## "POP" GEERS IS GREATEST OF REINSMEN AND HAS HAD LONG AND INTERESTING CAREER


Veteran Driver and One of His Pets.

Edward Franklin Geers, more popularly known as "Pop," was born three miles from Lebanon, Tenn., January 25, 1851. He has appeared in races before more people than any man who ever sat in a sulky, the number at Charter Oak Park, Hartford, alone being over a million. He has also won more races than any man who ever followed the profession in which his name will always be a leader.

### Won by Merit.

For all time Geers' name will be linked with that of Budd Doble and Charles Marvin. Each of them earned their laurels by following the hard and narrow path that bears the old-fashioned label of integrity. By merit and fair dealing they made their way to the front and remained there as fixtures during the balance of their careers.

While time performances were the stepping stones upon which both Doble and Marvin mounted the pedestal of fame, Geers made himself near and dear to the race-going public by gathering his laurels in stubbornly contested races, many of which were in doubt to the last stride of the last heat. He also had his champions in Hal Pointer, Robert J., The Abbot, and The Harvester, while the triple team record of 2:14 which he made with Belle Hamlin, Globe and Justina at Cleveland in 1891 will in all probability remain unchallenged forever.

### Fame Is Assured.

There are others on the way, but if Geers should never draw a rein over another horse his fame is secure. The pegs were driven home by Mattie Hunter, Brown Hal, Star Pointer, Hal Pointer, Hal Dillard, Fantasy, Robert J., Hamlin's Nightingale, Joe Patchen, Lady of the Manor, Lord Derby, The Abbott, Heir at Law, Billy Buck, Direct Hal, Anvil, Etawah, Dudie Archdale, The Harvester, Napoleon Direct, St. Frisco, Single G., Goldie Todd and this year's babies, Molly Knight and Dudette.

## HURRICANE AT TENNIS GAME

**Gerald Patterson, Australian Star, Learned Much of Pastime From Norman Brookes.**

Gerald L. Patterson of Melbourne, Australia, learned much of his tennis from his fellow townsman, Normon E. Brookes, former world's champion. Although Patterson is only twenty-three years old, his playing was the sensation of the English and Continental tournaments where it won him the


Gerald Patterson.

nickname "Hurricane." He possessed a fast service of the type that distinguished McLaughlin and remarkable ability at the net. The English critics found some fault with his groundstrokes, but judging from his victories abroad these did not constitute a serious weakness.

### Nice Salary for Trainer.

Walter Cox of New England, engaged to take charge of the training department at Laurel Hall, Staughton A. Fletcher's farm near Indianapolis, will receive an annual salary of $20,000.

## BOXING MATCH FOR MIDDIES

**Pennsylvania Offers to Meet Naval Academy—Athletic Authorities Ask Permission.**

The University of Pennsylvania has offered to meet the Naval academy in a boxing match and the academy athletic authorities have asked for official permission to take up the glove as a competitive sport and meet Pennsylvania. The instructor is H. Murrell (Spike) Webb, who was instructor of the Twenty-ninth division and First army corps, A. E. F.

### Chic Harley's First Defeat.

"Chic" Harley of Ohio State never knew what it was to taste defeat in any game he played for Ohio State until Illinois beat his eleven, 9 to 7, in the final game of his college career.

### Quit Camouflaging.

They have quit camouflaging optional deals now. The Brooklyn club announced boldly that its release of Pitt, Allen, Brazill and Sheehan were on options of recall.

## RECORD FOR MAJOR LEAGUES

**Washington American Team Believed to Have Set Mark for Consecutive Playing in 1919.**

What is believed to constitute a record for major leagues has been established by the Washington club in the matter of uninterrupted playing. The calling off of the final game in the recent Cleveland series, because of rain was the first postponement the Senators had encountered since May 23. After that date, which was just one month after the season opened, the Griffmen participated in every scheduled contest and a number of games postponed prior to that date as well, including two tie games at the Polo grounds. In eighty-three days Washington averaged one game a day, exceeding half of the schedule of 140 games by thirteen.

## CHARGE OF CANADIAN GAMES

**Amateur Athletic Union Appoints Committee to Supervise Entries for Olympic Events.**

The Canadian Amateur Athletic union has appointed the following committee to take charge of the Canadian Olympic games entries: J. G. Merrick, Toronto; D. Bruce McDonald, Toronto; P. D. Ross, Ottawa; Col. Fred J. Trees, Montreal; Morton H. Crowe, Toronto, secretary.

## INTERESTING · SPORT · PARAGRAPHS

Toronto has no building suitable to hold indoor track meets.

* * *

Charley Mullen has been succeeded by Clyde Wares as manager of the Seattle club of the Coast league.

* * *

Pay of Pacific Coast league umpires has been raised from $250 to $300 per month.

* * *

How many can recall right offhand who was the great hero in that world series?

* * *

Wellington Brothers '21 has been elected captain of the University of Wisconsin varsity cross-country team for 1920.

* * *

George Burns, the Giant outfielder, is on an automobile tour of the middle West with "Slim" Salee, the Reds' left-hander.

* * *

It won't be long now until the hold-out crop begins to bear fruit. Most of the clubs are preparing their new contracts, to be mailed out the latter part of next month.

* * *

Nebraska football team has offered to go to Annapolis next year for a game with the Naval academy team. Penn and Princeton are also mentioned as probable opponents for Annapolis.

* * *

If John McGraw really wants to trade, he won't have any trouble in getting rid of Benny Kauff. Benny and Jawn, so reports have it, have about reached the parting of the ways.

* * *

Bill Carrigan, former manager of the Red Sox, may become part owner of that club if a plan now in the making goes through. Several Boston men want to buy the club from Harry Frazee and have interested Carrigan in the deal.

## ORA MORNINGSTAR IS SCIENTIFIC PLAYER

**His Opinion on Manner of Making Billiard Shot Held High.**

**He Is Versatile and Not Especially Better in One Department of Game Than in Another—He Is Most Graceful Player.**

Ora C. Morningstar is the most scientific of the professionals playing today. Other professionals have been heard to say that they would rather take his opinion as to the theoretically correct manner of playing a shot than that of any one else. He is versatile and not especially better in one department of the game than in another.

Possibly he may be a little too technical in match play and try to play too perfectly, like just dropping on the red ball and trying for extreme edges. He is capable when in perfect stroke and conditions are just right of playing the most scientifically correct billiards of anyone. In a match in Detroit with Welker Cochran last year Morningstar, playing 18.2, ran 165 in the upper left-hand corner. At no time during the run was any ball separated from the others by more than 24 inches. Not a ball hit the top rail or the right-hand side rail. All the work was done by the balk line at the head of the table. Cochran

Ora Morningstar.

said it was the most scientifically correct and perfect billiards he had ever seen.

Morningstar uses a 22-ounce cue, 55 inches long. He uses quite a long stroke, depending more on the forearm rather than the wrist for action. His stroke is smooth and rhythmic, a sort of fluid stroke, and is delightful to watch.

If Morningstar had not elected to take up billiards as a profession he would probably have become even more famous as an artist, as he has painted several pictures that have received especial commendation from competent critics. He has held both the 18.1 and the 18.2 championships.

## BAKER DETERMINED TO QUIT

**Manager Huggins Expresses Belief That "Home-Run" Star Is Sincere in Declaration.**

Frank Baker may not play third base for the Yankees next year. Manager Miller Huggins, in mapping out his 1920 campaign, announced his be-


Frank Baker.

lief that the former "home-run" star is sincere in his statement that he is going to retire from the game.

### French to Play English Rugby.

The French army rugby football team recently sent a challenge to the British army to play them in Paris and the invitation was accepted.

### Students Take Up Boxing.

Boxing as a sport is popular with University of Oklahoma students this year, according to Dewey Luster, instructor. Wrestling classes are a close second.

### Platt Speaks English.

Platt Adams will have to coach the Italian athletes by the deaf and dumb language, so no one will envy Platt his new job.

### Dodgers Get Semi-Pro.

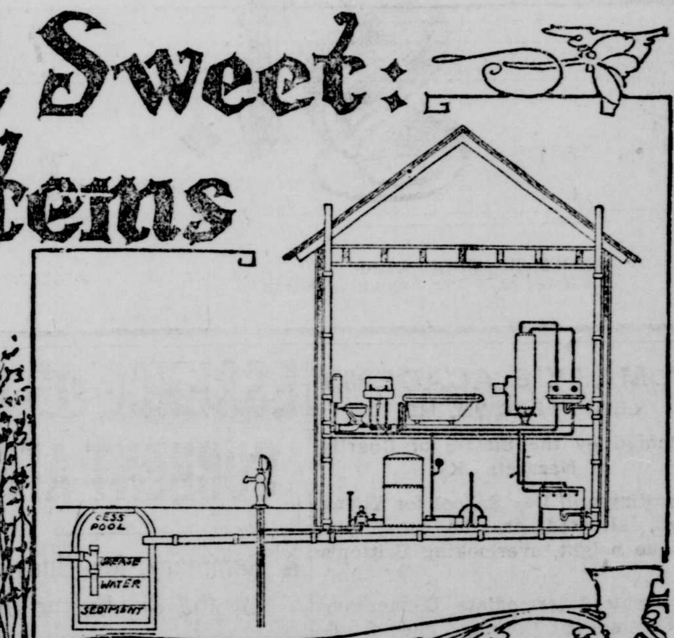
President Ebbetts of the Brooklyn club announces that he has signed a pitcher named Joseph Conlan from the Chicago semi-pro ranks.

### Rose to See Big Bout.

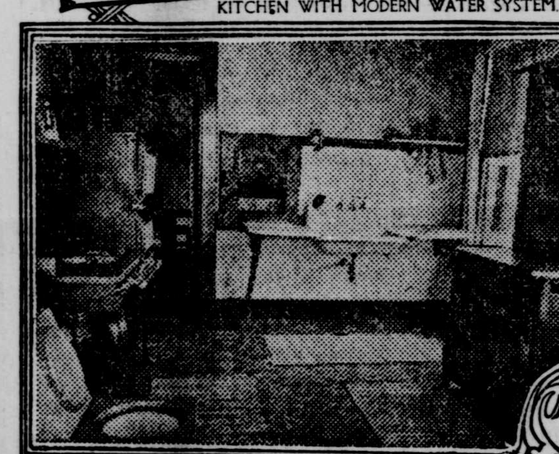
Charlie Rose, trainer of champions, has been engaged by Jack Kearns to train Jack Dempsey for his future battles.

# Bitter Waters and Sweet: Farm Water Systems

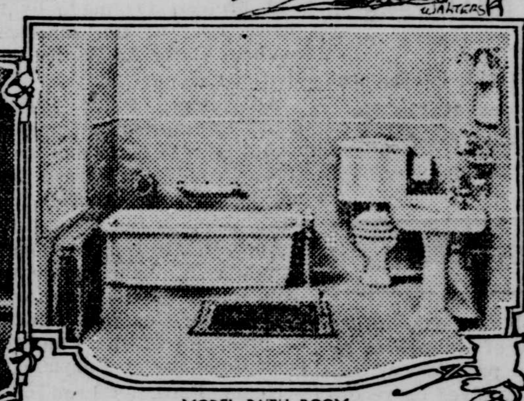
KITCHEN WITH MODERN WATER SYSTEM.



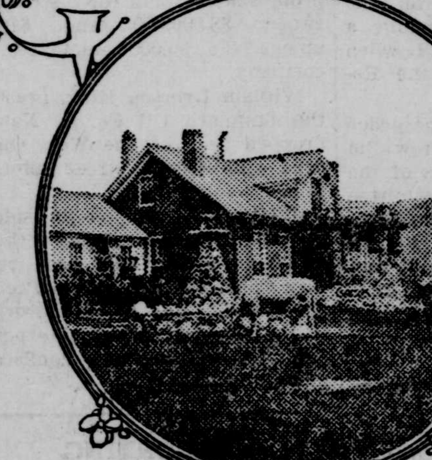

SIMPLIFIED ELEVATION SHOWING SEWERAGE SYSTEM AND CESSPOOL BATH ROOM OUTFIT ON 4-INCH STACK, SINK AND LAUNDRY TUB ON 2-INCH STACK SHOWING AIR PRESSURE SYSTEM WITH HOT AND COLD WATER RUNNING TO FIXTURES.



DELIGHT OF THE FARMER'S WIFE.



MODEL BATH ROOM.



(Prepared by the United States Department of Agriculture.)

THERE is Scriptural authority for the statement that bitter waters and sweet do not flow from the same fountain. The same truth applies to wells on the farm. The family that uses a well or spring subject to contamination is almost surely destined to taste the dregs of sorrow and suffering for having drunk its disease-laden output. Investigations made by the United States department of agriculture indicate that only a small minority of farm-water supplies can be classed as unqualifiedly safe and desirable. On the average three out of four farm wells are located within 75 feet of a back door of the house and in the direction of the barnyard.

That convenience and first cost, not safety, have been the deciding factors in such cases is made evident by the nearness of barnyards, pig pens, pastures, fertilized fields, sink drains, privies, cesspools, and areas rendered insanitary by chickens, slops, and other filth. Too frequently the seepage from these and other sources, after joining the ground water, moves to wells and springs, impairing the water supply by impurity, and may be grossly poisonous.

### Sewage Disposal.

Popular indifference to the effective disposal of sewage has existed so long and so universally that only within comparatively recent years has it been realized that this waste product of human life is poisonous and must be kept from the food and drink of man. From the specific germs or poison that may be carried in sewage at any time there may result typhoid fever, tuberculosis, hookworm disease, cholera, dysentery, diarrhea, or other ailments, and it is not improbable that certain obscure maladies may be traced eventually to the poisonous effects of drainage from human waste. The poison is invisible to the naked eye, and it may be carried by many agencies, by devious routes, and be unsuspectingly received into the human body. Typhoid fever is peculiarly a rural disease, and many instances clearly indicate serious neglect of responsibility with regard to sanitation by people who live in the country.

Not to dispose of sewage promptly invites nuisance, but not to dispose of sewage cleanly and completely invites disease. It is not enough that human filth is taken 50, 75, 100, or 150 feet away from a well or spring, or that it is taken merely to lower ground. Given loose or open subsoil, seamy ledge, or long-continued pollution of one plat of ground, the zone of contamination is likely to extend and readily may reach quite distant wells, especially at such times as well waters are lowered by drought or heavy pumping. Whatever the system of sewage disposal, it should be entirely and widely separated from the water supply, and, if possible, the surface of the sewage in any leaky privy, vault or cesspool should be lower than the lowest water in any near-by well. The United States department of agriculture has prepared bulletin No. 712, from its 1916 Yearbook, entitled "Sewage Disposal on the Farm," which gives details regarding various types of outhouses, suggestions regarding plumbing, cesspools, septic tanks, and related subjects. This pamphlet will be mailed free on request.

### Pure Water the Need.

One of the first and obvious needs of American farms is pure water supply. From the standpoint of the housewife, second only in importance to purity, is the installation of a water system in the farm house that will save labor.

Continued pumping will not improve water in a well if the sources which feed it are permanently at fault. Wells cannot be located in all cases to be wholly free from pollution, but the greatest safeguards are clean ground, and as wide separations as possible from the probable channels of impure drainage.

Water for domestic use should be clean, lustrous, odorless, colorless, wholesome, soft, neither strongly acid nor alkaline, and its temperature for general farm purposes should be about 50 degrees. These characteristics, however, are never proof of purity, for a glass of water may possess them all and yet contain millions of disease-producing germs.

Ground water is the ideal supply for the farm. Any farmer who is about to have a deep well, and who is uncertain of the depth and quantity or quality of the water likely to be encountered, should describe fully the location and condition of his project to national or state geological authorities and ask for advice. The use of the willow, hazel, or peach stick for locating underground water is without merit, although "forked-stick" artists from experience often are better able to judge the probabilities of ground water than the average person.

### Various Kinds of Wells.

Wells are spoken of as shallow or deep, dug, bored, driven, or drilled, and in the case of tubular wells, as nonflowing, flowing, or artesian. Persons interested in the various types of wells and their construction, advantages, disadvantages, etc., will find the subject treated in Farmers' Bulletin No. 941.

Wherever possible, the farmhouse should be fitted with some sort of running-water system, simple or elaborate, according to the investment the owner is able to make. For such systems water may be raised by natural flow, hydraulic rams, pumps, air lifts, or air-displacement pumps. Hydraulic rams are the most economical water-lifting devices. Since rams of various sizes and makes perform differently, it usually is necessary to accept the mechanical details determined by the manufacturer. The minimum, never more than the average, flow of the spring should determine the size of the ram. Otherwise, the one selected may be too large for the dry-weather flow. Small flows may be determined by noting the time required to fill a vessel of known capacity. Larger flows may be determined by weir measurements.

When the water supply is far from the ram site, it is usual to pipe the flow to an open tank or reservoir located so as to secure the desired length and fall of drive pipe. Sometimes the flow of a spring is too small to actuate a ram that is sufficient for domestic requirements. In such instances and where a nearby brook can be dammed to obtain the necessary power head, the recoil of the ram may be employed to admit the spring water, which is pumped by a fall of the brook water to the pipe drive.

Motion of water produces friction, which increases with the length and roughness of the pipe and the rapidity of the water's movement. Hence, wherever much water is to be delivered through a long pipe the power or head necessary to overcome friction should be determined. The bulletin mentioned before (Farmers' Bulletin No. 941) contains a table which shows the friction head; that is, the number of feet to be added to the vertical height for each 100 feet of iron pipe (not new) to overcome friction when discharging given quantities of water.

### Selection of Pump.

In the selection of a pump one should determine the kind of well to be used, its inside diameter, depth to the bottom, the depth cased, depth to the water level, both when the pump is at rest and in operation, and the maximum yield. The maximum quantity of water required per day should be calculated also. One should also determine the distance from the well to the proposed location of the pump and the vertical height between these points; likewise the distance from the pump to the reservoir or tank and the vertical height between these points. The kind of power to be employed should be settled upon also—hand power, windmill, gasoline or oil engines, or electric motors—and the method of transmitting the power.

Farm pumps usually are of the suction, lift, force, deep-well type or some combination of these. Suction and lift pumps do not raise water above the pump nor discharge it under pressure. Suction pumps require the cylinder to be above the water level of the supply. If a perfect vacuum could be created within the cylinder water could be raised vertically by suction 33.9 feet at sea level. However, the actual suction lift is usually not more than two-thirds of the theoretical lift. Methods of making tight joints are described in the bulletin referred to.

Horizontal suction pipes may extend long distances, providing the friction loss plus the vertical height from the water level to pump valve does not exceed the limiting suction lift. Where a pump cannot be placed so that the limiting suction lift will not be exceeded, it is necessary to lower the pump cylinder into the well, raising the water from the cylinder to the spout by the direct lift of the piston. Water can be pushed more easily than it can be pulled, hence, rather than resort to extreme suction lifts it is preferable to lower the cylinder to within 15 feet or less of the supply, or still better to submerge it.

Where water is discharged against pressure a force pump is necessary. A practical installation for the kitchen sink is a combined suction and force pump which will be found a great labor saver for the housewife.

### Deep-Well Pumps.

Deep-well pumps are heavier and stronger than those described above. They may be of the lift or force type and the standard or working head is always directly over the well. The cylinder should be near (within 15 feet) or else below water level which pumping and drought may create. Submergence is the preferable arrangement. In all installations the size of the pumping cylinder must be determined from the size, depth, and yielding power of the well, the quantity of water required, and the available power. Deep wells and hand or windwill outfits take small cylinders.

Pumping by means of compressed air is very old, but the systems used prior to 1909 required the air supply to be turned on or shut off according to whether or not the water was needed. Based on a patent granted in that year, a two-cylinder air-displacement pump submerged in the water supply and controlled by the opening and closing of the faucet, was devised. The essential parts of installation, besides such a pump, are an air compressor, storage tank, engine or motor—with air and water pipes, and minor attachments. The pump operates only when water is used, starting whenever a faucet is opened and continuing until all faucets are closed.

The chief advantage of air-displacement pumps is that water may be taken from ordinary depth or lateral distance, or from several sources, with one power outfit and delivered direct from the well to the faucet. The power plant may be located wherever convenient and as many pumps may be used as there are sources of water. Both hard and soft water may be delivered by using two pumps and the necessary piping systems. Air-displacement pumps are not adapted at present to lifts much over 125 feet or to wells less than three inches in diameter, nor can they be used where more water is required than the well can supply within a specified period. Air pipes and air-displacement pumps must be tight and remain tight in service, and working parts must be kept in good order.

### Horsepower Needed.

Water may be raised by hand, windmill, hydraulic rams, steam, hot air, gas, internal-combustion engines, or electric motors. Hand power is unsuited to large supplies or high lifts. Windmills are probably the most familiar type of mechanical power used, and often are arranged to start and stop automatically. Gasoline and oil engines are well adapted to farm pumping, and may be equipped to stop at any desired pressure in a supply tank. The use of electricity for pumping is increasing. The method is clean, quiet, and convenient, and starting or stopping a distant pump by throwing a switch may be practical wherever transmission lines are sufficiently near.

The theoretical horsepower needed to raise water is found by multiplying the gallons pumped in one minute by the total lift, in feet, including friction in both suction and discharge pipes, and then dividing the product by 4,000. The horsepower, as computed, should be multiplied by from two to four to overcome losses in pumping and still allow for a reserve of power. Ordinarily one to two horsepower engines are sufficient for farm pumps, but it is always safest to determine this point by computation.

An advantage to be derived from the well-installed farm water system often overlooked is the benefit it affords in the way of fire prevention. With relatively small expenditure, fixtures can be added to a pipe system, which give ready access to the water supply for fighting flames. In almost every case a fire can be easily put out if discovered at its early stage, providing there is fire-fighting apparatus near by, and all hands, even the children, are taught and drilled to use such apparatus coolly and skillfully.

## CONCRETE ON THE FARM.

If there is any one thing more than another that has aided the farmer in making his farmstead more attractive, his live stock more comfortable and his farm more valuable, it is concrete on the farm. It is one of the most economical and suitable farm-building materials. In permanency it cannot be surpassed. In fact, it is unequaled in this one respect. Concrete is also one of the biggest factors in making buildings rat and mouse proof. Needless to say, rats and mice have always been a constant menace to the farmers' grain bins and corncribs, but the widespread use of concrete on the farm has greatly reduced the damage done to stored grains.

Perhaps the greatest value of concrete, however, is the fact that it can be mixed by the farmer himself. Instead of having to depend upon expensive masons and carpenters he can employ his spare time in concrete construction, because concrete work is something that anyone can learn with a little practice.

## USED DICE TO TEST THEORY

**University Students Employed the "Bones" to Demonstrate the Law of Recurring Numbers.**

Some cracking good exponent of the art of "African golf," some trainer of the galloping dominoes, may yet get a position on the University of Minnesota faculty.

Students in the class studying statistics the other day applied themselves to the fortunes of dice to prove or disprove certain rules of recurring numbers.

The theory they set out to test was that with three dice it is a certainty that a given number will fail to turn up 125 times, and will turn up 75 times on one dice, 15 times on two and once on all three of the dice, out of 216 throws. The students found that the rule worked, for the dice came out 128, 74, 12 and 2.—St. Paul Dispatch.

### No Smoking There.

A traffic jam at the corner of Sixth avenue and a street in the upper Forties forced the woman to stop. Later she thanked her lucky star for the pause that made her a witness of an unusual scene.

There was a saloon on the corner, and a crowd had gathered at the "Family Entrance." Over the heads of the spectators she saw a fairly well-dressed couple being ejected by the manager of the saloon. He was large and Irish and spoke with a delicious brogue.

"Sure," he indignantly yelled, "and it's me that'll tache yez not to shmoke in the par-rlor of me saloon. I've got a sign up as big as yez please 'Ladies aren't allowed to shmoke in here,' and it manes what it says. Sure and if yez want to shmoke ye can go where the sassiety women hang out and do it. But this is a respectable saloon."—New York Evening Sun.