

GALE PLAYS HAVOC AT SAN FRANCISCO

One Killed, Many Injured and Property Damaged.

GALE BREAKS RECORD FOR 27 YEARS

Plate Glass Windows Shattered and Business Signs Blown Away—Apartment House Falls.

San Francisco.—Life, limb and property paid tribute here Sunday night to a storm said by the weather bureau officials to be the severest that has visited San Francisco for 27 years. Seventy-five miles an hour was the velocity of the wind at 5 o'clock off Point Reyes, and 60 miles an hour off Point Lobos, one of the portals of the Golden Gate.

Henry Chilton, of Los Angeles, was killed here by the storm. Chilton and his wife came here to visit the Panama-Pacific exposition and were to have returned to Los Angeles. He was knocked down by a falling advertising sign, suffered a broken spine and fractured skull and died half an hour later.

Numerous injuries were reported from flying signs and other debris blown loose by the howling southerly gale.

The wind was especially severe on plate-glass windows, more than 100 of which were reported as having been blown in. One window, on the 17th story of an office building, was blown from its frame and stuck like a jack-knife in a door at the opposite side of the room.

The storm kicked up a heavy sea on San Francisco bay and ferry traffic was maintained with difficulty. In several cases whole seas swept the lower decks of the ferries, boats, and many of the passengers became seasick and others engaged themselves in prayer.

Several coasters that tried to put to sea turned back after getting a taste of the wind's velocity outside the heads.

The property loss caused by the storm included the destruction of an untenanted two-story frame apartment house, which collapsed under the pressure of the wind. There were no casualties.

Thirty Warships of Allies Land Large Force on Grecian Soil

London.—A dispatch from Athens reports the arrival in the Gulf of Orfanos (an arm of the Aegean Sea), of 30 large transports full of troops, which began to disembark immediately.

An Athens paper says martial law will be declared January 15, and that the Chamber of Deputies has been summoned to meet on the 17th to ratify the proclamation thereof.

The Athens correspondent of the Daily Mail has had an interview with King Constantine. The king said: "There never was any reason for the suspicion which we were treated. There were a number of small difficulties with the French and English, but we will do all possible to bring about a complete understanding with the allies. We have no desire but to accord you every facility. The possible embrace which I felt at some of your actions has quite passed. As a result of the harmony prevailing at Saloniki. But I will not be forced out of my neutrality."

Seattle Coaster Is Killed When Sled Hits Auto; Tacoma Coasters Hurt

Seattle, Wash.—One boy was killed and several others were injured Sunday as the result of coasting accidents on Seattle's steep snow-covered hills. Russell Marvin, 11, was killed when his sled ran into an automobile.

Sidney Greenberg, 11, suffered a broken leg as the result of a collision between two sleds.

Tacoma's Apple Crop Nearly Gone.

Tacoma.—Home-grown apples are about gone for the season, say local commission men. Supplies on hand now are going at a better price and this increases the sales of Eastern Washington apples, which were held back earlier in the season because of low prices of the home product. The crop of local apples was a good one this season and many apples were sold, the dealers and growers both benefiting. Eastern Washington apples hold steady.

Grapes are reported gone for the season. The holiday trade cleaned up what supplies were on hand and dealers say the weather is too cold now to bother with such a commodity. This season saw more grapes sold on the local market than ever before. There were many varieties offered and all were of an exceptional quality that was maintained throughout the season. One of the features of the season was the way in which the grapes were packed for the holidays, some coming in cork-packed kegs and others in lug boxes.

Vegetables with the exception of the root varieties are gone and there is no damage to be expected from cold weather. Shipments of tomatoes from California are becoming smaller. Sweet potatoes are arriving regularly. Netted Gem, spuds are firm at \$23 a ton.

Creamery Butter Drops.

Tacoma.—Fresh Washington creamery butter declined this week 3 cents a pound. The drop is attributed to a heavy production of second grade butter. Many of the factories in Washington that have been closed down for weeks for repairs are again in operation. The demand is steady and no further change in prices is expected soon. Fresh Oregon butter is quoted at about the same prices as the Washington product. Washington butter is offered at 29¢30 cents a pound and the Oregon commodity at 28¢30 cents.

Bean Prices Highest in Years.

The bean market of California is now in a peculiar condition, according to reports from that state. The prices asked are the highest in years, and the high prices are not accompanied by any scarcity of beans. Because of the increased acreage put to beans this year, together with a most bountiful crop, more beans were harvested in California than in many years. Most of this crop now is in the warehouses. According to a Sacramento bean expert, almost all the wholesalers have filled their warehouses.

Market Oats in East.

There was a fair prospect for a time that Pacific Coast oats, as well as wheat, might be marketed in the East. It was this possibility that caused the recent firmness in local markets, but with the weakening of Eastern prices, most of the gain was lost here. Prices, however, are close to the point that would make such shipments possible, and with a little advance in the East sales of the best Northwestern oats may be made for shipment there.

NORTHWEST MARKET REPORTS; GENERAL CROP CONDITIONS

Portland—Wheat—Bluestem, \$1 per bushel; fortyfold, \$1; club, 97c; red Rife, 95c; red Russian, 95c.

Hay—Eastern Oregon timothy, \$17 @17.50 per ton; valley timothy, \$14 @14.50; alfalfa, \$16 @17; oats and vetch, \$13.

Milled—Spot prices: Bran, \$22 per ton; shorts, \$23; rolled barley, \$29@30.

Corn—White, \$35 per ton; cracked, \$36.

Vegetables—Artichokes, \$1.10 per dozen; tomatoes, California, \$1.50 @1.75; cabbage, 90c per hundred; garlic, 15c per pound; peppers, 10¢12¢; eggplant, 10c; sprouts, 8c; horseradish, 8¢; cauliflower, 75¢@1.25 per dozen; celery, 50¢@90¢; beans, 2¢@5¢ per pound; lettuce, \$2@2.75 per crate; peas, 15c per pound.

Green Fruits—Pears, \$1 @1.50 per box; grapes, \$5 per barrel; cranberries, \$10@14.50.

Potatoes—Oregon, \$1@1.15; Yakima, \$1.15@1.25 per sack; sweets, \$2.50@2.75 per hundred.

Onions—Oregon, buying price, \$1.25 f. o. b. shipping point.

Apples—Spitzenbergs, extra fancy, \$2.25; fancy, \$2; choice, \$1.25@1.50; Jonathans, extra fancy, \$1.50; fancy, \$1.25; choice, \$1; Yellow Newtowns, extra fancy, \$2; fancy, \$1.75; choice, \$1@1.25; Baldwin, extra fancy, \$1.50; fancy, \$1.25; choice, \$1; russets, orchard run, \$1.

Eggs—Oregon ranch, candled, 39¢ @35¢ per dozen; Oregon storage, 22¢ @23¢.

Poultry—Hens, small, 12 @13c; large, 13¢14¢; springs, 12¢13¢; turkeys, live, 18¢19¢; turkeys, dressed, choice, 24¢; ducks, 12¢15¢; geese, 10 @11¢.

Butter—City creamery, cubes, extra, selling at 28¢; firsts, 25¢; prints, and cartons, extra. Prices paid to producers: Country creamery, 22¢26¢; butterfat, No. 1, 28¢; No. 2, 26¢.

Veal—Fancy, 11¢@12¢ per pound.

Pork—Fancy, 7¢7½¢ per pound.

Hops—1915 crop, 8¢10¢ per pound.

Wool—Eastern Oregon, 18¢25¢ per pound; valley, 25¢26¢; fall lambs' wool, 25¢; mohair, Oregon, 28¢.

Cascara Bark—Old and new, 3¢4¢ per pound.

Cattle—Market steady. Steers, choice, \$7.25@7.50; good, \$7@7.25; medium, \$6.50@7; cows, choice, \$5.25 @5.75; good, \$4.50@5.25; medium, \$4.75 @5; heifers, choice, \$5.50@6; good, \$4.75@5; bulls, choice, \$3.50@4.50; stags, choice, \$5@5.25.

Hogs—Market steady. Prime light, \$6.15@6.25; prime strong, weights, \$6 @6.10; good to prime mixed, \$5.65 @5.90; rough heavy packing, \$4.85@5; pigs and skips, \$5@5.25.

Sheep—Market steady. Choice spring lambs, \$7.25 @7.60; common spring lambs, \$6.25@6.50; choice yearling wethers, \$6.25@6.75; old wethers, \$6@6.25; choice light ewes, \$5.25 @5.50; good ewes, \$4.75@5.25; common heavy ewes, \$4.25@4.75.

IRRIGATIONISTS CONVENE

Urge State Guaranty of Bonds for New Projects With Cheap Money—Rural Credits Included.

Portland—Co-operation among all interests affected in irrigation enterprises and government and state guaranties of interest on bond issues are the features on which are centered the deliberations of the Fifth Annual Oregon Irrigation congress, in session here this week. The Jones bill, which proposes to provide for governmental underwriting of irrigation bonds, will be an active issue. A sentiment to promote the movement providing for an initiative law to get the state to make guaranties also was evident.

E. G. Hopson, consulting engineer for the United States reclamation service, spoke in behalf of a movement to put irrigation enterprises on a firmer basis than they have occupied under the Carey act. More co-operation among state, Federal and individual interests, and to establish the confidence of Eastern investors in irrigation enterprises, he said, were prime necessities. He said Western irrigation enterprises need to be popularized in the minds of Western people, as well as Eastern investors. He declared he believed few enterprises hereafter would be developed by private capital.

"Congress will give aid sooner when it feels that the Western states are co-operating dollar for dollar," he said.

Governor James Witherby spoke in a similar vein on co-operation and urged the reduction of overhead expenses in handling projects.

"The land must be made available for the man with \$500 as much as for the man with \$5000," he declared.

The Oregon Irrigation congress substantially committed itself to this line of action in the unanimous demonstrations that followed the recommendations of Senator I. N. Day and other speakers before its second day meeting.

L. A. Hunt, of Lower Bridge, said that a resolution embodying this idea had already been prepared and submitted to the resolutions committee and will be introduced in the report of the committee.

It was Senator Day's address that crystallized the sentiments that have been expressed since the beginning of the congress and directed them into a definitely indicated line of action.

Plainly and unequivocally he declared himself in favor of state guaranties of irrigation and drainage bonds, and in favor of the enactment of a law providing for the establishment of a system of rural credits.

"To secure cheap money for the development of irrigation and drainage," he said, "the security must be ample and the payment of interest sure. This can be secured only by either the nation or the state standing back of the projects."

"Why wait action of congress? Why not unite with the farmer of Western Oregon and put the state back of the bonds? The bonds, to get the United States back of them, must be good; then why, if the bonds are good enough for the United States, are they not good enough for the state?"

"When you have brought water to the land, you must have a man to farm it, and how is he to get and pay for it? He cannot pay for discounted bonds, high interest charge and short-term payments."

"Before any progress can be had in that direction, some system of farm credit must be adopted which will admit of his purchasing on long term, easy payments."

"Rural credits are essential to the success of any irrigation scheme on an extensive scale."

"We have Eastern Oregon asking for aid for drainage, and both wanting cheap money. We have many men seeking homes. Why not unite all these and seek relief through the ballot?"

"Why not put the state back of these projects?"

Mr. Day agreed with the other speakers at the congress that the Jones bill providing for government backing of irrigation projects is an excellent bill and expressed the hope that it will be passed by congress.

"But if it fails," he cried, "are you members of this Irrigation Congress going to let even another year elapse before taking steps to secure the relief that the situation demands?"

"The thing to do is to stop marking time and get into a united campaign to carry through the measure which, by

Hotels to Charge Extra.

Washington, D. C.—Complaints regarding the unprecedented increase in hotel rates in St. Louis for Democratic National convention week in June have been received at the White House. The reports indicate that the St. Louis hotel men are demanding certified checks in advance covering half the cost of reservations before they will close contracts. It is estimated here that \$15,000 will have to be put up by delegates and others attending the convention more than five months in advance.

Immunity is Insisted On.

Washington, D. C.—When Representative Buchanan heard of his indictment in New York on charges in connection with the activities of Labor's National Peace council, he said that if he enjoyed any congressional immunity from arrest, he intended to insist on it, that he might press his impeachment charges against the U. S. attorney now pending in the house judiciary committee. "I don't know what they charge me with," he said, "and I have done nothing I would not do again if I had the opportunity."

insuring state backing of the projects, will make possible the development immediately of the irrigation and drainage projects of the state."

J. T. Hinkle, who preceded Mr. Day, had touched upon the apparent lack of public sympathy with the irrigation movements, and the failure of a bill embodying much the ideas advanced by Mr. Day to be carried in the last election by a referendum vote. Mr. Day replied to this by asserting that public sentiment has to be educated, and that if the irrigationists let a single setback stop them they will never get what they are after.

O. C. Leiter, secretary of the resolutions committee of the congress, addressed publicly before the congress, questions to Mr. Day, C. C. Chapman and Mr. Hinkle.

He asked Mr. Hinkle if the bill he had mentioned had been supported by an active campaign, to which Mr. Hinkle replied negatively. He asked C. C. Chapman if the Chamber of Commerce would favor any kind of a measure providing for rural credits and state guaranties of irrigation and drainage bonds, and if before the adjournment of the congress the Chamber would indicate the nature of a bill it would lend its support and indorsement.

Mr. Chapman, while expressing doubt that the Chamber would give a hasty decision in favor of any resolution the congress might see fit to adopt, believed that it would give the most careful consideration to any measure proposed and take the position which seemed best for the State of Oregon at large.

He said that he believed the Chamber would not indorse the measure until the form of the bills proposed had been submitted to it.

O. Laugaard asserted that he had information from officials of the Chamber to the effect that it will probably support any action taken by the congress, but recommended that the bill be prepared first and then submitted to the Chamber for its indorsement.

The responses of Senator Day to inquiries from Mr. Leiter brought out a definite outline of procedure whereby the measures might be passed by the people of the state of Oregon.

Mr. Day urged that a joint committee, composed of representatives from the irrigation congress and farmers of the Willamette valley interested in drainage, granges and Farmers' unions, be organized to prepare a draft of bills providing for the state guaranties of bonds and the development of a system of rural credits.

This committee would also circulate petitions to put the measure on the ballot and raise, by soliciting subscriptions, a fund of \$5000 to conduct the campaign in its behalf.

"Will Mr. Day help such a movement financially and personally?" asked Mr. Leiter.

"Whether the measure be adopted or not, whether the people pass the bill or not, I am for this measure," replied Mr. Day.

"I am willing to go in, if the movement is initiated, and give to the support of the bill all the time and means I am able to carry it through. The man who wants to take up a measure for the benefit of the state until he is certain of success immediately is of little use, and I would just as leave pioneer this bill as any other that means the development of Oregon and the bettering of the conditions of living for its citizens."

The whole attitude of the congress during the discussion was intensely enthusiastic and, while the movement in support of the Jones bill will go on probably as powerfully as ever, the disposition of the congress, as a result of the session, appears to be to proceed along the lines of state aid at the same time, so that if the Jones bill fails, it still will have a definite and constructive program to carry forward.

The principal resolutions will probably be those indorsing the Jones bill, and urging the organization of a campaign for the proposed state measure.

The engineering and legal phases of irrigation development were considered at the morning session, the principal speakers being Judge Carroll S. Graves, of Seattle; Attorney General G. M. Brown, and L. M. Rice, irrigation engineer, of Seattle.

O. Laugaard spoke in the afternoon on "Is the Irrigation District a Solution of the Problem?" and he also gave a brief report of the meeting of the International Irrigation congress in San Francisco December 2 and 3.

San Francisco is First.

San Francisco.—San Francisco was ranked first among 18 leading cities of the United States in expenditures for school improvements and equipments and 13th in the amount spent on operation for each pupil, according to figures announced Thursday by persons interested in a survey of the city schools to be undertaken soon by Philander O. Claxton, United States commissioner of education. The statistics were compiled by the Russell Sage Foundation during a survey of schools in Cleveland.

Second Academy Opposed.

Washington, D. C.—Secretary Daniels let it be known that he will report adversely on the bill which Senator Phelan intends to introduce, authorizing the establishment of a naval academy on the Pacific Coast. The secretary has already recommended the enlargement of the Annapolis Naval Academy to accommodate 300 additional midshipmen. He intimated, however, that if the nations of Europe did not subscribe to a plan of disarmament the United States would need a second naval academy.

VALUE OF DRAINAGE

Much Swampy Land May Be Made Quite Productive.

WORK IS ONLY FAIRLY BEGUN

Lands Too Wet for Profitable Production of Crops Should Be Drained—Improves Soil by Making it More Porous and Friable.

(Prepared by the United States Department of Agriculture.)

By simple drainage much of the wet swampy farm land which cannot be cultivated in its present condition may be made productive. There is also many a piece of cultivated land which is not producing what it could be made to do if it were properly drained. Indeed, according to the department's specialists, drainage is the most profitable investment a farmer can make, and its immense possibilities are but little known. Farmers' Bulletin No. 524 of the United States department of agriculture discusses this subject in some detail.

Lands that are too wet for the most profitable production of crops, such as wet level land, low spots, and the dry subsoils of flat areas on the summits of knolls, river and creek bottoms, and peat bogs, should be drained. Even uplands may often be drained with profit, especially hillside subject to erosion or inclined to be "spouty." Indeed, drainage is profitable wherever it is necessary to the fullest use of the land. It is not uncommon for lands too wet for cultivation to produce, when drained, 60 to 70 bushels of corn or oats or from one to one and a half bales of cotton to the acre. On much of the drained land the increase of yield is from 25 to 100 per cent, and by the increased yield and decreased cost of cultivation the value of the land is often doubled.

Improves the Soil. Drainage improves the physical condition of the soil by making it more porous and friable. Thus stiff soils are made more easy to work. The roots of plants are given a greater feeding depth by the lowering of the water level and hence the ability of crops to utilize moisture is increased. Well-drained soils absorb more rainfall than undrained soils, thus decreasing erosion and damage by floods. Drainage warms the soil. Heat from the sun acts directly upon the soil when excessive moisture is removed by drainage. This is noticeable in the North, where the planting season is from one to two weeks earlier on drained land than on similar land when undrained. The danger of damage by frost both in the spring and in the fall is reduced. Warming of the soil also causes the seed to germinate more readily, thereby giving a better stand of crops and causing the plants to grow more promptly.

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SAVING THAT COUNTS

SMALL ECONOMIES CUT DOWN HOUSEHOLD EXPENSES.

Housewife's Part is to Make Small Income Go as Far as Possible, and Thought in That Direction is Well Expended.

It is the small economies that make big savings possible, and the housewife who scorns the pennies will never possess many dollars. Nowadays big salaries are not so common as we should like to have them, and the average man must struggle along as best he can on just a living wage. In these hard times it is the wife's part to make the small income go just as far as she can, and only by strict attention to the trifles as well as to big expenses, can she put by any money at all.

The man whose wife has been brought up on the old adage, "Look to the pennies and the dollars will take care of themselves" may well thank his lucky stars that he captured such a prize, for such women are rare, indeed, in these days of thriftless, careless housewives. Such a woman, who lives up to her belief that "a penny saved is a penny earned," is indeed the better half of any man.

After all, the poor husband can only bring in the family earnings. He cannot make them stretch over all the household expenses, with a little to spare to bank for rainy days. That is the wife's share in the partnership, and often it is the hardest.

Housewives, yours is the part to save here and pinch there, that the weekly stipend may be enough to provide for your needs. If your husband's salary seems all too little, look about you to see where you can lower expenses. Since the salary cannot be enlarged, the household expenditure must be minimized.

"Waste not, want not" is another proverb which might well be adopted as a motto by the American housewife, for it is well known that in no other country in the world is there so much waste in the household as in America. Even our thriftiest housewife, one who would be considered a model as compared with others, would be amazed could she be transported into the kitchen of a French woman. For it is in the kitchen where the greatest waste goes on, and it is there where the French housewife displays the most thrift.

Our model housekeeper would be considered extravagant by the average peasant woman of France or Germany. In these countries the women utilize every bit of food that comes into the house. In the poorest homes as well as in the homes of those who have comfortable means, there is always to be found a huge pot on the back of the stove, or in the peasant's kitchen hanging on a hook in the fireplace. This is the potato pot, or soup pot, and into it go all the scraps which are left over—meat, vegetables, bones, everything.

Another pot, kept near at hand, is for fats. When the soup is skimmed, the fat is thrown into the other pot. Bits of fat from meat, drippings, the fat left in roasting pans, all fat (except mutton or lamb tallow), is thrown into the fat pot, where it is melted down, made into clarified fat, and used in place of lard. No French woman would think of buying lard, in fact, she would be rather horrified at the idea, for the homemade, clarified fat is considered, and is far superior to the lard sold in the shops.

The casserole dish, too, comes from this land of provident housewives. When there is the will to save, the way usually is found, and the casserole is one of the results. We American women should take a leaf from the note books of our French cousins and learn where and how to save.



Fig. 2.—Same Field After Being Tilled Drained.

more water after a rain, though, perhaps, not carrying more. The farmer is in a position to judge for himself when it is profitable to use tils.

PROFIT FROM ALFALFA ACRE

Greatest, Most Profitable and Productive Swine Forage—Test Made at Iowa Station.

(By JOHN M. EVARAD, Chief in Swine Production, Animal Husbandry Section, Iowa Experiment Station.)

Recently there was returned a profit of a little over \$250 for the operations carried on an acre of alfalfa; the corn was charged at 60 cents, and the hogs sold for \$7.

Now these are the returns for the happy combination of self-fed corn and an acre of self-fed alfalfa, taking young growing fattening pigs to the weight of 250 pounds, no charge being made for the alfalfa. Charge the alfalfa at \$10 an acre and there remains \$240 pork value (assuming no loss of pigs) over and above feed costs. Labor is arbitrarily assumed to be offset by the manure residues remaining; of course a charge of \$1 a pig labor could be charged and still leave for the acre's operation a net return of \$260.

The alfalfa acre carried 44 pigs on the average from weaning to market, these pigs finishing at 250 pounds, fat and high-dressing. No alfalfa, of course, was left on the acre; it was all pastured. This is not the best practice, but it shows what corn on an alfalfa acre will do when the corn as well as the alfalfa is pushed to the limit.

These pigs gained 1.46 pound a day during the entire grazing season of 140 days, requiring 387 pounds of corn feed for a hundred pounds gain, this costing \$4.14 with 60-cent corn. The charge for alfalfa on the basis of a hundred pounds gain amounts to \$12 (12 cents), making a total cost of \$4.26.

After paying for the alfalfa and crediting all the profits to the corn the net return per bushel was, with \$7 hogs, almost a dollar, or exactly 95.5 cents.

But let us remember that alfalfa itself will not net \$250 on the acre, or corn alone 95.5 cents to the bushel when fed to \$7 hogs.

It is the very happy combination of self-fed corn and self-fed alfalfa that does these things.

The cost of gains with 60-cent corn, and \$10 alfalfa at \$4.25 perhaps tells the story best—although it is well to bear in mind that after all is said and done in the swine forage story that corn and alfalfa are pre-eminently the most profitable corn belt doublet of economic feeds that it is possible to grow and fatten swine on.

Alfalfa is our greatest, most productive, most profitable swine forage and corn is our greatest, most productive, most profitable swine growing feed.

Why not plan the swine feeding with alfalfa and corn as the basal feedings?

Roast Beef and Nut Hash.

Hash in Pastry Ramekins.—Chop remains of old roast beef fine; season to taste, add minced onion, cook slowly (adding little water or milk) until mixture thickens. Have ready baked individual pastry shapies; fill these with hash, dot with butter. Stand in oven until browned. Serve hot.

Nut Hash.—Mix thoroughly one cupful chopped walnuts and peanuts mixed, one cupful bread crumbs and one cupful nicely seasoned hot mashed potatoes; add milk to moisten; brown in oven. Serve with cream of tomato sauce.

Celery in Butter Sauce.

Wash three bunches of celery, cut in pieces three inches long, boil in salted water until tender and drain. Beat the yolks of four eggs, add one-half cupful of the cooled water in which the celery was cooked, two tablespoonsful of lemon juice, one-half teaspoonful of onion juice, one-half teaspoonful of salt and a dash of cayenne. Cook in a double boiler until thick and add one-half cupful of butter a small piece at a time, stirring constantly. Arrange the celery on a hot dish and cover with the sauce.

Graham Pudding.

Two and a half cupfuls flour (graham), one cupful sweet milk, one cupful molasses, one cupful raisins, two level teaspoonfuls soda, pinch of salt. Steam two hours. I usually use two cupfuls graham and one-half cupful white flour. Serve with this hot sauce: Two cupfuls milk. When hot add one-half cupful sugar sifted with one level teaspoonful of flour and mixed with one beaten egg. Add a little salt and flavor to taste. Add more sugar to sauce if you like it sweeter.

Mock Macaroons.

Beat the whites of one egg, and while doing so add one cupful brown sugar, a dash of salt and beat till stiff. Stir in one cupful of chopped pecan nuts and drop from tip of spoon on buttered tin about one inch apart, as they will spread. Use one-half cupful of pecans and I think they are delicious, especially with ice cream in summer. —Boston Globe.

Pruning Grape Vines.

As soon as the frost kills the foliage of grape vines they may be pruned back and laid on the ground ready to be covered before the ground freezes.

Storage for Cabbages.

Where only a few cabbages are to be stored it is a good plan to wrap the heads in newspapers and put them on shelves in a cool cellar.

Skim Milk Buttermilk.

Skim milk buttermilk is the equal of natural buttermilk in practically every important respect.

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a rain, and if covered the drains are used instead of open ditches machinery can be used to better advantage and the cost of cultivation decreased.

Health conditions are also improved by the drainage of swamps and standing water. The breeding places for mosquitoes are removed, with the consequent abolishment of malaria in the locality.

Practical System.

The most practical drainage system is one that is adequate, permanent, uses the least possible land, and is not a hindrance to cultivation. The drains which empty into either open or closed outlets most nearly provide such a system. By the open-ditch system much valuable land is occupied, the drainage is seldom thorough, and the ditches become filled and have to be cleaned out. Open ditches sometimes occupy as much as ten per cent and frequently five per cent of the area drained. Thus it is that tile drains, while more expensive to install, are generally the most economical in the end.

In laying out a drainage system, the outlet is the first consideration. On rolling or hilly lands channels have usually been washed out, although they may need to be straightened and cleaned out. On low level land it is usually necessary to dig open ditches, and they should be straight and deep, since curves check the flow of water, while in a deep ditch water generally flows more rapidly and less vegetation is likely to be present. The outlets should be deep enough to take care of the flow from branch drains, which may necessarily be placed low to secure sufficient fall.

Open ditches work well with a drop of four feet to the mile, although some, of necessity, have no more than one foot drop. In loamy soils subject to freezing the sides of the ditch should have a slope of 45 degrees, in sandy soils a greater slope, while in stiff soils subject to little freezing a less slope will do.

Outlet ditches should usually follow the natural course of the water, although efficiency and economy may



Fig. 1.—Field Needing Drainage.

necessitate a diversion from the natural watercourse.

Use of Open Ditches. When the ditch runs through a field, the earth should be leveled back from the bank, so that no more ground than is necessary will be lost from cultivation. When the value of the land is high, the open ditch should not be used where it is practicable to use tile. In the middle West tiles as large as three feet in diameter are frequently used, and, being covered over, they do not occupy tillable land or divide a field. Where properly laid, there is little danger of the tiles filling and practically no maintenance cost. Because water runs faster through tiles they can be much smaller than the open ditch. The latter, however, has an advantage in holding