

SOIL MOISTURE EVAPORATION LOSS IN VARIOUS SOILS

Third of Series of Articles on Local Farm and Orchard Problems in the Rogue River Valley by a Soil Expert—Quantity of Moisture Needed in Soil for Crops.

By W. W. WATSON. In an effort to avoid unreasonable extremes in the use of figures in connection with the important details of soil moisture, I find that it is equally possible to be too conservative. On investigation today I discover that the general estimate of the depth of moisture in the soil concerned in plant production is from eight to ten feet. It will be sufficient in this discussion to consider the depth of eight feet.

At the rate of 3 per cent of moisture to the depth of one foot for each inch of water applied, a fairly heavy irrigation of six inches would give the full soil column of eight feet only 18 per cent of moisture. We still lack six inches of water to bring the saturation up to the maximum, 36 per cent.

Water added to the soil by irrigation distributes itself with great regularity to considerable depths. In ordinary soils and where there is no sub-irrigation the percentage of moisture is generally about one-third less at the eight-foot depth than near the surface, until the percentage of the latter is reduced by evaporation and the exaction of plant life.

Loss by Evaporation. The rate of moisture evaporation during the months of greatest sun-warmth, including the effect of desiccating winds, will surprise those who have given the matter no study. In California, for instance, evaporation from a water surface is 72 inches for six months. That is the highest so far given in any of the states. In the Rogue River valley it is 30 inches. That is the total of evaporation from a water surface; but the evaporation of soil moisture has been known to be two and a half times greater than the evaporation from a water surface.

That extreme difference is due to the higher absorptive capacity of the soil for heat—found, for instance, in very dark soils. In soils of fine texture the water moves upward more rapidly to be changed into vapor. Evaporation is most rapid in the darkest soils. The driest air consumes the greatest quantity of soil moisture. Light-colored soils yield their moisture much more reluctantly.

Averaging the moisture losses from the various types of soil in this valley, both from sun heat and desiccating winds—the observations being taken on the low lands of the cultivated area, where the soil texture is fine—we find a total of five inches a month in cases in which irrigation was applied practically twice a month. That is a low estimate.

Greater Than the Rainfall. Hence, we find that the loss of soil moisture by evaporation alone during the period of the six warmest months in this valley is two and a half times greater than the total of rainfall for the entire year, in each of the last two or three years.

After the first six weeks of sun heat and drying winds, therefore, what must be the condition of the soils of the fields on which we have no irrigation and, during that period, no rainfall, as is frequently the case here? The loss of the soil moisture during that time is nearly half the total sum of the rainfall for the entire year; and the crops have only begun to develop. More than 29 per cent of soil moisture has been lost, reducing the remaining percentage practically to the lenticular point, at which the soil particles refuse to yield any more moisture to the growing plants.

At that stage of growth the crop is ruined. Even should a drenching rain fall, it could only partially revive the damaged crops. The loss is positive and permanent.

A Tremendous Loss. In that manner and from those natural causes the farmers of this valley have lost millions of dollars in the last few years—a sum large enough to install half a dozen irrigation systems for the entire valley on a spot-cash proposition. The loss can never be recovered. The only safety for the farmer lies in preventing its recurrence. Irrigation is the only insurance against loss of that kind. Water for that purpose is abundant. Great canals have been constructed to carry it to the fields in the heart of the valley. They command the areas of dark soils, where irrigation is most needed. The men who will gamble with the elements, when the water is carried to his door at a less total price than the sum of his loss in one year from drought, has only a pious conception of the meaning of success on the farm.

MINE WORKERS FAVOR NATIONAL OLD AGE PENSIONS

INDIANAPOLIS, Jan. 19.—Delegates to the United Mine Workers' international convention expected to act today upon resolutions favoring a national old age pension law, the building of a home for miners and the erection by the union of its own building and printing plant. Numerous resolutions against preparedness are in the hands of the resolutions committee.

Van Bittner of Pittsburgh, president of the Western Pennsylvania Miners, was made chairman of the scale committee of the United Mine Workers of America, which was appointed today by John P. White, international president of the organization. The duty of this committee is to fix a basic scale on which negotiations are conducted with the mine operators throughout the country. The anthracite demands having already been drafted subject to approval of the convention, the committee will confine its labors to the soft coal situation.

The committee is made up of the presidents of the twenty-four districts into which the international organization is divided.

OFFERS \$49,500 FOR WILLARD FIGHT

NEW YORK, Jan. 19.—Tex Rickard and Samuel McCracken, who made the original offer of \$45,000 for a ten-round bout here between Jess Willard and Frank Moran, increased that offer today to \$49,500. They have come to an agreement with Moran by which the Pittsburgh man's end of the purse will be \$17,000 instead of \$15,000 and have wired to Willard and his manager that they will give the champion \$32,500, the original offer having been \$30,000.

Moran said today that he had accepted the terms offered by Rickard and McCracken with the understanding that the bout should be indoors next March, and until the expiration of that month he would not consider any other propositions to meet Willard.

STEAMER RYNDAM AGROUND IN BRITAIN

LONDON, Jan. 19.—The steamship Ryndam of the Holland-American line, is aground at Gravesend. No report has yet been made of the extent of the damages the vessel received. None of the passengers or crew is allowed to leave the vessel.

The Ryndam, which left New York on January 2 with 79 first-class, 34 second class and 38 third-class passengers, as well as mail for Rotterdam via Falmouth, was reported in a cable dispatch yesterday as having passed Southend down by the bows with a list to starboard and as having arrived later at Gravesend.

It was added later that all the passengers were saved, but that three stokers were killed and four injured. The form of accident was not announced.

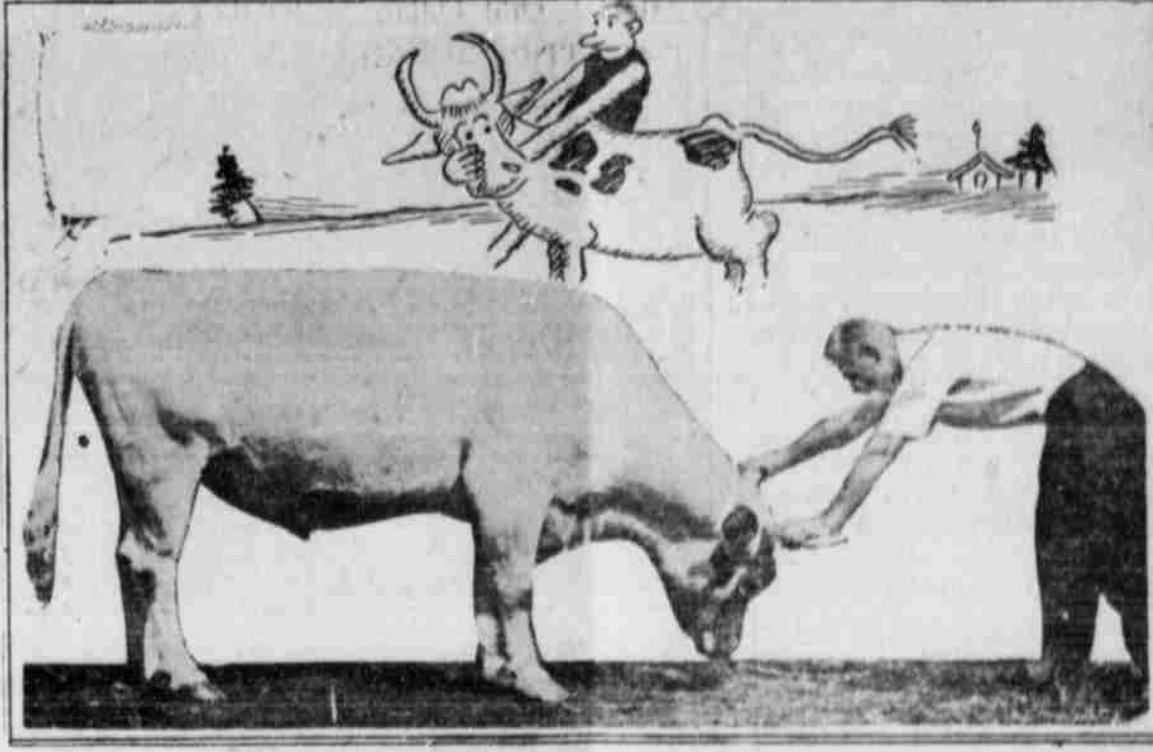
TEUTONIC ALLIES DISCUSS FINANCES

LONDON, Jan. 19.—The Exchange Telegraph company's Amsterdam correspondent says that a conference of the finance minister of Germany, Austria-Hungary, Turkey and Bulgaria will be held next week in Vienna. The chief purpose of the conference, it is said, is the discussion of the financial position of the Teutonic allies and the adoption of measures to meet certain contingencies.

BRITISH LOSS ON GALLIPOLI SLIGHT

LONDON, Jan. 19.—Harold J. Tennant, parliamentary under-secretary for war, stated in the house of commons this afternoon that he thought a quarter or an eighth of the 2,000,000 pounds sterling attributed in the Turkish reports as the value of the booty left when the British evacuated Gallipoli peninsula, would cover every thing left behind.

COLLEGIAN WRESTLES REAL BULL IN TRAINING FOR ATHLETICS



AKRON, O., Jan. 13.—Ollie Driesbach of Akron university wrestles a real live bull to develop muscles for use in athletics. Driesbach is the strongest student at the college and attributes his strength to his unusual exercise. He is a candidate for the basketball team of this season and did such good work on the football team in 1915 he was elected captain for 1916.

Driesbach wrestles the bull almost every day. He walks into the pasture, where the animal is kept, with a trainman's flag fastened to his belt. The flag never fails to attract the attention of the bull. The athlete has been through several times in his workouts, but has always come back for more. He grabs the bull by the horns and wrestles with him in an effort to force the bull's head to the ground.

In some of the battles, Driesbach has been tossed hither and thither as the bull has swung his head and roared about, but the athlete has been able to hang on and save himself from injury. Driesbach's arm and shoulder muscles are unusually well developed. His gate strength serves him so well that in basketball he can shoot the ball the full length of the gymnasium without turning his body. The young athlete is unusual in his mode of life as well as in his selection of exercise. He camps out all summer long and at the end of each week in the winter. Friends of Driesbach say that except in the field he never throws the bull. He is modest and unassuming.

KAISER VISITS NISH, MET BY FERDINAND

LONDON, Jan. 19.—A dispatch received by Reuter's Telegram company, says that Emperor William met King Ferdinand of Bulgaria in Nish, Serbia, yesterday. This information was forwarded from Nish by way of Berlin.

TURKS REPULSE RUSSIAN ATTACKS

CONSTANTINOPLE, Jan. 19, via Amsterdam and London.—The following official statement was issued at Turkish army headquarters: "Caucasian front: The Russians, who sustained considerable losses in our violent attacks and owing to our reinforcements, were compelled to abandon their attacks along the entire front. Despite eight days of very violent offensive operations by superior enemy forces, the situation, apart from slight changes, remains favorable to us. There is otherwise no new development."

CHILI RATIFIES PEACE TREATY

WASHINGTON, Jan. 19.—Chile's ratification of the peace commission treaty negotiated by former Secretary Bryan, was presented to the state department today by the Chilean ambassador, Eduardo Suarez Mujica.

ROOSEVELT'S NIECE HELD ON INSANITY CHARGE

LONDON, Jan. 19.—Miss Ethel Lalande of New York, who claims to be a niece of Theodore Roosevelt, has been detained by the police for examination into her sanity. Lalande came here on war work.

BRITISH STEAMER MARER SUNK—CREW IS RESCUED

LONDON, Jan. 19.—The steamship Marer has been sunk. Her crew was rescued.

WANTED—Women let us make money selling gun hosiery to wear; full or part time; big profits; experience unnecessary. Address, International, Box 122, Norristown, Pa.

FOR EXCHANGE—Clear property for equity or with redemption right; preferred; any amount. Mail Tribune.

LOST—Friendship bracelet; return to Ethel Anderson, Front street and receive reward.

LOST—Pair of gold rimmed glasses. Finder please return to Mail Tribune office or call 272.

FOR SALE—Or exchange, used furniture. What have you? Box 11, Mail Tribune.

FOR SALE—Corn. Phone 278.

FOR SALE—Thoroughbred Island Red chicks at the clover. Phone 376, W. J. H. also eggs for hatching.

Large advertisement for Prince Albert tobacco featuring a portrait of a man and the text 'PRINCE ALBERT the national joy smoke'.

Text advertisement for Prince Albert tobacco: 'FIRST thing you do right away is to answer this fair-to-you question: Why is Prince Albert tobacco universally distributed and universally smoked? And if the answer isn't on the front-end of your tongue; if you don't feel it just galloping right out of your think-division, get-going for the nearest store that sells tobacco. Invest 5c or 10c for a test-out! You'll get the answer, all right! And you'll know more about where you and your tongue and throat stand on the pipe and cigarette makin's question in a mighty short time! Sure as you are a foot high! The patented process fixes that—and cuts out bite and parch. Men who have never smoked a pipe or rolled a cigarette have something mighty fine coming. For P. A. is the first-hand-pal of every man who is willing to have it proved to his satisfaction that here is tobacco that the man with the tenderest tongue and throat can smoke his fill with a relish! Will you take our word for it? R. J. REYNOLDS TOBACCO COMPANY, Winston-Salem, N. C.'

LEWIS MAY TIE CAN TO CANTINE AS ROAD BOSS

SALEM, Or., Jan. 19.—The supreme court gave Governor Withycombe and State Treasurer Kay a final knockout blow in their fight against State Engineer Lewis yesterday when it denied their motion for rehearing in the Salem highway case brought by Peterson & Johnson. The supreme court decided in its decision three weeks ago that Lewis, and not E. I. Cantine, was head of the highway department, but Withycombe and Kay sought to find a loophole in assuming that the state highway commission, of which the governor and state treasurer are members, could still give orders to Cantine as deputy state engineer.

In denying the rehearing today the supreme court made it plain that State Engineer Lewis is the man with whom the state highway commission must deal. "I will immediately assume charge of the office, and for the time being I will allow Cantine to continue as chief deputy," said Lewis when advised of the decision. "This will be necessary, because in pending litigation as to highway work under his administration I will need to know his side of the controversy. Whether, after that, I will retain him, I have at the present nothing to say."

Between Lewis and Cantine there has never been a good feeling since the latter elected to side with the highway commission in the controversy as to whether he or Lewis was entitled to have charge of the highway work. Lewis, he it known, has been contemplating discharging him, and giving as a reason that he can perform the work personally. His statement today would indicate that he is considering carrying out such a program.

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SAYS HOT WATER WASHES POISONS FROM THE LIVER

Everyone should drink hot water with phosphate in it, before breakfast.

To feel as fine as the proverbial fiddle, we must keep the liver washed clean, almost every morning, to prevent its sponge-like pores from clogging with indigestible material, sour bile and poisonous toxins, says a noted physician.

If you get headaches, it's your liver. If you wake up with a bad taste, furred tongue, nasty breath or stomach becomes rancid, it's your liver. Battered skin, muddy complexion, watery eyes all denote liver uncleanness. Your liver is the most important, also the most abused and neglected organ of the body. Few know its function or how to release the dammed-up body waste, bile and toxins. Most folks resort to violent calomel, which is a dangerous, salivating chemical which can only be used occasionally because it accumulates in the tissues, also attacks the bones.

Every man and woman, sick or well, should drink each morning before breakfast, a glass of hot water with a teaspoonful of limestone phosphate in it, to wash from the liver and bowels the previous day's indigestible material, the poisons, sour bile and toxins; thus cleansing, sweetening and freshening the entire alimentary canal before putting more food into the stomach.

Limestone phosphate does not restrict the diet like calomel, because it can not salivate, for it is harmless and you can eat anything afterwards. It is inexpensive and almost tasteless, and any pharmacist will sell you a quarter pound, which is sufficient for a demonstration of how hot water and limestone phosphate cleans, stimulates and freshens the liver, keeping you feeling fit day in and day out.

M'CURDY INSURANCE AGENCY. Effects Insurance of All Kinds. Telephone 123. Sparta Bldg.

Bargains in ROSES. 200 Three-year-old Caroline Testout. Roses for sale at a bargain. The finest roses in Medford from the best rose hedge in the city.

Pierce, the Florist. WESTON'S. 208 East Main Street, Medford.

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