



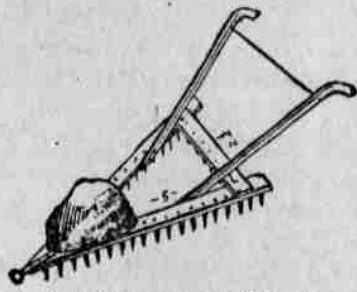
**Redeeming a Neglected Garden.**  
Discouraging as a neglected garden may appear, it is not beyond redemption, even so late in the season—but it must be taken hold of at once. Stunted and falling crops, choked by weeds, should be pulled out at once, weeds and all, and burned, and the ground plowed or spaded, and replanted.

How much more satisfactory and profitable it might have been to have planted only half the space, and worked it well, than to have scattered the available labor over the entire ground and do nothing to perfection.

A garden with rows upon rows of all the delicious vegetables of mid-summer and not a weed to be found, is indeed a pleasant picture. But how few of that class are found! Instead of choice vegetables there are rank weeds, and where order and beauty should reign, desolation stares at one in too many family gardens, caused in the majority of cases by simply "biting off more than we can chew."

**Cheap Corn Cultivator.**

An excellent home-made device for use in cultivating corn and other crops where frequent work is desired to hold the dust mulch is shown in the cut. The side pieces should be at least



A HOME-MADE CULTIVATOR.

5 feet long and made of oak or other hard wood 3 inches wide and 1½ inches thick. The rear pieces can be made of any width to accommodate the distance between the rows. The teeth are made of forty 60-d spikes, which are driven in clear up to the head. An iron ring is fastened to the front end, while the handles are taken from an old plow. Any handy man can make a cultivator of this kind which is the best I ever used.—F. B. "readway, in Farm and Home.

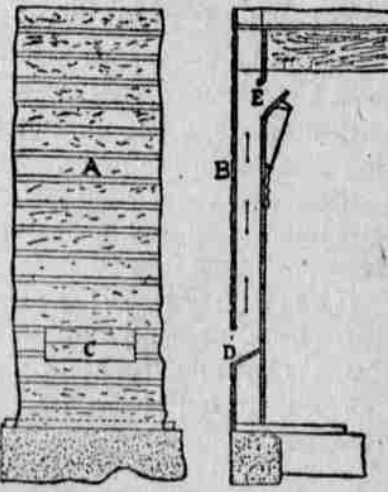
**Sulphur Fumigation.**

It takes some ingenuity to burn sulphur in a vessel, as it tends to smother flames. If several pounds are to be burned, a fire of coals or sticks soaked with kerosene must be built above the sulphur and kept burning until you see the blue flame of the sulphur licking up through the wood blaze.

One way to disinfect the poultry house with sulphur is to dissolve one-half pint of turpentine and one-half pint of tar in one-half gallon of kerosene. Soak corncocks in this solution, and when ready to burn out the poultry house for lice or germs of disease have ready a sharp-pointed piece of iron to thrust in the ends of the coals, set a lighted match to it and while it burns pass the cob over the roosts, cracks in the henhouse and everywhere about it. This should be done every week for a month or more.—Agricultural Epitomist.

**System of Ventilation.**

Details of the King system of ventilation are shown in the diagram. The outside of board wall is indicated by A and the opening for admission



of air is at C. On the right there is shown a cross section of wall with outside opening at D and inside opening at E. A valve is arranged at E to regulate the supply of fresh air.

**Cows Giving Down Milk.**

John Burrows, the well-known scientist, in regard to cows giving down their milk says: Many persons think that giving down or holding up the milk by the cow is a voluntary act. In fact, they fancy the udder as a

vessel filled with milk, and that the cow releases or withholds it just as she chooses. But the udder is a manufactory; it is filled with blood, from which the milk is manufactured while you milk. This process is controlled by the cow's nervous system. When she is excited or in any way disturbed, as by strangers or by taking away her calf or any other cause, the process is arrested and the milk will not flow. The nervous energy goes elsewhere. The whole process is as involuntary as is digestion in man and is disturbed or arrested in about the same way.

**Middlemen.**

Retailers are necessary according to present methods of doing business and until farmers organize a selling force of their own middlemen will continue to toll the farmers' grist as thoroughly as the traffic will bear. Peaches may rot on the ground in Missouri while selling for 2 cents each in Chicago, but the farmer in Missouri is helpless because he has no representative in the market center. The time will come when farmers will have an agent at each central point to handle farm products and distribute them either to the consumer or retail grocer. When that time comes farmers will come nearer getting what they work for. It is just as necessary to sell right as to farm right.—Agricultural Epitomist.

**Waste of Timber.**

The prodigal waste of timber during the last forty years is estimated to average \$50,000,000 annually, or approximately \$2,000,000,000 worth of timber wasted. It is time there was a national movement to conserve our national resources and arrest the prodigal waste of our forests and the depletion of the fertility of the land. While Uncle Sam is no longer rich enough to give everybody a farm, there is plenty of agricultural land to support a population of 300,000,000 in the United States, Texas alone being capable of maintaining 80,000,000 people if all her arable land were under cultivation to cereals, fruits and vegetables.—Farmer's and Drover's Journal.

**Passing of Horned Cattle.**

Horned cattle and horned sheep are rapidly disappearing. Many of the cattle bred and fed in the corn belt are hornless. Breeds of this kind are growing in popularity. In the mountainous country and on the plains wild cattle needed long horns for the protection of themselves and their young. Now, however, with the plains thickly settled and with few wild animals the cattle do not need horns. Among the hornless breeds are the Galloway, Angus, Red Poll and Polled Shorthorns. Polled Jersey and Polled Herefords are also coming into favor. By the application of caustic potash the growth of the horns is prevented in the young calf.—Inter Ocean.

**Farm Cleanings.**

Provide ample pasture for the calves. Overcrowding of the chickens is a strong bid for trouble.

Fit yourself to the weather. Don't get all out of kink because the weather is.

The work of raising chickens has only begun when you get the downy things out of the shell.

It is claimed that an orchard in the State of Delaware has an annual income of \$10,000 from 200 acres of apple trees.

Have a driveway right through your barn. It will prove valuable in many ways, especially in the matter of keeping it clean.

Nothing better for growing swine than good pasturage, and there is no more economical method of raising them, either.

The Connecticut Experiment Station recommends that for the best results in hatching, eggs not over five days old be used.

Poultry and dairy products have almost doubled in price in the past ten years. Eggs and milk are still rising in average price.

Dip the sheep right after clipping them and then again about ten days after to be sure and kill those that hatch after the first dipping.

To have finely colored fruit it is necessary to have plenty of light. A dressing of wood ashes, or potash, around the base of the tree, will also help considerably to improve the color.

Oklahoma is the only state which requires the teaching of agriculture in all country schools. The courses include agriculture, horticulture, stock raising, fertilizers, dairying, drainage irrigation and grazing.

**WAX FROM A MEXICAN WEED.**

The Once Despised Candelilla Now Worth \$200 or More an Acre. The discovery by Oscar Paclus of Monterey of a process for extracting wax from the candelilla weed is causing the establishment of a new industry in Mexico and Texas. The candelilla grows abundantly upon many millions of acres of semi-arid land in Northern Mexico and parts of Texas, Arizona and New Mexico. Landowners who have this formerly despised weed growing upon their holdings are now in a fair way to reap a fortune, a Monterey (Mexico) correspondent of the New York Sun says.

When it was discovered a few years ago that a good grade of crude rubber could be manufactured from the guayule shrub experiments began to be made by Mr. Paclus and others with various other kinds of wild vegetation to learn if they possessed commercial properties. Mr. Paclus found that the candelilla contained wax to the amount of 3¼ to 4¼ per cent. He gathered a supply of the plants and began experiments with a view of arriving at a process of economical extraction of the wax. He perfected this process a few months ago and it is now in practical operation.

The manufacture of this vegetable wax is already on a paying commercial basis. The demand for the product comes at this time chiefly from Germany. The present price of the wax in Mexico is \$200 gold a ton. It is said that it takes about thirty tons of the weed to make one ton of the crude wax. The cost of producing a ton of wax is \$75 gold.

The land upon which the candelilla weed grows profusely is producing a big revenue in the localities where factories have been established. It is said that where land is well set in the plant it can be made to yield a profit of \$200 to \$300 gold an acre a year.

The candelilla wax is said to be harder than any other wax. This fact has caused it to be in demand for the manufacture of phonograph records, pharmaceutical articles, varnishes, shoe, leather and wood polishes, insulation in electrical wiring, gums, candles and many other things.

The fact that the guayule shrub and the candelilla plant are now known to contain valuable commercial properties has aroused the interest of the federal authorities of Mexico and it is said that a series of chemical experiments and tests of the various other desert plants which cover great stretches of land in Northern Mexico will be made under the direction of the government, with a view of discovering any commercial properties that they may contain. One plant which grows profusely along the Rio Grande is called gubernador and is being used extensively for the manufacture of a boiler compound. There are also two or three kinds of shrubs and weeds which possess cleansing properties almost identical in effect with washing soap. The roots of these shrubs are used by the native Mexicans to the exclusion of manufactured soap.

**SOME MARRIED MEDITATIONS.**

By Clarence L. Cullen.

It doesn't hurt any to express occasional surprise over the (maybe) fact that she still remains as a girl at heart.

Don't overlook the fact that the girl who wheezes she gets the more she likes to have you call her "winsome" once in a while.

Why is it that the woman whose ears resemble sun-dried clams is the one who experiences the keenest hankering for those big pendant earrings?

It is difficult for a man to understand why he should be required to wear toothless hose when his wife puts in about nine hours a day needling Irish crochet lace.

Why is it that dandruffiness, linty-featheriness and general unkempt blowness are the unfailing exterior characteristics of the woman who wails about her "shattered ideals"?

The woman whose husband goes out before breakfast and fetches home an armful of lilies for the breakfast table doesn't have to worry about his curves when he's out of her sight, either.

In the first place, a man couldn't be induced to eat fudge and pickles in alternate mouthfuls. But if he could be, he wouldn't loll around a little later on, wondering what in the wide world ailed his stomach.

**His Fate Already Settled.**

Hicks—Do you think that that flirtation between Jack Wilson and Kate Thornley is serious?

Wicks—For Jack, yes. But he doesn't know it yet.—Somerville Journal.

We suppose "Peach" is the accepted nickname for girls these days because their mothers bring them up in fear and trembling that a frost may get them.

**CONQUERING TYPHOID BY VACCINATION**



FOR this time on it is merely a question whether one wishes to be proof against attack by typhoid fever or not. Certainly there can be no reason for contracting the malady unless one chooses. People nowadays do not "catch" smallpox if they have been properly vaccinated. In case they neglect that customary precaution, it is considered that they have deliberately exposed themselves to the risk of contagion. The same proposition will in future apply to typhoid, inasmuch as means have been found whereby, through inoculation with a suitable "vaccine," anybody may be rendered permanently immune—that is to say, incapable of acquiring the disease.

Typhoid in old time was known as "putrid fever." It was one of the most deadly of human maladies, largely because the proper methods to adopt in dealing with it were not yet known. But even to-day, when it kills less than 10 per cent of the victims it assails, it is exceedingly destructive. It caused 80 per cent of the total deaths on the American side during the war with Spain—the disease, which raged in the military camps, being distributed chiefly by flies. And it was recently estimated by Dr. George M. Kober of Washington, D. C.—a recognized authority on the subject—that, reckoning loss of wage-earning capacity, expense for medical attendance, etc., typhoid fever in the United States, costs annually not less than \$350,000,000. Accepting these figures, it appears that the disease costs the people of the United States more than a billion dollars every three years, writes Rene Bach in Technical World Magazine.

**The Immunizing Vaccine.**

There is just one advantage in having typhoid. An attack of it renders one immune to the complaint thereafter—at all events practically so, inasmuch as a recurrence of the malady in a person who has once recovered from it is uncommon. But it would surely be very advantageous if such immunity could be attained without going through the sickness and suffering, with incidental risk of dying.

Fortunately, this very thing has at last been accomplished. That is to say, a means has been discovered whereby anybody may be rendered immune to typhoid—the result being obtained by a simple process of vaccination. The principle of vaccination for smallpox is that of utilizing the germ of a nearly-related disease of the cow, much milder in character, to produce immunity against the more serious malady. This idea nowadays is beginning to be applied, with much success, to other maladies, notably rabies—by Pasteur's discovery—and cholera and bubonic plague, the two latter at the instance of Haffkine, an Englishman. Vaccination for typhoid—first worked out by Sir A. E. Wright of London—is based upon the same theory.

For some time past the United States War Department has been busily engaged with the problem of typhoid vaccination, and at the Army Medical Museum in Washington large quantities of the immunizing fluid have been manufactured and put up in sealed glass tubes, ready for use—each tube containing the few drops requisite for a dose. For military purposes it is of utmost importance to find a means whereby the "putrid fever," which has always been the most deadly enemy of troops—commonly killing more men than were slain by the enemy—shall be robbed of its power to destroy.

**How the Vaccine Is Prepared.**

There is no reason, indeed, why soldiers in the field in future wars should suffer any loss whatever by typhoid. It will doubtless be required of every recruit, as a matter of course, that before being finally accepted he shall be immunized against the malady. As for the regular army, several hundred men, volunteering for the purpose, have already been inoculated; and the investigation having now passed beyond the experimental stage, every officer and enlisted man will be subjected to the treatment.

The "vaccine" for typhoid is prepared by an extremely simple process. A quantity of beef broth is made, and, when it has had time to cool, a few typhoid bacilli are put into it. Finding it an acceptable food, they multiply with great rapidity, until, after a few hours, the vessel of soup contains countless billions of them. They are then killed by putting the broth into a sort of oven and heating it to a point in the neighborhood of boiling.

This is the "vaccine"—a soup containing the dead bodies of billions of typhoid bacilli. It is now ready for use. But first, to make perfectly sure that all the bacilli are dead, a small quantity of the soup is put into a fresh batch of broth, previously sterilized by heat. If, on microscopic examination, some hours later, no living bacilli are found in the new broth, it is taken for granted that the stuff is all right, and the soup holding the defunct germs is put up in little glass tubes. Each tube, after being sterilized, receives a certain number of drops of the immunizing fluid from a machine made for the purpose, and is then hermetically sealed with a glass-blower's blowpipe. It thus becomes nothing more than an elongated bulb of glass, with no opening through which any microbe can gain admittance. When a dose is to be administered, the physician simply breaks off one end of the tube, draws its contents into his hypodermic syringe—previously sterilized—and thrusts the point of the instrument beneath the skin of the person to be inoculated. A brief squirt, and it is all over. But to make assurance doubly sure—to make certain, that is to say, of "taking"—a second dose is usually administered. The first one is of eight drops, representing about 500,000,000 bacilli; the second is fifteen drops, containing 1,000,000,000 bacilli, or thereabouts.

**How Typhoid Bacilli Operate.**

But, as already explained, the bacilli are all dead. Why, then, should they possess any usefulness? The answer is that, though defunct, they still contain the peculiar and characteristic poison belonging to this species of microbes. They are powerless to engender typhoid fever in the human body, but the poison in question has the effect of inducing the cells of the body to manufacture a particular antidote—the antidote to typhoid.

When a person is attacked by typhoid fever, the germs, feeding on the tissues, incidentally set free a considerable quantity of their specific poison. This poison is injurious to the body cells, which absorb more or less of it. But the cells, to protect themselves against the enemy, proceed to manufacture on their own account an anti-poison—that is to say, a substance which in nine cases out of ten—if the patient be properly cared for—kills off the hostile microbes, and eventually drives them out of the system. This is what happens every time when a sufferer from typhoid recovers.

**WHEN LUCK FAILS.**

Unhoused and often unsheltered, wild animals suffer more than is generally understood. No one can estimate the deaths of a year from severe cold, heavy storms, high winds and tides. In "The Lay of the Land" Dallas Lore Sharp tells of whole colonies of gulls and terns swept away by a great storm, and describes some of the fatalities of the little people of the wood.

We have all held our breath at the hazardous traveling of the squirrels in the treetops. What other animals take such risks, leaping at dizzy heights from bending limbs to catch the tips of limbs still smaller, saving themselves again and again by the merest chance?

But luck sometimes fails. My brother, a careful watcher in the woods, was hunting on one occasion, when he saw a gray squirrel miss its footing in a tree, fall, and break its neck upon a log beneath.

I have frequently known them to fall short distances, and once I saw a red squirrel come to grief like the gray squirrel mentioned above. He was scurrying through the tops of some lofty pitch pines, a little hurried and flustered at sight of me, and nearing the end of a high branch was in the act of springing. When the dead tip cracked under him and he came tumbling headlong.

The height must have been forty feet, so that before he reached the ground he had righted himself, his tail out and legs spread; but the fall was too great. He hit the earth heavily, and before I could reach him lay dead upon the pine needles.

Hasty, careless, miscalculated movements are not as frequent among the careful wild flock as among human beings, perhaps; but there is abundant evidence of their occasional occurrence and of their sometimes fatal results.

"She," the Young Things are always saying of some Older Thing, "has the money to buy good clothes and doesn't look good in them."

The women always say their husbands coax them to go away for the summer, but no one believes it.