

EXTRACTS FROM

DRAINING FOR PROFIT AND DRAINING FOR HEALTH

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All lands, of whatever texture or kind, in which the spaces between the particles of soil are filled with water (whether from rain or from springs) within less than four feet of the surface of the ground, except during and immediately after heavy rains, require drainage.

The sources of water in the soil are various. It either falls directly upon the land as rain, rises into it from underlying springs, or reaches it through, or over, adjacent land.

The rain water belongs to the field on which it falls, and it would be an advantage if it could all be made to pass down through the first three or four feet of solid soil, and be removed from below. That first falling contains the fertilizing matters washed out from the air, and in its descent through the ground these are given up for the use of plants; and it performs other important work among the vegetable and mineral parts of the soil.

The spring water does not belong to the field, not a drop of it, and it ought not to be allowed to show itself within the reaches of the roots of ordinary plants. It has fallen on other land, and, presumably, has there done its appointed work, and ought not to be allowed to convert our soil into a mere outlet passage for its removal.

The ooze water, that which soaks out from adjoining land, is subject to all objections which hold against spring water, and should be rigidly excluded.

But the surface water, which comes over the surface of higher ground in the vicinity, should be allowed every opportunity, consistent with good husbandry, to work its slow course over the soil; not to run in such streams as will cut away the surface, nor in such quantities as to make the ground inconveniently wet, but to spread itself in beneficent irrigation, and to deposit the fertilizing matters which it contains, then to descend through a well-drained subsoil, to a free outlet.

From whatever source the water comes, it cannot remain stagnant in any soil without permanent injury to its fertility.

The first growth of the embryo plant, in the seed is merely a change of form and position of the material which the seed itself contains. It requires none of the elements of the soil, and would, under the same conditions, take place as well in moist saw-dust as in the richest mold. The conditions required are: the exclusion of light, a certain degree of heat, the presence of atmospheric air, and moisture.

After the surface has become sufficiently dry, the land may be plowed; seeds will germinate, and plants will grow. If there be not too much rain during the season, nor too little, the crop may be a fair one; if the land be rich, a very good one. It is not impossible, nor even very uncommon, for such soils to produce largely, but they are always precarious. To the labor and expense of cultivation, which fairly earn a secure return, there is added the anxiety of chance; success is greatly dependent on the weather, and the weather may be bad. Heavy rains, after planting, may cause the seed to rot in the ground, or to germinate imperfectly; heavy rains during early growth may give an unnatural development, or a feeble character to the plant; later in the season, the want of sufficient rain may cause the crop to be parched by drought, for its roots, disliking the clammy subsoil below, will have extended within only a few inches of the surface and are too subject to the action of the sun's heat; in harvest time, bad weather may delay the gathering until the crop is greatly injured, and fall and spring work must often be put off because of wet.

Land which requires draining is that which, at some time during the year (either from an accumulation of the rains which fall upon it, from the lateral flow, or soakage, from adjoining land, from springs which open within it, or from a combination of two or all of these sources), becomes filled with water that does not readily find a natural outlet but remains until removed by evaporation.

Evaporation is a slow process; it becomes more and more slow as the level of the water recedes from the surface and is sheltered, by the over-

lying earth, from the action of the sun and wind. Therefore, at least during the periods of spring and fall preparation of the land, during the early growth of plants, and often in midsummer, the water-table—the top of the water saturation—is within a few inches of the surface, preventing the natural descent of roots, and, by reason of the small space receive fresh rains causing an interruption of work for some days after each storm.

In the heaviest storms, some water will flow over the surface of even the driest beach-sand; but, in a well drained soil the water of ordinary rains will be at once absorbed, will descend toward the water-table, and will be removed by the drains, so rapidly, even in heavy clays, as to leave the ground fit for cultivation and in a condition for steady growth, within a short time after the rain ceases. It has been estimated that a drained soil has room between its particles for about one quarter of its bulk of water; that is, four inches of drained soil contains free space enough to receive a rain-fall one inch in depth, and, by the same token, four feet of drained soil can receive twelve inches of rain—more than is known ever to have fallen in twenty-four hours, since the deluge, and more than one quarter of the annual rainfall in the United States.

Another cause of the retention of water by the surface soil, often a very serious one, is the puddling which clayey lands undergo by working them, or feeding cattle upon them, when they are wet. This is always injurious. By draining, land is made fit for working much earlier in the spring, and is sooner ready for pasturing after a rain, but, no matter how thoroughly the draining has been done, if there is much clay in the soil, the effect of the improvement will be made less by plowing or trampling, while very wet; this impervious condition will be removed in time, of course, but, while it lasts, it places us more or less at the mercy of the weather as we were before a ditch was dug.

So great is the effect of evaporation, on the temperature of the soil, that Dr. Madden found that the soil of a drained field in which most of the water was removed from below, was six and one-half degrees warmer than a similar soil undrained, from which the water had to be removed by evaporation. This difference of six and one-half degrees is equal to a difference of elevation of 1,950 feet.

It has been found, by experiment made in England, that the average evaporation of water from wet soils is equal to a depth of two inches per month, from May to August, inclusive; in America it must be very much greater than this in the summer months, but this is surely enough for the purposes of illustration, as two inches of water, over an acre of land, would weigh about two hundred tons. The amount of heat required to evaporate this is immense, and a very large part of it is taken from the soil, which thereby becomes cooler and less favorable for a rapid growth. It is usual to speak of heavy, wet lands as being "cold," and it is now seen why they are so.

The season of growth is lengthened by draining because by avoiding the cooling effects of evaporation, germination is more rapid, and the young plant grows steadily from the start, instead of struggling against the retarding influence of a cold soil.

TEMPERATURE—The temperature of the soil has great effect on the germination of seeds, the growth of plants, and the ripening of crops.

DROUGHT—At first thought, it is not unnatural to suppose that draining will increase the ill effects of too dry seasons, by removing water which might keep the soil moist. Experience has proven, however, that the result is exactly the opposite of this. Lands which suffer most from drought are most benefited by draining, more in their greater ability to withstand drought than in any other particular. This applies to heavy soils.

If kept saturated with water, so that the air is excluded, animal manures lie nearly inert, and vegetable matters decompose but incompletely, yielding acids which are injurious to vegetation, and which would not be formed in the presence of a sufficient supply of air.

MILAN LUSK TELLS OF WAR

(Continued from page one)

represented the most undesirable element among the population. It is one of the rules of their religion not to wash their bodies or to ever change their clothing. Consequently they are absolutely unhygienic and walking pest producers. They have carried serious contagious diseases from the front into the concentration camps or villages.

"One of the largest of these colonies of fugitives is located at Chocew. Bohemia, where some 17,000 Polish refugees live on the outskirts of the town, housed in rude, hastily constructed wooden houses—ugly unpainted barracks. This improvised town has its own school, church, power plant, hospital, etc. Of course it is but temporary. After the war it will entirely disappear. Ordinary civilians are not allowed to enter this town because of the continual presence of typhoid and scarlet fever.

Slips Into Disease-Bound Town.
"Through the efforts of a friend I managed to slip into this town by a side entrance, for the main roads are strongly guarded by gendarmes with rifles and fixed bayonets. It was a filthy, disgusting sight that greeted my eyes, once I was within the forbidden territory. Streets that looked like back alleys and with mud ankle-deep. Ragged, unkempt children running about and beneath the feet. Everything in disorder and utter stagnation.

"Finally I made my way to the hospital where I fortunately met a physician friend who showed me the details of this unsightly spot. On an average of ten inhabitants a day fall victims to the plague and are buried in a dismal cemetery, untidy like the rest of the settlement. I saw a hearse, bearing three coffins, draw up in the graveyard. No mourners followed and the black-tarred burial boxes were hastily thrown into a pit, with practically no burial ceremony.

"There are many such settlements of other nationalities, especially Italians, and the camps of interned Russians at Siegnundshersherz and Tuller are much on the same order."

MARGARET SLATTERY TO SPEAK

Miss Margaret Slattery, who will speak in the Congregational church, Sunday afternoon at five o'clock, is well known in the east as one of the most sought for speakers, whose audiences are often so great that many are turned away. All parents and teachers will be interested in what Miss Slattery has to say. She is the author of many books, among them, "The Girl in Her 'Teens," and "Just Over the Hill." Winnetka is very fortunate in getting a woman who is in so much demand.

Read All the Newspaper.

STENOGRAPHERS IN DEMAND

Greatly increased demands for stenographers and typewriters in the United States Government service at Washington, owing to the present emergency, require frequent examinations. Appointments in large numbers are to be made as soon as eligibles are available. Examinations for men and women will be held every Tuesday and applications may be filed with the Commission at Washington at any time. The entrance salary ranges from \$900 to \$1200 a year. Applicants must have reached their eighteenth birthday on the date of examination. For full information call upon your postmaster.

NEW TRIER MEETS BELOIT.

Swimmers from the New Trier High school will go to Beloit, Wis., tomorrow night, for a match with the tank artists of Beloit college at Beloit Interscholastic. Coach Hyatt will take six or seven of New Trier's finest and expects to return with the scalps of the enemy hanging from the girdles of his warriors.

WANTED

A small furnished house or bungalow in Glencoe or Hubbard Woods for summer months near Skookie Golf Club. A-150 Lake Shore News.

Mr. and Mrs. Arthur F. Klein, 369 Hawthorne Lane, announce the birth of a daughter, April 29.

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Butter Cream Cone Cakes 50c
Fresh Rhubarb and Apple Pies 25c
Fresh Strawberry Pie 75c

Cherry Tarts, a full Desert per lb. 10c
Rich Cream Cheese Cake per Cut 10c
Stressel Coffee Cake 10c
Assorted Sandwiches for afternoon Tea, fillings all made with best Olive Oil Mayonaise 45c-60c
Decorated Open Sandwiches, per dozen 75c-\$1.00
Fruit Salad, qt. \$1.25 \$2.50
Chicken Salad, qt. \$2.50
Potato Salad, lb. 25c 40c
Spring Time Salad (of fresh vegetables), lb 35c

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TO THE PUBLIC

We wish to announce that the EVANSTON CARPET CLEANING COMPANY has but one Evanston Office which is still located at 920 Church St., TELEPHONE EVANSTON 277, and that we have no connection whatever with Evanston Carpet Cleaners at 618 Greenwood.

We fine it necessary to make this announcement by reason of the attempt of a competitor to profit by the good will and reputation enjoyed by the undersigned by adopting a name so similar to ours as to inevitably lead to confusion, and one which, (by reason of the alphabetical arrangement of the telephone directory) will be found in the last (March) edition thereof immediately preceding the name under which we have been doing business for more than four years last past.

EVANSTON CARPET CLEANING CO.

By L. H. KOSHGARIAN, Mgr.