Then the product, which had been neglected in Galicia for nearly half a century, was speedily made known to the whole world as a cheap and admirable illuminating agent, and it soon became one of the most important articles of commerce. Moreover, it was an American or an Americanized German, named Toeh, who gave the first impetus to the petroleum trade of Austria. He had learned his business at our oil wells, and, arriving at Vienna, at once taught the refiners at Borgslaw how to make their industry profitable.

Hence, even if we must give to Galicia the credit of priority in the discovery of petroleum, we shall allow it only an empty honor, for we were the first to bring the product they neglected, and with whose value they failed to acquaint themselves, into general use as an illuminating agent, and to make it one of the staple articles of commerce. It was from us, too, through Toeh, that Austria learned how to utilize the oil of the Galician refiners. The question of first discovery is accordingly more interesting than important.—*N. Y. Sun.*

## New York Elevators.

The din of Broadway has become so deafening that the higher up in the air an office is the quieter and more preferable it becomes. Of the scores of office buildings now going up or nearly finished there is only one—the Stock Exchange—which is less than twelve stories high. The Stock Exchange is only four stories high, for the reason that if it had been carried higher and the upper floors rented to brokers the competition would have been so great for those offices that ill-feeling would have been engendered. To find a down-town building with no elevator raises indignation in any one who has to run up its stairs, and the art of climbing long flights will soon be forgotten. At present it is wholly impossible to let an office on the fifth floor of a building not provided with an elevator. It is also to be said that the elevators of the present are far superior to those of the past. The rate at which those in the new and splendid twelve-story building at Broadway and Wall street go up and down almost makes one dizzy, but the movement can scarcely be felt. This afternoon I had occasion to make a dozen business calls, requiring about two hours' work in all, and out of curiosity I kept a record of the height traveled in elevators. For eleven of the twelve calls I had to enter an elevator, and twice I retraced my steps, finding my man out the first time. Adding up the number of stories I was lifted, I find that I went up sixty-two stories, or a total height of 806 feet, allowing an average of thirteen feet to each story—a very small average. This is nearly twice the height of the great pyramid of Egypt, and any traveler who goes to the top of the great pyramid in less than half an hour on a hot day will be able to estimate the saving in strength effected by our New York elevators. If all our elevators were to break down at once business would come to a stand-still.—*N. Y. Letter.*

—To a pretty young girl Sydney Smith once said: "Do you ever reflect how you pass your life? If you live to be seventy-two, which I hope you may, your life is spent in the following manner: An hour a day is three years; this makes twenty-seven years sleeping, nine years dressing, nine years at table, six years playing with children, nine years drawing, walking and visiting, six years shopping and three years quarreling."

—"What is your age?" asked a friend of Mme. de C. the other evening. "Thirty-one promptly replied the fair Sapphira. "Oh, where do expect to go when you die?" gasps another lady. "I am thirty-four, and you told me last winter, with your own lips, that you were just my age, my love." "I know I did, dearest, but it was only to console you!"—*French W.*

## Who? Who?

Who is he that sees his own faults clearer than those of his neighbors?

Who is better tempered at home in the bosom of his family than away from it?

Who is he that teaches his own children to smoke?

Who is the man that realizes how his own boys know as much, if not more, wickedness than he did at their age?

Who is the man that believes our present Fourth of July celebrations as lively as the Fourth of July of our Dads?

Who ever thought they should ever get over it when the last girl shook 'em?

Who ever thought they'd get over it so soon when the next one came along?

Who ever saw a woman that would admit her corsets to be too tight?

Who doesn't believe in buying cheap and selling dear?

Who ever broke a bad habit off short and never picked it up again?

Who ever kept the good resolutions made on the 1st of January solid up to the 1st of February?

Who hasn't a remedy for a common cold?

Who contends that real good sense should be called "common," when it is so uncommon?

Who ever heard a newly-graduated collegian pick out the shortest words to express himself in?

Who is working on the flying-machine which is to be successful in 1900?

Who gets up without a headache at morn after twenty-five rounds of beer over night?

Who now looks out for No. 2 before looking out for No. 1?

Who wouldn't like to be rich for twenty-four hours?

Who feels in a condition of blissful ease with a boy and a loaded dollar seven-shooter seven feet off?

Who is ready to deny that a cat or a dog thinks in their fashion as well as we do in ours?

Who would like to live always "dead broke?"

Who is now "dead gone" on the woman he was head over heels in love with twenty-five years ago?

Who won't walk a mile or two before stopping to take the little but troublesome pebble out of his shoes?

Who smiles serenely on getting to the wharf just as the boat is ten feet off?

Who ever knew of a bald head renewed of hair by barbers' prescriptions?

Who loves to pull off a wet shirt?

Who would hire one of the Concord philosophers to market for a family-dinner?

Who cares to live the same old life all over again up to the present time?

Who is the man that loves snakes and won't kill them?

Who thinks it did Methuselah any good to live 900 years?

Who is the man so considerate of his wife's comfort as to refuse to air his petty troubles before her?

Who is the man that will refuse a railroad pass on principle?

Who will kiss your tramp for his mother?

Who likes to write home from a "sense of duty?"

Who? Who?—*N. Y. Graphic.*

## A Temperance Drink.

Among the thirsty ones yesterday hunting up and down Woodward avenue for something to quench thirst was a man in rusty black, who entered a drug-store and softly inquired:

"Have you a temperance drink?"

"Two or three of 'em. Will you take soda-water or ginger ale?"

"Well, now, our society does not regard either of those as a strictly temperance drink. Both are associated with strong liquors."

"How would root beer answer?"

"Suspicious—suspicious," was the whispered reply.

"Ah! I've got it now!"

"Ah!"

"I can give you a straight temperance drink as cool as ice, but it comes high."

"How much?"

"Ten cents a glass."

"Very well," said the old man, as he put down his dime.

The druggist was absent only a minute and then returned and placed a glass of liquid before him. The old man drank half of, smacked his lips and asked:

"May I ask what you call it?"

"Certainly; it is called water. I just drew it from the hydrant."

The excursionist set the glass down much harder than he needed to, buttoned his coat, and, with a glance meant to reduce the druggist's weight to 120 pounds in five seconds, marched out as stiff as a bean-pole, and crossed the street after a lemonade flavored with peppermint essence.—*Detroit Free Press.*

—A dealer in sausage told a reporter of a New York paper, in a conversation concerning the manufacture of that mysterious compound, that a manufacturer of that city, who enjoys a wide reputation for the flavor of his goods, could take anything in the shape of meat and turn out a good article. He explained that by the use of chemicals—anti-septics, so called—rancid meats, veal that has "sort'er gin out," bull-beef, etc., all can be ground in good shape, seasoned, cooked and smoked; in fact, bull-beef is eagerly sought for, on account of its peculiar flavor, customers agreeing that sausages of this description are "bully."

—Said Miss A. to one of her little girls at Sunday-school, "What's the meaning of good tidings?" "They're the things hung over the backs of rocking chairs, ma'am," replied the four-year-old.—*Boston Post.*