

# CANAL DIGGING.

**RESULTS OF THE MAKING OF ARTIFICIAL WATERWAYS.**

Canal construction an ancient enterprise—Benefits they have conferred on countries—Possibilities on this continent.

Digging canals is one of the most ancient of human enterprises, although the present day has seen the most gigantic of undertakings of that line. The Suez Canal is one of the greatest achievements of the century, and the Panama scheme would have a greater one had it succeeded. Its rival, the Nicaragua Canal, is likely to be completed in a very few years, and the dream of uniting the Atlantic and Pacific Oceans near the Isthmus connecting the North and South American continents will then be realized.

Canals, as a means of transportation, date back to a period long before the beginning of the Christian era. Among the Assyrians, Egyptians and Hindus the construction of canals for the purposes of irrigation and communication had reached a high degree of perfection, while the Chinese typify the earliest evidence of their civilization by the construction of works of this character, one of which—the Imperial or "Great Canal"—is hardly rivaled, so far as extent is concerned, even at the present day. The wonderful engineering exploit is said to have occupied 129 years in its construction, and given employment to 30,000 men. It is about 1000 miles in length, and is supplied by a great number of streams from the flat country through which it flows. Strong dykes, formed of alternate layers of earth and straw, and sometimes cased with stone, prevent the water from overflowing the flat country. In some parts it is carried on embankments twenty feet high; in others it traverses earth cuttings 100 feet in depth.

The ancient inhabitants of America have left undoubted evidences of knowledge in the construction of artificial waterways. The excavations on one of the Thousand Islands, south of Cape Romano, and in Florida, between the falls at the head of the Caloosahatchee and Lake Okechobee, are plainly discernible at the present time, while in other portions of the same State a work of like character exists, which shows considerable skill in engineering. Mounds in close proximity to the excavations have been examined by experts, and they agree that the canals is the more ancient of the two. Some few maintain that these excavations were for defensive purposes, but the most learned scientists contend that the construction of the curious earthworks is against such a possibility. The arrangement of an artificial channel between parallel embankments forty feet across at the top and traversing fourteen miles of territory, is of such character as to preclude the probability of its being for warlike purposes.

Strange as it may appear, there is hardly a country under the sun where so much has been made out of canals as in India. The most important of these miles of territory have been adapted to the system, both for transportation and irrigation purposes, and they have been of the most undoubted benefits. They have changed sections that up to that time were desert wastes into lands of amazing fertility. Partly by the aid of the Scinde, where the annual rainfall is about nine inches—a mere bagatelle to a sub-tropical earth—which has rendered it almost uninhabitable, but now the entire aspect is changed, and verdure extends to the very water edge, while crops after crops are yielded as fast as they can be sown and reaped. Whole districts have been changed. The now thriving city of Jacobabad stands on a plain which, previous to the construction of the Bezarie Canal, was a verdurous waste, the hottest part of India, and supposed to be the most uninhabitable. The thermometer climbs to 145 in the shade at Jacobabad, but since the canal brought life into the desert several thousand people have made it the place of their home.

Unquestionably the greatest waterway of this kind so far constructed, so far as accruing benefits to mankind is concerned, is the well-known canal of the Isthmus of Suez. During the infancy of Egypt Bonaparte caused the Isthmus to be surveyed by engineers, and since then the question has been agitated at intervals. England, France and Austria took hold of the matter, and sent out a commission in 1853. Another was sent out in 1853, but nothing practical was done until De Lesseps made his appearance in 1854. His plans were somewhat different from those first proposed. Instead of being an oblique canal, connecting with the Nile, as the ancients had done, his plan was to cut a canal right through the Isthmus in a straight line to Suez. His plan, strenuously opposed at first, was at length carried out.

Some idea of what has been done in the way of facilitating commerce through the medium of artificial waterways may be gained when it is stated that by the Suez Canal the distance between London and Hamburg and Bombay, India, is shortened by 4800 miles, or twenty-four days. From Marseilles or Genoa, there is a saving of thirty days, and from Trieste, thirty-seven. And if the Suez Canal has been of so much value to Europeans, of what value will the Central American systems be to the world at large? Liverpool will be almost 4000 miles nearer to Yokohama, and over 7000 miles nearer San Francisco. Hamburg will be closer by 7000 miles to Acapulco, while France will be 1500 miles nearer Tongkin, China. But our own country will be most benefited. New York will save 10,000 and New Orleans 11,000 miles between those ports and San Francisco, the latter distance being nearly equal to half circumnavigating the globe.

When the Suez Canal was first proposed De Lesseps figured that \$20,000,000 would build the project through. This certainly great amount of money frightened the capitalists, and he had a great time raising it, as it was determined that the income that could be derived from it would not justify the outlay. When it was found, in 1869—the year the canal was opened—that it had cost \$99,000,000, the people were paralyzed. No one but the daring projector could see how the scheme could nearly pay the money in it. Shares, which were at \$100, dropped to \$40 and \$20.

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**PLEASANT LITERATURE FOR FEMININE READERS.**

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# AGRICULTURAL.

**TOPICS OF INTEREST RELATIVE TO FARM AND GARDEN.**

**PASTURING RYE IN WINTER.**

Rye may profitably be pastured by sheep in some of the Southern States, but in the North, where cold winters with its leaves, they are not worth enough to offset the poaching of the ground that is sure to occur in midday even in cold weather. If, however, the rye is getting too large a pasture with sheep or calves is necessary. If there is any danger of its getting into joint it becomes tender, and a slight amount of cold destroys the crop, as it would of the most tender vegetable.

**APPLE WOOD FOR FUEL.**

In most old orchards there are some trees that have become stunted, and except with extraordinary attention will never pay their way. The better plan is to dig them out root and branch and use them for fuel. The extra care concentrated on the remaining trees will bring far larger returns. Most orchards are planted much too closely for the best results. Where the tree was dug out fill in with rich dirt from the roadside, and the trees on all corners from the old one will show in their increased products how much they appreciate the wider range given their roots. Apple tree wood makes excellent summer fuel, and is especially rich in potash.

**FLOWER POTS.**

It may be well to remember that there are other uses for old fruit-cans than feeding them to goats or filling gutters; they are just the things for home plants of many sorts. They will retain moisture much longer than an earthen pot of the same diameter on top, they hold more soil, consequently a larger plant can be grown in the same sized pot. We have seen all manner of house plants, including hyacinths, in the windows of ordinary farm-houses, growing in tomato cans, that would put to shame many of our florists' productions, and mainly because the plants were in better quarters than in porous earthen pots. Try tin cans, after pouring holes in the bottom for drainage, painting them nicely, not red—but some neutral tint that will not detract from foliage or flowers—and mark the result.—*New York Observer.*

**ONION CULTURE.**

Twelve years' experience in raising onions, and no trouble from maggots and worms. I have sown and raised on the same piece for six years, and the crop grew better every year. When the time comes to sow onion seed in the spring, generally about the last of April, as early as the ground will let me, I spread on thickly rotten manure, plow it under, and then rake the ground off and mark it out in drills fifteen inches apart. I next sow unleached wood ashes in the drills at the rate of fifty bushels per acre. I then sow the black seed on the ashes and cover with earth. They will come up black and keep so. I have no trouble from worms and maggots. Unleached wood ashes and onions are great friends. "Use them freely" is my motto, and I have never failed of raising a good crop of onions.—*American Cultivator.*

**THE USE OF FERTILIZERS.**

A farmer a few days ago made a good suggestion about the proper use of fertilizers, and as he is a successful planter it is worth giving for the benefit of others. "I find," said the farmer, "that a great deal of money is wasted by a too lavish use of fertilizers when the crop is planted. If you want to fatten a pig you do not give him all the food at once, simply because it will be wasted and destroyed before it can be eaten up by the pig. So it is with food for the plant. Put on part of your fertilizer when you plant your crop, then every time you water it add a little more. If a drought comes, and you find it will not be needed, you save that much. It frequently happens that a crop is injured more than it is benefited by the improper use of fertilizer. Then again by putting the fertilizer on later in the season you get more benefits when the crop is maturing and fruiting." Apparently there is good sense in the suggestion.—*Atlanta Constitution.*

**DISEASE IN FOWLS.**

When fowls become stupid and sleepy with the feathers bunched up and the excrement yellow and green in color, the disease is anthrax, or, as it is commonly called, cholera. It is a disorder of the liver and contagious. It usually happens when fowls are kept in damp and filthy houses, and are overfed, and these faults quickly produce such an unhealthy condition as to make the birds susceptible to the contagion. It is scarcely worth while to attempt a cure. The sick fowls should be killed without bleeding and buried away from the house and the house thoroughly disinfected by burning sulphur on hot coals in it with the doors closed. It should be well cleaned and kept clean. Feed the remaining fowls with scalded meal, dissolving for each two fowls one dram of hyposulphite of soda in the water used. Continue this for a week and feed no more than one ounce of meal for each fowl daily. After the week feed wheat and buckwheat, chopped cabbage and some broken bones. A little salt and pepper should always be given in the feed of hens two or three times a week, and some vegetable food should be supplied. Chopped cabbage is the best food of this kind.—*New York World.*

**TO SAVE GRAIN IN BINS.**

Every year a good deal of grain is spoiled by molding or becoming musty after being threshed. This year, unless threshing is delayed until very late, the losses from this cause are likely to be unusually heavy, owing to the wet weather of harvest time and the bad condition in which much grain was got under cover. We heard a few days ago a practical farmer describe a method by which he put up grain, however wet and in any amount, without injury. He kept a lot of common brick under cover, as to be always dry, and when the grain was put into the bin he interspersed brick through the heap enough to absorb the superfluous dampness. Almost every one knows that kiln dried brick will absorb a great amount of water in proportion of their size. The brick in a heap of damp or even wet grain will, if numerous enough, dry it out, saving all danger of heating. After serving their purpose the brick should be carefully put on side for use another year. Our informant's father

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Twelve years' experience in raising onions, and no trouble from maggots and worms. I have sown and raised on the same piece for six years, and the crop grew better every year. When the time comes to sow onion seed in the spring, generally about the last of April, as early as the ground will let me, I spread on thickly rotten manure, plow it under, and then rake the ground off and mark it out in drills fifteen inches apart. I next sow unleached wood ashes in the drills at the rate of fifty bushels per acre. I then sow the black seed on the ashes and cover with earth. They will come up black and keep so. I have no trouble from worms and maggots. Unleached wood ashes and onions are great friends. "Use them freely" is my motto, and I have never failed of raising a good crop of onions.—*American Cultivator.*

**THE USE OF FERTILIZERS.**

A farmer a few days ago made a good suggestion about the proper use of fertilizers, and as he is a successful planter it is worth giving for the benefit of others. "I find," said the farmer, "that a great deal of money is wasted by a too lavish use of fertilizers when the crop is planted. If you want to fatten a pig you do not give him all the food at once, simply because it will be wasted and destroyed before it can be eaten up by the pig. So it is with food for the plant. Put on part of your fertilizer when you plant your crop, then every time you water it add a little more. If a drought comes, and you find it will not be needed, you save that much. It frequently happens that a crop is injured more than it is benefited by the improper use of fertilizer. Then again by putting the fertilizer on later in the season you get more benefits when the crop is maturing and fruiting." Apparently there is good sense in the suggestion.—*Atlanta Constitution.*

**DISEASE IN FOWLS.**

When fowls become stupid and sleepy with the feathers bunched up and the excrement yellow and green in color, the disease is anthrax, or, as it is commonly called, cholera. It is a disorder of the liver and contagious. It usually happens when fowls are kept in damp and filthy houses, and are overfed, and these faults quickly produce such an unhealthy condition as to make the birds susceptible to the contagion. It is scarcely worth while to attempt a cure. The sick fowls should be killed without bleeding and buried away from the house and the house thoroughly disinfected by burning sulphur on hot coals in it with the doors closed. It should be well cleaned and kept clean. Feed the remaining fowls with scalded meal, dissolving for each two fowls one dram of hyposulphite of soda in the water used. Continue this for a week and feed no more than one ounce of meal for each fowl daily. After the week feed wheat and buckwheat, chopped cabbage and some broken bones. A little salt and pepper should always be given in the feed of hens two or three times a week, and some vegetable food should be supplied. Chopped cabbage is the best food of this kind.—*New York World.*

**TO SAVE GRAIN IN BINS.**

Every year a good deal of grain is spoiled by molding or becoming musty after being threshed. This year, unless threshing is delayed until very late, the losses from this cause are likely to be unusually heavy, owing to the wet weather of harvest time and the bad condition in which much grain was got under cover. We heard a few days ago a practical farmer describe a method by which he put up grain, however wet and in any amount, without injury. He kept a lot of common brick under cover, as to be always dry, and when the grain was put into the bin he interspersed brick through the heap enough to absorb the superfluous dampness. Almost every one knows that kiln dried brick will absorb a great amount of water in proportion of their size. The brick in a heap of damp or even wet grain will, if numerous enough, dry it out, saving all danger of heating. After serving their purpose the brick should be carefully put on side for use another year. Our informant's father

# HOUSEHOLD MATTERS.

**A CHEAP SOFA RUG.**

To make a sofa rug which costs nothing but the work, collect all the soft woolsen rags of all colors, and as much turkey-red and waste twine as you can find about the house; cut the rags a little finer than carpet rags; saw two yard-sticks apart lengthwise, to make four yard-sticks; have ready a piece of old red-ticking one yard wide and two and one-half yards long, with the stripes running across to guide the work. Now take three strips of different colored rags, and wind each stick full; as fast as one rag is used up lap in another of different color. When you have reached the end, thread a button-needle with twine and sew the rags in long stitches along the edge of the stick. Place the stick, with the sewed edge down, on the first stripe at the edge of ticking, and sew the ticking to the rags on the stick—the two sewings being on the same edge of the stick. Place the second stick next the first, the third next the second, the fourth next the third, etc., sewing the ticking firmly to the sewed edge of each stick. Next, place the work on the table, and with a sharp knife cut the rags along the unsewed edge of the first three sticks, leaving the fourth a guide. Re-cover the three sticks with rags, as before, and repeat until the ticking is filled. This will give you a beautiful soft rug, like tufted wool, with the colors beautifully blended.—*Farm, Field and Stockman.*

**TEAUP TOWELS AND DISH-CLOTHS.**

It is difficult to announce the amount of evil that may be visited on a family through means of unclean dishcloths. Typhoid fever and kindred diseases have been traced directly to the unwashed rags which play the part of dishcloths in the kitchens of some intelligent women who do not visit their kitchens. If servants are provided with neatly hemmed dishcloths and teaup towels marked with the housekeeper's name, they will be more likely to treat the kitchen towels with the respect it deserves than if unhemmed rags are given them for this purpose made of any old soft material. It is very difficult to get servants to treat anything respectably that does not look respectable. Every kitchen girl should be given at least two dishcloths and a sufficient number of kitchen towels and glass towels, and be told distinctly that they must be washed out every day, and dried, when possible, outdoors. At the end of the week the first supply of towels should be put in the family wash and washed and ironed and sent to the linen closet till the next week. By such a method as this, keeping two sets of kitchen towels in use in rotation, the housekeeper can see at a glance whether they are kept in order. It does not cost over \$1.50 a year to keep the kitchen in a small family supplied with hemmed towels and dishcloths. The petty amount saved by using cast-off flannels and other old pieces for this purpose is more than counter-balanced by time lost in making up these pieces, which hardly give a week's serviceable wear. The very best material for a dishcloth is linen stair crash. Four good dishcloths of linen crash will last six months each, and will last a year, if they are not used to scour knives and to wash the bottoms of iron pots. A large cork is the best thing to scour with, with, and a dishcloth should hang in every kitchen to wash the bottoms of kettles and to scour the fire. Some servants will insist on plunging these towels into the dishwater and in using fine glass towels for wiping coarse dishes, but such careless ways will usually be abandoned if a little judicious oversight is kept of the kitchen. Where the housekeeper does her own work it is as necessary to have neat, strong towels in plentiful supply in the kitchen as where a servant is kept. Large towels of heavy crash for handling articles above the stove are very convenient, and can be more easily washed than a holder. They are, moreover, more convenient than a holder in lifting large baking-pans and many other dishes, and pots and pans.—*New York Tribune.*

**RECIPES.**

**Beef Loaf.**—To one pound of beef (from the round), chopped fine, add one egg, one-third of a cup of fine bread crumbs, salt and pepper. Make into a loaf, with a little flour on outside, and roast with frequent basting. When served garnish with parsley leaves.

**Mint Sauce.**—To be eaten with roast mutton or lamb. Take the youngest leaves of the spearmint, cut away all the stems, chop very fine, put a teaspoonful of sugar to two or three of the mint, and use sufficient vinegar to be thoroughly flavored by the mint. Make at least an hour before it is to be used.

**Pea Soup.**—Pick over one pint of split peas, wash and soak overnight. In the morning turn off the water and put them in the soup pot; add four quarts of cold water, quart of lean salt pork, one small onion, celery, salt and a little pepper. Boil gently four or five hours, being careful that it does not burn.

**Boiled Onions.**—Two dozen onions, salt, pepper, butter and milk. Peel, wash and boil in salted water until tender; ten minutes before the water is drained off, add one-half teaspoonful of fuschia, which will give the onions a clear, creamy appearance. Drain; season with pepper, salt, butter and one small cupful of cream or milk.

**Plain Rice Pudding.**—Scald two tablespoonfuls of rice to remove the earthy taste. Add one quart of milk, a little salt, half a teaspoonful of white sugar, one small onion, celery, salt and a little pepper. Boil gently four or five hours, being careful that it does not burn.

**The Formation of Coal.**

Experts on the subject of coal formation declare that it takes an immense amount of vegetable matter to form a layer of coal, it being estimated that the present growth of the world would make a layer less than one-eighth of an inch in thickness, and that it would take a million years of vegetable growth to form a coal bed ten feet in thickness.

The United States has an area of more than 440,000 square miles of coal fields, and more than 100,000 tons of coal were mined in this country last year; enough to run a ring around the earth at the centre five and one-half feet wide and five and one-half feet thick. Competent scientists say that there is enough coal in the United States to supply the world for the next 2000 years.

The last census in New Zealand revealed the fact of a preponderance of religion on the part of no less than ninety-five per