

SCIENCE AND PROGRESS.

INTERESTING PARAGRAPHS, CULLED FROM VARIOUS FIELDS.

All About Steam Pumps.—The distance a pump will lift or draw water—The conditions required for perfect service—Science in brief.

The distance that a pump will lift or draw water, as it is termed, is about 33 feet, because water of one-inch area 33 feet weight 1.47 pounds; but pumps must be good order to lift 33 feet, and all pipes must be air-tight. Pumps will give better satisfaction lifting from 22 to 25 feet. There are many things to be considered in locating steam pumps, such as the source from which the water is obtained, the point of delivery, and the quantity required in a given time; whether the water is to be lifted or flowed to the pump; whether it is to be forced directly into the boiler, or raised into a tank 25, 50, or 100 feet above the pump.

When purchasing a steam pump to supply a steam boiler, and be selected capable of delivering one cubic foot of water per horse power per hour.

No pump, however good, will lift hot water, because as soon as the water is drawn from the barrel of the pump the vapor occupies the space, destroys the vacuum, and interferes with the supply of water. As a result of this the pump cannot lift, and it becomes necessary to pump hot water, the pump should be placed below the supply, so that the water may flow into the valve chamber.

The most necessary condition to the satisfactory working of the steam pump is a full and steady supply of water. The pipe connections should, in no case, be smaller than the openings in the pump. The suction lift and delivery pipes should be as straight and smooth on the inside as possible.

When the water contains chips, shavings or sawdust, a strainer should be placed on the lower end of the pipe.

When the lift is high, or the suction long, a foot valve should be placed on the end of the suction pipe and the area of the foot valve should exceed the area of the pipe.

A suction air chamber is a great advantage to the pump when the lift is high. The area of the steam and exhaust pipes should in all cases be fully as large as the nipples in the pump to which they are attached.

The cylinders of steam pumps should in all cases be oiled before starting in the morning or stopped at night.

Stuffing boxes on the piston and valve rods should in all cases be kept with soft, moist packing, so, if the packing is allowed to become hard and dry, it will flake the rods, inducing leakage, and necessitating repairs.

The air vessel on the delivery pipe of the steam pump should never be less than five times the area of the water cylinder.

When pumps are standing still, idle or out of service in cold weather, they should drip and get cocks should be left open.—Canadian Electrical News.

The Influenza Bacillus.

Drs. Pfeiffer and Canon, to whom belongs the honor of the discovery of the influenza bacillus, have been lecturing upon that pestiferous atom before the surgeons of the Charité Hospital at Berlin. There is nothing particularly cheerful to the victims in what they had to say, for they evidently have no idea of what to do with the microbe now that they have found him. One of his peculiarities is said to be his immobility, a most discouraging attribute so far as mankind is concerned. He is found, it appears, in various positions, singly, in chains, and in strings. His chief characteristic, however, is his size, or rather his lack of it. He is the smallest microbe yet known to science, not half so big as his colleague, the bacillus of blood-poisoning, hitherto considered the least of the tribe. The new microbe, moreover, possesses the further distinction of being oval, not round, though a creature so minute has very little chance for priding himself on his shape. Of his activity, malvolence, and potency there is no doubt, as the unlucky rats, guinea-pigs, mice, pigeons, rabbits, and monkeys into whose veins he has been injected know only too well. He has been propagated already to the fifth generation, and thus will soon be able to boast of a pedigree.

A Good Idea.

Many eastern drug stores have adopted the precautionary measure of having two persons attend the preparation of any prescription containing poisonous drugs. The Medical Record calls attention to the Harris murder case, in which the illustration of the importance of this check, because "if a single clerk received the prescription, prepared the capsules and delivered them it might readily have been claimed by the defense that the mistake had been made by the druggist. As it was, the druggist was able to go on the stand and testify that an assistant had also read the prescription and seen the amount of morphine which was called for properly weighed and dispensed."

The World's Great Libraries.

The largest library in the world is that at Paris, which contains upward of 2,000,000 printed books and 100,000 manuscripts. Between the Imperial library at St. Petersburg and the British Museum there is not much difference. In the British Museum there are about 1,500,000 volumes. The Royal library of Munich has now something over 900,000, but this includes many pamphlets; the Royal library at Berlin contains 800,000 volumes; the library at Copenhagen 510,000; the library at Dresden 500,000; the University library at Göttingen, Germany, 600,000. The Royal library at Vienna has 400,000 volumes, and the University library in the same city 370,000 volumes. At Bonn-Pesth the University library has 300,000 books; the corresponding library at Cracow contains the same number, and at Prague 300,000.

"La Cadena"

The success which has crowned our efforts to place before the public a really fine, sweet, mild and mellow cigar has been much greater than anticipated. Our "La Cadena" brand cigar better to appreciate and those smokers who have been in the habit of smoking fine "Cadena" cigars of well-known and reliable Havana factories, inasmuch as they can now readily appreciate and enjoy them and those who have been accustomed to the heavier grades of tobacco that are used in the real cigar. If the rising be through the imported cigars brought into this market.

Island News.

Residents wishing to move over at small expense send word to W. A. Clark, 601 Yonge-street, or telephone to 3884. He will take all responsibility and move you from your city residence to the Island residence at a reasonable price. Address, W. A. Clark, Island Grocer, Butcher, Baker and Milk Dealer.

ALL THE SPORTING EVENTS.

(Continued from First Page.)

barreners at Dufferin Park on Friday. Game will be called at 3 o'clock.

Michigan leads in the Western League with Omaha, Kansas City, St. Paul, Columbus, Minneapolis, Toledo and Indianapolis following in the order given.

The Orioles Club would like to arrange matches with clubs whose members are 15 years of age and under. The secretary's address is Edward Nicholson, 136 Sumach-street.

St. Michael's College second nine is a thoroughly junior club. The members of any team will not meet them on Saturday must be under 19 years of age.

The Michigan University team closed its western tour by defeating the Olivet College nine 15 to 0. Seymour pitched for the university, but but three hits were made off him.

Newman Pearce, being unable to come to terms with the Quincey, Ill. Club, has decided to remain in Toronto and has been signed by the Park Nines.

The baseball grounds will open Saturday with a game between the Dukes and Nationals. There should be a big crowd to see these two teams play their first match.

The Nationals will put Pitcher Thompson in the box for the first part of the game with the Dukes Saturday next and Season for the remainder. Gibb Wood will play last base.

AT BLUE ROCKS.

McDonald Wins His Own 50-Bird Shoot.—All the scores.

Following are the scores made at McDonald's blue rock shoot yesterday, the leading event, a 50-bird event, prizes \$15, \$10 and \$5, being captured by Mr. McDonald, with only four misses:

Shoot 1, at 20 blue rocks: W. McDonald, 40; N. Lewis, 43; H. George, 42; J. Dawson, 35, 10; H. Hill, 11.

Shoot 2, 15 birds: Lewis 15, Charles 14, McDonald 12, George 12, Hill 11, George 10, Dawson 9, Hill 8, McDonald 7, Hill 6, Dawson 5, Hill 4, McDonald 3, Hill 2, Dawson 1.

Shoot 3, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 4, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 5, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 6, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 7, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 8, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 9, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 10, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 11, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 12, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 13, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 14, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 15, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 16, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 17, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 18, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 19, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

Shoot 20, 10 birds: McDonald 10, Tarry 9, Hill 7, McDonald 6, Hill 5, Dawson 4, Hill 3, McDonald 2, Hill 1, Dawson 0.

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