

AGRICULTURAL.

Deeening Soil Slowly.

Almost any one will concede that a deep, rich soil is better than one fertilized to a less depth with cold, infertile soil beneath. It is somewhat curious that the descriptive adjective "cold" is always used in connection with poor subsoil. If it can in any cheap way be warmed, that is probably as good a method of making it more productive as can be wished. The coldness is usually the result of excessive moisture, or rather water that remains stagnant because there is no way for it to escape by drying out. Water that percolates through the soil, except it be a pure sand, does not injure it. The water passing through the soil is followed by air, and this helps to warm it after warm weather comes in Spring. What a soil full of stagnant water needs is under-draining. Often, however, the subsoil is cold, merely because surface-rooted crops only have been grown on it. Timothy sod has a mass of roots near the surface, while below it is cold and inert. Growing clover on such land often serves many of the purposes of under-draining, provided the soil is not full of water. But it must be understood that clover will not succeed on land where stagnant water is found several months in the year. To plow such land deeply without first draining and covering it, turns to the surface a mass of poor soil, while burying beneath the furrow that suited for feeding the roots of many kinds of plants.

Applying Manure.

The quantity of manure to apply to the acre, depends on the amount of manure on hand and the extent of surface you desire to cover. Also the kind of crop you are preparing the land for. When you plow the manure under, if of good quality, apply from fourteen to sixteen ordinary loads, for top-dress, twelve loads if well pulverized and evenly distributed will give good results; but if you have a reasonably large surface to cover and your supply of manure is limited, I would advise less rather than more. Be sure to spread evenly, covering all the ground as far as you go, so that if you do not have enough to cover the whole field you may know where to begin to manure for next crop. If there are very thin spots you may apply considerably heavier on these to advantage. If your land is level and no danger of waste by wash, I would advise to haul all the manure you can direct from the stables, as it saves a great amount of labor and the waste (except on hill sides) will be no more than is generally lost by being left around the barn; besides you are able to keep a better appearance about the premises. Let me protest against the wasteful practice of so many of hauling out and putting in piles, as too much goes into the ground immediately under them, and during decomposition of the pile which takes place immediately, there is waste by escape of gases, which are the elements of fertility. The pile also dries out in dry weather, decreasing the volume so much as to make it impossible to cover all the ground and get an even distribution of the element of fertility. On steep hillsides you should plow immediately after applying. I have a twenty-five-acre field which I expect to plant to corn and have covered about twenty acres of the same. Our manure spreader has enabled us to cover more surface and to do it better than we could otherwise have done.

The Rational Use of Fertilisers.

While it is a fact that nitrogen, phosphoric acid, and potash are in most cases the only chemical constituents necessary to add to any soil to prevent ultimate exhaustion by continual cropping, the knowledge of the fact (says a bulletin from the New Brunswick Experiment Station) becomes profitable largely in proportion as it is modified by the individual farmer so as to conform to his soil and to his crops. It happens too frequently that the increase in crop from the use of complete manure is produced by one or two only of the elements present. When, as is often the case, nitrogen is inactive, or produces an abnormal effect from the presence of insufficient quantities of phosphoric acid and potash, and immediate returns are unsatisfactory, future gains are also problematic, since nitrogen, in readily available forms, is easily movable in the soil, and eventually lost. Phosphoric acid and potash, on the other hand, if inactive for immediate crops, are retained in the soil, and serve for future crops. Statistics in regard to the composition and cost of the complete manure in 1888 showed that the average cost of the nitrogen contained in them was one-third of their total cost. In the use of fertilising materials, and especially of this most extensive element, nitrogen-great care should be exercised; and the use of unmixed materials, for studying the various soils and crops, is particularly advised. It is believed that a study of this bulletin, besides indicating the cheapest sources and best qualities of fertilising materials, will tend to direct attention to actually valuable constituents, and furnish a proper basis from which to estimate values of complete fertilisers. Attention is too frequently drawn from this point to comparisons on the ton basis, which have no value unless the tons compared contain the same amounts and kinds of plant food.

Planting Trees.

Prof. Fernow, in his directions for planting a tree, says: The practice of using water while planting can hardly be said to be a good one, unless the water is very carefully applied with a "rose" after the soil is well filled in and packed around the fibrous roots. Especially with a soil which has a tendency to clog, there is great danger of an uneven distribution and settling, with consequent empty spaces between the roots. More trees are probably killed by too much water in transplanting than by too little. Water after the transplanting, (and perhaps before the last shovels of earth are filled in) especially if the soil was dry, is useful and should be applied during the hot season, choosing the late afternoon or evening for applying it.

Any mulch of waste material, hay, straw, or litter, wood shavings or chips, sawdust, or even stones simply placed around the foot of the tree, is of excellent service in checking evaporation.

Keeping the ground free from weeds and grass, and preventing it from baking, by occasional hoeing and raking, is advisable. To prevent the trees from being swayed by the wind, if of larger size, they should be staked firmly; a loose post is worse than none. The tying should be so done as not to cut or injure the tree; a tree-bone insures more safety against accidents. With the

development of the crown it becomes necessary to trim it, so as to carry the top above reach.

Summarizing the elements of success in tree-planting, they are:

1. Trees suitable to soil and surrounding conditions;
2. A well developed root-system, kept in living condition;
3. Wide holes and mellow soil;
4. Firm packing of soil around the roots.

Hen Setting.

Years of experience have satisfied many that the best results from setting hens are obtained when they are left to themselves. The making of desirable nests is of much importance to successful hatching of eggs. There are various styles of nests which have met with the very best results. We have had excellent results by making a nest with two inches of sand for the bottom, then place hay or straw cut short to prevent the hen's feet from catching in it and injuring the eggs; hollow the nests only enough to prevent the eggs from rolling out in front, sprinkle thoroughly with insect powder, then you are ready to give the hen possession. Place her on the nest at night and if necessary darken the box by hanging a cloth in front until she sets steadily. Do not forget to feed, water and supply the hen with a good dust bath, and see that they are well cared for.

If you intend to breed thoroughbred poultry get the best, for it costs no more to feed, keep and house choice stock than it does the common mongrels, and there is a great difference in their looks and usefulness. It is a waste of time and money to breed poor fowls, when good ones can be had at fair prices.

Use every means to tame your birds. Some breeds are more easily tamed than others, but if you keep your poultry as tame as a house dog, they will lay more eggs, and will also lay on more flesh than if you had to chase them about every time you wanted to look them over.

Dairy Notes.

The milking should be done quietly at regular times and the utmost cleanliness observed.

A good dairyman says always give salt in the food of dairy cows, never less than one ounce per day, or one-half of one per cent of the live weight per month.

Cleanliness and common sense applied from the beginning to the end, are absolutely necessary to insure good butter that will bring the highest price in the market.

No definite rule can be given for feeding a good cow. Her food will depend upon her owner's supply, her appetite, digestion, and the value of her marketable goods.

The length of the milking period of a well-bred and well-fed cow depends on the regular and persistent milking by her attendant. It should be 300 to 350 days, or within a month of calving.

Alarming News from China.

Latest advices from China state that the Christians and foreigners of Wu-chang, capital of the large province of Hupeh are in imminent danger of being attacked by the excited populace. This sudden and violent antipathy is said to be owing to the efforts of the literati, who have made the utmost use of the press to poison the minds of the common people. What has inflamed the literati we are not told. To effect their purpose, they have had posted up in the most conspicuous places large numbers of obscene and inflammatory placards against the Christian religion, while supplementary to the posters were two cartoons, one representing the Crucifixion and the other a Christian worship. Rev. Mr. Partridge, an American Missionary, writes of their pictures, "They are too vile and obscene to be described minutely in the public press; suffice it to say that these represent the Saviour as a pig and the incarnation of the god of lust. They have been laid before the various Consuls for their inspection, and all agree that the annals of antiquity furnish nothing to compare with them." By such means as these and by freely scattering through the streets anti-Christian poetry and books the rowdy element, at the time of writing, had become greatly excited and were issuing violent threats against the native Christians. This is certainly alarming news. And yet, have Christian nations done nothing to provoke these hostilities? What else could the Christian nations of America expect, who have taken such pains to enact laws that cannot fail to galling and exasperate every patriotic son of the land of Confucius? This is only a vigorous and violent application of the principle of exclusion which we ourselves have introduced. It is paying us back in our own coin, with the addition of an interest which might be expected from a people who know not the law of Christian forgiveness and love. Too late the governments of America may learn that in passing their Chinese restrictive legislation they have jeopardized if not actually sacrificed those inestimable privileges which have opened up to commerce the most populous kingdom on the face of the globe.

Emperor William and the Peace of Europe.

In his speech before the German Reichstag the other day, Emperor William let fall a few sentences which serve to harmonize his actions with his words. Frequently since his accession to the throne he has expressed his great desire for peace, and has taken special pains to cultivate the friendship of the leading European powers by making visits to their courts, and in other ways. And yet in the face of this it has been known for several weeks that the young emperor proposed to ask his new parliament for an increased grant for army expenses. The incongruity was so glaring that many began to doubt the sincerity of his pacific pretensions. His explanation is now before the public. It is to the effect that he regards the maintaining of the peace of Europe as a work in which Germany must take a prominent part, and that it present her equipment is not proportionate to that of other countries which in this respect have forged ahead so rapidly of recent years. The old equilibrium must be restored if peace is to be maintained. "Germany," says the emperor, "recognizes it her duty to protect peace by cultivating alliances for purposes of defence and also by perfecting her armaments, for which purpose a new military credit will be asked." Of course, it is easy to say that this is only a blind brown out to deceive the other nations until the young Hotspur shall have perfect-

ed his plans, and that then he will strike a blow which will shake the temple of peace to its foundation. Such a statement may be made, but in order to give color to it, one needs to borrow one's data from the ambitious designs and deeds of other princes, whose shameful record has come down to us; for whatever may have been the expectations that men held concerning the present occupant of the German throne, his deeds since his accession give no support to the notion that he has any disposition to sacrifice his subjects in order to further any personal ambitious designs. On the contrary, he has shown a paternal interest which could hardly have been looked for in one so young. Not a little of the work of the present parliamentary session will be devoted to promoting legislation in favor of the workmen: such as bills regulating Sunday work, women's and children's labor, the better organization of industrial courts of arbitration so the courts may be appealed to for the settlement of disputes between the employers and the employed. Until the young Kaiser shall have given some evidence of a cunning and ambitious spirit, it is only fair to suppose that, however wise or otherwise his plans may be, his purposes touching the good of his subjects are honest and sincere. Such an exercise of charity is only just to him and will do those who indulge it no harm.

The Church of England in Wales.

The controversy between the friends and foes of the Church of England in Wales has of late been occupying a large place in the English press. The London Times devotes an article of three columns and a quarter, not to speak of columns of correspondence, to the church side of the question. One point that is brought out is that the only body which makes an effective provision for the spiritual needs of the English-speaking population of Wales is the Established church. Its strongest rivals among the Welsh Nonconformists can claim, it is urged, only one per cent of the 600,000 English-speaking Christians of Wales. It is added that the strongest Nonconformist body in Wales deliberately excludes from its ministrations the open sinner and the poor—the classes that most need counsel and guidance from the ministers of religion. An article in the Quarterly is largely quoted as evidence that the church in Wales has shown good cause for continued existence. On the other hand, among the Welsh-speaking inhabitants Nonconformists undoubtedly preponderate and their action lately in connection with the tithe question goes to prove that the agitation for religious freedom from state control is not likely to subside, even apart from the sympathy of English Liberals.

The "Sweating System" in England.

Two years ago the attention of the House of Lords, England, was directed to the "sweating system," which, as is generally known, receives its name from the fact that employers of labor, taking advantage of the great multitude of persons waiting to be employed and the deep poverty of many, which leads them to accept for their labor any compensation however meager, extort the utmost of work for the merest reward—in fact screw down the prices so low that only by the most diligent application continued through inhumanly long hours can the poor employers earn the barest subsistence. Accordingly a committee was appointed to gather information and report. In August of last year they reported that they had sat to receive evidence on seventy-one occasions, and had examined two hundred and ninety-one witnesses touching some thirteen industries, situated in London and other manufacturing centres throughout the Kingdom. The witnesses comprised clergymen, physicians, statisticians, government officials, &c., whose testimony concerned the trades of clothing, boots and shoes, shirt-making, furriers, etc., etc. The report coming in so late in the session the House was unable to deal properly with it, and so the committee was granted another year's lease of life. Within the past week they have made another report in which the evils of the system are exposed with painful distinctness. To remedy their lot the report urges the hands to combine and by organization force their employers to pay better wages and grant shorter hours of labor. The committee pressed upon Parliament the necessity of legislative interference to correct the evils arising from the system. It is to be hoped that something will be done to relieve the distress of these helpless operatives, many of whom are practically heathen, and whose lot must be mitigated before any progress can be made in raising them to a higher plane, intellectual or moral.

Great Men.

Columbus was the son of a weaver, and a weaver himself. Cervantes was a common soldier. Homer was the son of a small farmer. Demosthenes was the son of a cutler. Oliver Cromwell was the son of a London brewer. Franklin was a journeyman printer. The son of a tallow chandler and soap boiler. Daniel Defoe was a hostler. Cardinal Wolsey was the son of a butcher. Virgil's father was a porter. Shakespeare was the son of a wool scraper. Milton was the son of a money scrivener. Mohammed was a driver of asses. Napoleon, a descendant of an obscure family of Corsica, was a major when he married Josephine, daughter of a tobaccoist Creole in Martinique. John Jacob Astor once sold apples in the streets of New York. Catherine, Empress of Russia, was a camp grissette. Mme Bernadott was a washerman in Paris. Horace was the son of a shopkeeper.

Vienna dispatches state that "Princess Victoria, sister of the German Emperor, has asked an increase of her appanage allowance in order to establish her own household in London, as she does not intend to marry." This is bad news, especially seeing that the royal matrimonial market is already so poorly supplied with princesses; there being but nineteen to be distributed among eighty-two princes. And this makes the outlook for the poor princes so much the worse. Whatever could have possessed the fair lady to come to such a conclusion? Why, instead of one she might have had half a dozen princes for husband, provided they would accommodate her and die off in time. There is no help for it however, for "When a woman wills, she will. And you may depend on it, But when she won't, she won't, And that's an end on it."

Capital Punishment.

The infliction of capital punishment upon the murderer for the purpose of deterring others from committing the like crime has long prevailed among civilized nations. That it accomplishes the end for which it was designed is more and more questioned by many students of penology, who appeal to the criminal records in support of their contention. Two facts, they claim, prove its utility. First, the comparatively few convictions for murder, even when the evidence points irresistibly to guilt; and second, the diminishing list of murders in those countries where capital punishment has been abolished. In reference to the unwillingness of juries to bring in a verdict of guilty where the charge is for murder, the Chicago Times has published this very remarkable table of the murders committed in the United States during the last six years:

Year	Murders	Legal Executions	Lynchings
1884	3,377	103	219
1885	1,808	108	181
1886	1,499	83	133
1887	2,335	79	123
1888	2,184	87	144
1889	2,567	98	175
Total of six years	14,770	558	975

It will thus be seen that during the six years covered by the table, murder was legally punished in only one case out of about twenty seven, while in about one case out of fifteen it was revenged outside of the law. In more than thirteen thousand cases it went without capital punishment, if it was punished at all. Even in England, though the disproportion is not so great, it is sufficiently striking. Out of 1,766 cases of wilful murder reported by coroners during the ten years ending with 1888, only 672 persons were brought to trial, and of these 373 were acquitted or found insane.

The explanation of this uncertainty of the application of capital punishment is found partly in the provision relating to juries which requires an unanimous verdict, and partly in the circumstance that in rare cases innocent persons have atoned for crimes which they never committed. Sir James Mackintosh estimated that, "taking a long period of time, one innocent man is hanged in every three years;" while the late Chief Baron Kelly figured up that from 1802 to 1840 no fewer than twenty-two innocent men were sentenced to death, and seven of the number actually executed. This fact is known to jurors who have become extremely cautious in pronouncing judgment of guilt. Nor is it desirable that they should feel otherwise. Better that the guilty should escape than that the innocent should suffer. Better that the prisoner should have the benefit of the doubt, if any doubt exists. All the same it tends to reduce the deterrent aspect of the law, inasmuch as the murderer has reason for concluding that he stands a fair chance of escaping the extreme penalty of the law, if not escaping punishment altogether. Even in England, where justice is more swift and certain than in any other country of the world, there are only 49 convictions out of 100 committals for murder, and of the 49 about 14, on an average, are found to be insane. In cases of crime other than capital the proportionate number of convictions is 76.

But a second argument used by those who would do away with the death penalty is, the gradually diminishing number of murders in those countries where capital punishment has been abolished. In Belgium there has been no executions since 1863. The number of murders for ten years before 1921; for the ten years, 703. Finland has had no execution since 1824, and murders are extremely rare. Holland abolished capital punishment in 1870 with decrease in murders, despite an increase of population. Of course the experience of these three countries would not be a sufficient datum to ground a general conclusion which could only rest securely on a more general experience. If, however, the coming facts should harmonize with those of the three countries named, the sole justification of the death dealing law will be removed, and the dictates of humanity will then demand its abolition.

Report of the Pasteur Institute.

Pasteur is no longer an unfamiliar name, having been frequently upon the lips of men the world over during the last five years. We have come to think of it in connection with one of the greatest discoveries of the age. How much the world already owes the man who bears it may be gathered from the report of the Pasteur Institute, which has just been published giving complete statistics regarding hydrophobia, and the results of the Pasteur treatment since the method was first applied to human subjects. Between January 1, 1886, and December 31, 1889, not less than 7,893 persons have been bitten by mad dogs and treated at the Pasteur institute. Of these 53 died. In striking contrast to this small fraction is the percentage of deaths among persons bitten by mad dogs and not treated by the Pasteur method. Physicians are unanimous in placing this percentage at 15.95, in other words, 7,893 persons actually treated, 1,265 would but for this great discovery have died. Pasteur can therefore have the satisfaction of knowing that more than 1,200 lives have been saved by his institute alone during the past five years.

Austrian Amazons.

The emperor of Austria does not seem to believe in "Women's Rights." Three Polish widows, a few days ago, appealed to the ministry of war in Vienna for the privilege of organizing an Amazon corps for the imperial Austrian and Hungarian army. The three widows claimed that young women had as much right to assist in the defence of their country as had their fathers or brothers. The applicants gave an exhibition of their skill in the use of arms and their knowledge of military evolutions. They offered to equip and train the corps at their own expense. The petition was pigeon-holed. The Amazons then appealed personally to the emperor, who heard them in silence and dismissed them without an answer. They now announce that if his majesty does not grant their request they will organize their corps anyway, under the name of the Amazon Free Lancers. If the emperor refuses to grant the petition, it would be interesting to hear his reasons. Nobody doubts that women can fight real well when they want to.

Golden Thoughts for Everyday.

Monday—
O, listen, man
A voice within us speaks the startling word,
"Man, thou shalt never die!" Celestial voices
Hymn it round our souls; according harps,
By angel fingers touch'd, when the mill stars
Of morning sang together, sound forth still
The song of our great immortality!
Thick clustering orbs, and this our fair domain,
The tall, dark mountains, and the deep-toned
seas,
Join in this solemn, universal song.
—R. H. Dana.

Tuesday—As I grow older, and come nearer to death, I look upon it more and more with complacent joy, and out of every longing I hear God say: "O thirsting, hungering one, come to me." What the other life will bring I know not, only that I shall awake in God's likeness, and see Him as He is. If a child had been born and spent all his life in the Mammoth Cave, how impossible would it be for him to comprehend the upper world! His parents might tell him of its life, and light, and beauty, and its sounds of joy; they might heap up the sand into mounds, and try to show him by pointing to stalactites how grass, and flowers, and trees grow out of the ground, till at length, with laborious thinking, the child would fancy he had gained a true idea of the unknown land. And yet, though he longed to behold it, when the day came that he was to go forth it would be with regret for the familiar crystals, and the rock-hewn rooms, and the quiet that reigned therein. But when he came up, some May morning, with ten thousand birds singing in the trees, and the heavens bright, and blue, and full of sunlight, and the wind blowing softly through the young leaves aglitter with dew, and the landscape stretching away green and beautiful to the horizon, with what rapture would he gaze about him, and see how poor were all the fancings and interpretations which were made within the cave.—Henry Ward Beecher.

Wednesday—Not one religion worthy of recognition has existed that has not worked out the problem of life on the side of hope as ending in a state of painlessness and peace. Now we know that such a state is not in any way like the active conditions of this life, because in nothing is struggling more fertile than pain. All doing involves undoing; all moving involves disturbance; all activity involves change, so that no good thing in this life can be or ever is permanent. The babe grows up, but by growing grows up out of your arms and out of your house, and you grow apart. The final demand of life is that you shall die. You die to give others life. It is altogether.—E. P. Powell.

Thursday—
Come, O thou universal good!
Balm of the wounded conscience, come!
Haven to take the shipwrecked in,
My everlasting rest from sin!
Come, O my comfort and delight!
My strength, and health, and shield, and sun,
My boast, my confidence and might,
My joy, my glory, and my crown!
—Anonymous.

Friday—We pray, O Lord! If there be those now in thy presence who are in sorrow or bereavement, who are in manifold affliction, that they may find the communion of the spirit, refreshing and comforting to their souls. For thou art the comforter. Thou art the comforter. Ten thousand hast thou comforted in prison, on the scaffold, in the wilderness, on beds of sickness, in solitary places. Thou art the comforter still. Not as any one man is comforter to another art thou; but thy comforting influence is spread all abroad, through the heaven and earth, among all the sorrowing. Thou dost grant consolation to all that are in trouble.—Henry Ward Beecher.

Saturday—
The Greeks said grandly in their tragic phrase,
"Let no one be call'd happy till his death."
To which I add, let no one till his death
Until the day's-out and the labor done,
Be call'd unhappy. Measure not the work
Then bring your gauges.
—E. B. Browning.

Facts vs. Science.

So familiar have readers of this age become with the accounts of aerolites falling to earth that the statement of the fact is at once accepted, the only feeling being one of regret that the spectacle appearing to others had not been granted to us. It was not always so, however. The 18th century had almost closed before men of science began to admit that there was even an open question concerning this phenomenon; while many positively refused to believe in their existence. Even so great an authority as Lavoisier cut a sort the discussion by declaring, "There are no stones in the sky, therefore none can fall upon the earth." Had he been living in the state of Iowa last week he would now feel disposed to modify his former statement. Reports from various parts of the state announce that an aerolite of great size was seen by many thousand citizens. The sound it produced in passing through the atmosphere was suggestive of an earthquake, while the path it travelled was marked by a column of smoke plainly visible. Thus does the hammer of hard facts shatter many a fair theory which was supposed to be all-comprehending; and thus it is shown that even the physical scientist may cultivate the grace of modesty with comfort to himself and profit to his fellow men.

The Great African Forests.

In Stanley's report to the British Government in regard to his expedition for the relief of Emin Pasha, he speaks as follows of the discovery of an immense forest: "We can prove that east and north and northeast of the Congo there exists an immense area of about 250,000 square miles which is covered by one unbroken, compact and veritable forest. * * * Through the core of this forest we travelled for thirteen months, and in its gloomy shades many scores of our dark followers perished. Our progress through the dense undergrowth of bush and ambitious young trees which grew beneath the impervious shades of the forest giants, and which was matted by arums, phynia and anoma, meshed by endless lines of calamus, and complicated by great cable-like convolvuli, was often only at the rate of 400 yards an hour. Through such obstructions as these we had to tunnel a way for the column to pass. The Amazon valley cannot boast a more impervious or a more unbragous forest, nor one which has more truly a tropical character than this vast Upper Congo forest, nourished as it is by eleven months of tropical showers."

Aunt—"Well, Bobby, what do you want to be when you grow up?" Bobby (remembering private seance in the woodshed)—
"An orphan."