

FOR FARMERS

Seasonable and Profitable Hints for the Busy Tillers of the Soil.

BENEFITS OF CULTIVATION.

That cultivation tends to conserve soil moisture is now disputed by no one familiar with the properties of the soil or blessed with the proofs of experience. Just why this is true I shall endeavor to explain briefly, writes a correspondent.

Soils are of different textures, varying from gravel through sand and loam to fine clay, but in all there are many spaces between the soil particles for air and water. These are well filled with the spring rains, but during the summer droughts some of the moisture recedes into the ground, while much is evaporated into the air and lost. Now, the problem is to keep this moisture near the surface, yet not exposed to the drying winds and sun. This is best done by a mulch or by tillage, which is only a method of securing a mulch of dry soil.

If a dry towel is held in a basin of water for a time it will become wet above the water line; if a fine glass tube is set in water, the water will rise inside the tube above the level of the outside; if water is poured into the base of a flower pot it will work upward through the dry soil in it. This is due to a greater attraction between the particles of water and those of the towel, glass or soil, than between those of the water itself, and is called capillary attraction. It is by this property that the soil is enabled to pump up water for the roots of its plants. The spaces between the soil particles correspond to the bore of the glass tube. Now the smaller the bore the higher the water will rise in the tube, so the smaller the spaces between the soil particles the better will the water

RISE IN THE SOIL.

The particles of a sandy soil are coarse, while those of a clay soil are fine. This explains the well known fact that a clay soil in good tillage will hold water longer than a sandy one.

Now let us see why tillage tends to preserve this moisture. When bare ground is left to itself it is packed down by rains and baked by the sun so that many minute tubes are formed in it through which water rises to the surface by capillary attraction. These so-called tubes are, of course, very irregular and broken nevertheless they form regular water channels. By making the soil firmer the channels are rendered smaller as in a clay soil, so that water rises more rapidly. This is why firming land with a roller makes it appear more moist, but we shall discuss this point in another article.

Now, if a layer of tillage establishes conditions favorable for the rise of soil moisture, why cultivate the soil? The reason is simply this: Cultivation, by breaking up these capillary channels in the soil, stops the rise of moisture where it is needed, a few inches below the surface, and makes a mulch of loose, dry soil above it through which the moisture will not rise, to protect it from evaporation.

We all know that ground remains moist beneath a board or stone or layer of straw. They prevent the moisture which rises to the surface of the ground from being dried up by the sun and winds. The loose soil which proper cultivation leaves upon the top acts in much the same way. A well tilled field looms dry, but dig down and see if moisture is not found just below the loose soil mulch, while in the untilled field moisture is found at a greater depth, and there is no strict dividing line between the dry and the moist soil.

There are several other important ways in which tillage aids in conserving moisture. It produces a granulation or grouping of the soil particles so that each group acts as a sponge in holding water and plant food, and yet leaves channels for air and water.

BETWEEN THE GRANULES.

Cultivating following a light shower in a dry time is imperative, otherwise the shower may actually do more harm than good. When soil is very dry water does not wet it easily as can be seen by pouring water on dust. Now this dry mulch does not draw upon the moisture deeper in the soil, but if the loose top soil is wet by a light rain it will start the flow of the deeper water upward, where more may be lost in a few days by evaporation than fell in the rain if the ground is not stirred directly. The principle is familiar to gardeners, florists, and those who irrigate. They know that a good wetting periodically when the ground becomes dry is much better than a dozen sprinklings.

The depth of cultivation best for saving soil moisture is laid by most authorities at about three inches. This depth is not, however, related to size of shovels, for small shovels can be made to go as deeply as large ones. Personally I have a great preference for level cultivation, and I think most persons who have studied the subject will agree with me that level tillage looks best, is more easily done, and, most of all tends to catch and hold moisture better than any method which leaves furrows and ridges. It gives a greater surface for the water to soak in, and less tendency for it to run off, and it also lessens the

surface for the evaporation of moisture.

From the standpoint of moisture conservation the frequency of cultivation can be scarcely overdone, but as a rule one should cultivate once in ten days, and after every heavy rain, until July or August, depending upon the crop, its earliness, and the season.

THE FARMER'S HELPER.

I want to put in a plea for the sheep as the farmers right-hand helper in the pastures. A few years ago such a plea might have been necessary. Then most general farmers, particularly in the east, had their little flocks of sheep. To-day in my own neighborhood, few farmers own sheep. For one reason and another they have disposed of them, so that comparatively few sheep are to be seen here. I think this drifting out of sheep a mistake for a number of reasons.

Aside from the money value of the sheep themselves, their wool and their lambs, sheep have proved their right to a place on the farms of this country. It is astonishing what a world of weeds has come into our fields within the past few years. And not so surprising after all, when we remember to what an extent the seed we buy and sow is peppered with foul stuff. Not long ago, after writing an article for the press giving my experience in trying to get pure timothy and clover seed, I received a most significant letter from an old farmer in a neighboring state in which he said that he was now more than eighty years of age, and although he has been working all his life to get clean seed, he never yet has been able to find seed that he considers really free from impurities. This is the kind of seed we are scattering broadcast over our farms every year, and the wonder is that we are not more seriously hampered in our farm operations by the stuff that grows up in our fields.

It ought to be known by everybody by this time that the sheep destroys hosts of weeds in the pastures every year. Not all of us realize just what this means, however. Suppose we think about it a moment. A single stalk of "paint" brush, for example bears, innumerable seeds. If allowed to mature, those seeds drift away on the wind finding lodgment sometimes half a mile away. It is not too much to say that every stalk bears ten such seeds. Next year in the place of the one stalk there will be ten new plants. Take a pencil and figure this on a little way and see what it will amount to in ten years. The result will be surprising.

But suppose the sheep nip that first stalk—and sheep do eat even "paint brush"—that is the end of that stem with its myriad of possible new plants. Score one for the sheep. And this is only a single instance. Dozens of weeds besides the paint brush grow in our pastures. These the sheep devour in great numbers. More than that, they nip off the tops of berry bushes that might otherwise grow until they pre-empted the ground all about them.

Capping the climax, comes the fertility of the sheep leaves wherever it goes. Some animals may leave the land upon which they feed the poorer for their presence. Not so the sheep, its droppings are the very essence of fertility. Instead of leaving the land impoverished the fields they travel over will be richer next year than to-day. There are suggestions which it will do every general farmer good to think about.

HORSE-EATING IN LONDON.

Flesh is Disguised Before Reaching the Market.

A report of an extraordinary nature was submitted to the Health Committee of the Poplar Borough Council, London, by the medical officer of health, Dr. Alexander.

He said that there was reason to believe that horse flesh was being dealt with in large quantities for sausage and brawn making, and was bought in the raw state from knackers and others apparently to be used as cats' meat. The horse flesh no doubt underwent the process known as "boning"—that was, carefully removing the bone from the flesh.

There was also reason to believe that horse flesh was not only sold as obtained from the knacker, but the stuff was salted and subsequently washed in order to deprive it of its peculiar taste before being used for sausages and brawn.

Horse flesh so treated was known as "jack," and if it passed through a mincing machine, and was mixed with fat, flesh and spice, it could not then be distinguished from the flesh of the ox, nor could the nature of the flesh—in which, under normal conditions, the products of disease would be readily detected—be always determined even by an expert.

An alteration in the law relating to the sale of horse flesh was absolutely necessary if this practice was to be stopped, and to this end the medical officer recommends that the law be altered so that a term of imprisonment or a fine not exceeding \$250 may be imposed by the magistrate.

He also suggests that every knacker and dealer in horse flesh shall be registered, and that they shall keep a record showing the quantity and destination of all consignments of horse flesh sent out by them.

Positive, wait; comparative, waiter; superlative, do it yourself if you wait it done.

TOLSTOI DENOUNCES WAR

THE APOSTLE OF UNIVERSAL PEACE.

Murder of One's Fellow-man the Greatest Crime in the World.

"Again war. Again sufferings; necessary to nobody, utterly uncalled for; again fraud, again the universal stupefaction and brutalization of men." These words form the commencement of a remarkable article in the London Times by Tolstoi, the Russian novelist and advocate of universal peace and brotherhood. He goes on to describe the mobilization of armies, the tearing away of the husbands and fathers from their fields and families, and setting them on to kill others whose plight is as pitiable.

"Men who are separated from each other by thousands of miles, hundreds of thousands of such men (on the one hand—Buddists, whose law forbids the killing, not only of men, but of animals; on the other hand—Christians, professing the law of brotherhood and love) like wild beasts on land and on sea are seeking out each other, in order to kill, torture, and mutilate each other in the most cruel way. What can this be? Is it a dream or a reality? Something is taking place which should not, cannot be; one longs to believe that it is a dream and to awaken from it.

"But no, it is not a dream, it is a dreadful reality!

UNFORTUNATE YOUNG MAN.

Of the Czar he says:— This unfortunate, entangled young man, recognized as the leader of 130,000,000 of people, continually deceived and compelled to contradict himself, confidently thanks and blesses the troops whom he calls his own for murder in defence of lands which with yet less right he also calls his own.

He continues to discuss the motives of emperors, politicians, generals, journalists, who incite this murder, and says:—

"One could yet understand how a poor, uneducated, defrauded Japanese, torn from his field and taught that Buddhism consists not in compassion to all that lives, but in sacrifices to idols, and how a similar poor illiterate fellow from the neighborhood of Toula or Nijni Novgorod, who has been taught that Christianity consists in worshipping Christ, the Madonna, Saints, and their ikons—one could understand how these unfortunate men, brought by the violence and deceit of centuries to recognize the greatest crime in the world—the murder of one's brethren—as a virtuous act, can commit these dreadful deeds, without regarding themselves as being guilty in so doing.

REASON DETHRONED.

"But how can so-called enlightened men preach war, support it, participate in it, and, worst of all, without suffering the dangers of war themselves, incite others to it, sending their unfortunate defrauded brothers to fight? These so-called enlightened men cannot possibly ignore, I do not say the Christian law, if they recognize themselves to be Christians, but all that has been written, is being written, has and is being said, about the cruelty, utility, and senselessness of war. They are regarded as enlightened men precisely because they know all this.

"It is as if there had never existed either Voltaire, or Montaigne, or Pascal, or Swift, or Kant, or Spinoza, or hundreds of other writers who have exposed, with great force, the madness and futility of war, and have described its cruelty, immorality and savagery; and, above all, it is as if there had never existed Jesus and his teaching of human brotherhood.

"One recalls all this to mind and looks around on what is taking place and one experiences horror less at the abominations of war than at that which is the most horrible of all horrors—the consciousness of the impotency of the human reason."

"LOVE YOUR ENEMIES."

He deals with the question of the justification of war against the enemies of one's country as follows:— The answering of blow with blow, cruelty with cruelty, robbery with robbery, he denounces from the standpoint of the Christian law of "Love your enemies."

"So that to this question as to what is to be done now, when war is commenced, for me, a man who understands his destination, whatever position I may occupy, there can be no other answer than this, whatever be my circumstances, whether the war be commenced or not whether thousands of Russians or Japanese be killed, whether not only Port Arthur be taken, but St. Petersburg and Moscow—I cannot act otherwise than as God demands of me, and that therefore I as a man can neither directly nor indirectly, neither by directing, nor by helping, nor by inciting to it, participate in war; I cannot, I do not wish to, and I will not. What will happen immediately or soon, from my ceasing to do that which is contrary to the will of God, I do not and cannot know, but I believe that from the fulfillment of the will of God there can follow nothing but that which is good for me and for all men."

BRIDGE OF THE DEAD.

After the disaster to the Petropavlovsk, in which Makaroff perished, Tolstoi comments thus on the measures to retrieve the loss to Russian prestige:—

"It is frankly said that the regrettable reverses of our fleet must be compensated on the land. In plain language this means that if the authorities have badly directed things on sea, and by their negligence have destroyed not only the nation's millions but thousands of lives, we can make it up by condemning to death on land several more scores of thousands!

"When crawling locusts cross rivers it happens that the lower layers are drowned, until from the bodies of the drowned is formed a bridge over which the upper ranks can pass. In the same way are the Russian people being disposed of.

"Thus the first lower layer is already beginning to drown, indicating the way to other thousands, who will all likewise perish.

"And are the originators, directors and supporters of this dreadful work beginning to understand their sin, their crime? Not in the least. They are quite persuaded that they have fulfilled, and are fulfilling, their duty, and they are proud of their activity.

"People speak of the loss of the brave Makaroff, who, as all agree, was able to kill men very cleverly; they deplore the loss of a drowned excellent machine of slaughter which had cost so many millions of roubles, they discuss the question of how to find another murderer as capable as the poor benighted Makaroff, they invent new, still more efficacious tools of slaughter, and all the guilty men engaged in this dreadful work, from the Czar to the humblest journalist, all with one voice call for new insanities, new cruelties, for the increase of brutality and hatred of one's fellow men."

A SOLDIER'S LETTER.

The article closes with quotations from several letters received by Tolstoi from Russian reservists, one of the most remarkable of which was written at Port Arthur:

"I have read your book. It was very pleasant reading for me. I have been a great lover of reading your works. Well, Lyof Nikolaevitch, we are now in a state of war; please write to me whether it is agreeable to God or not that our commanders compel us to kill. I beg you, Lyof Nikolaevitch, write to me please whether or not the truth now exists on earth. Tell me, Lyof Nikolaevitch. In church here a prayer is being read, the priest mentions the Christ-loving army. Is it true or not that God loves war? I pray you, Lyof Nikolaevitch, have you got any books from which I could see whether truth exists on earth or not. Send me such books. What they cost, I will pay. I beg you Lyof Nikolaevitch, do not neglect my request. If there are no books, then send me a letter. I will be very glad when I receive a letter from you. I will await your letter with impatience. Good-bye for the present. I remain alive and well, and wish the same to you from the Lord God. Good health and good success in your work."

CAN DISEASE BE CURED?

SOME TERRIBLY MISLEADING NOTIONS.

Most of the More Serious Diseases Run a Definite Course.

The popular idea of "a cure" is something which can arrest the progress of a disease and hurry up its determination. There is a very widespread notion that every malady has its specific remedy, and if the proper drugs were only known and promptly administered the sufferer would almost immediately recover.

Books have been published from time to time which foster this notion, because they contain alphabetical lists of diseases, against each item of which is set off the supposed remedy. This naturally leads the readers to imagine they have in their hands a kind of "ready reckoner," and that they need only to pick out the name of an ailment in order to discover the clue to its "cure." The idea has fastened on the public mind, partly as a result of the quaint quackery of bygone times, and partly in consequence of numerous so-called remedies now so largely advertised.

NATURE THE GREAT HEALER.

The idea that every disease calls for some particular drug is entirely erroneous, and terribly misleading, because it "verts attention from what is actually going on; and, with one or two exceptions, is positively untrue. Most of the more serious run a definite course, and nothing has yet been discovered which can arrest their progress or hasten their end by a single day. If, therefore, this notion is a fallacy, what can be more absurd in itself, or more detrimental to the patient's welfare, than to keep pouring into his stomach unpalatable medicines, which are almost certain to prevent his assimilating his proper food.

Take a well-known example—"pneumonia," or inflammation of the lung. This disease, in every single instance, must pass through its several stages; and if the patient can be properly nursed and his strength supported by suitable nourishment, it will terminate in recovery of its own accord.

You may give what drugs you please in such a case, but they will not hasten the crisis by as much as five minutes, because the disease has its own limits. This fact is dead

against the popular notion; and for a time it will be as unpalatable as the nauseous medicines so liberally administered.

FALLACIOUS CURES.

Much the same thing may be said of the fevers, of which scarlet fever is a good type. These diseases run their course, from the implanting of the contagion in the body to their final termination; and, dose the sufferers as you will, you inevitably discover that their malady is not amenable to treatment by drugs.

In the chronic diseases, whether of long or short duration, there cannot be any such thing as "a cure." An excellent illustration of this is seen in chronic Bright's disease, where the normal structure of the kidney is quite altered, and a hard substance is formed, which replaces and destroys the healthy tissues; just as a scar does the flesh substance elsewhere. Can any rational person conceive it possible that such a state of things can be benefited by medicine? Even if we could remove the newly-formed substance, it is quite certain we never could restore the parts of the kidney which would have been destroyed.

Again, there is a large number of ailments which are in no sense of the word diseases, although they are palpably referred to as such, and are so described. As a matter of fact, they are merely

FUNCTIONAL DERANGEMENTS, some organ or another being for the time unable to work properly.

Thus, if your watch has a wheel broken, there is actual damage to part of its machinery, and that is equivalent to disease; but if a particle of dust is only interfering with its works, that is but a temporary derangement, and the equivalent of functional disorder. To speak of "cure" in such interferences with the body's machinery—in the mere disturbances of its functions—by the administration of medicines is every bit as senseless, and a gross misuse of works. In making these assertions we do not deny that many drugs have a place in medical treatment—we simply state that they do not effect "a cure."

The symptoms of a disease may often be alleviated by their use—as, for instance, dyspepsia. But it is altogether a mistake to call such a use of medicines "a cure," because it is but dealing with a symptom, and affords but a temporary relief. To "cure" this trouble, in any true sense of the word, the cause of the indigestion must first be discovered and then effectually removed.

THE DANGER OF DRUGS.

Take another example—one which will illustrate both points, and which is all too common in this country, the "cirrhotic" condition known as the inebriate's liver. Here, again, we have the structure of the organ completely changed, and new material formed to such an extent that all the drugs of the Pharmacopoeia could not restore its pristine perfection.

What, then, is possible in such a case? In the first place, by medicine we may relieve such symptoms as the nausea or vomiting of blood; then we can remove the cause—that is to say, stop the supply of all alcoholic liquor. Yet such treatment as this cannot in any sense be called "a cure," for the damaged liver will remain damaged to the end of the chapter. As well might the surgeon who has amputated a leg refer to his work as a "cure" when he sees his patient limp on a wooden stump, or perambulate the streets with a wooden crutch.

PATIENCE AND CAREFUL NURSING.

It is quite time the public mind was put right in this matter of "cures," for the extent to which people are dosing themselves with drugs is positively alarming. Moreover, there is no medicine which does not to some extent interfere with the process of digestion, and when this process is already disturbed by disease it is worse than folly to still further upset it by needless drugs.

So many ailments are associated with dyspeptic trouble that to endanger a person's life by putting fresh obstacles in the way of his assimilating nutriment is only adding to prevent "a cure."—Dr. Joseph Cater in London Answers.

SAFETY IN THUNDERSTORMS.

Excellent authorities agree that in a thunderstorm the middle of a room is much the safest place in a house. A carpeted floor, or one covered by a thick rug, is better to stand on than bare wood. It is well to keep away from chimneys and out of cellars. In the open air tall trees are dangerous. A person sheltered under a low tree or shrub 30ft. or 40 ft. from a large and lofty tree is quite safe. If lightning strikes in the immediate vicinity it will hit the high tree, as a rule, with few exceptions. Water is a very good conductor, and it is well to avoid the banks of streams in a violent thunderstorm.

SHARP WORK.

Probably the swiftest record ever made in locomotive building has been accomplished at Philadelphia, where a firm of locomotive builders have accomplished the remarkable feat of turning out seven locomotives a day. The order was a hurried one for the Japanese Government.