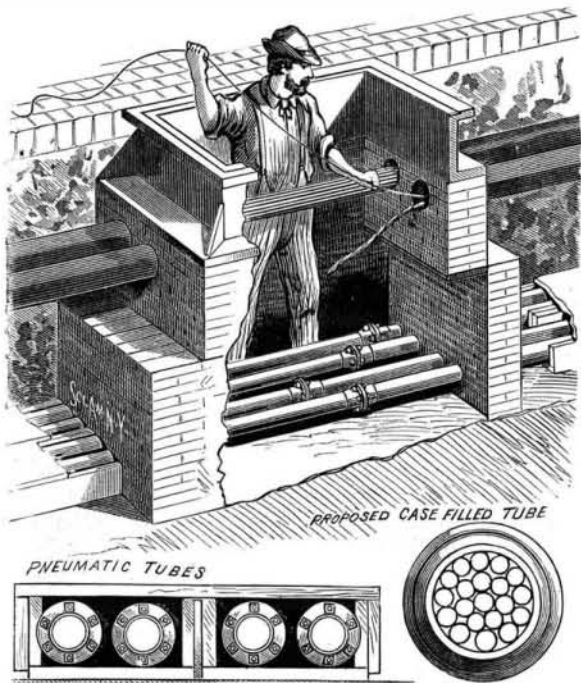


Texas.

General McClellan, who has recently visited many parts of the Texas Panhandle, predicts that by the year 1890 the State will have a population of 5,000,000, while he also affirms that it can support 20,000,000 without overcrowding. The capabilities of Texas are only just being discovered; it is larger than France, with a better soil and an equal climate, is well watered, and is being completely intersected by railroads. There was a large increase of population between 1870 and 1880, and there will be a still larger during the present decade. The State is already second only to Georgia in the production of cotton, and it produces more cattle than any other two States. It is anticipated, moreover, that the social and commercial relations between California and the Southwest will in a few years become very close. The Northwest Texas Cattle Raisers' Association has recently been in session at Fort Worth. The organization has a membership of 223, who each own from 1,000 to 60,000 cattle, and represent a grand total of 1,400,000 cattle. There are several members who can boast of the ownership of from 40,000 to 60,000 head, and fourteen who lay claim to over 20,000. A striking instance of the profitable nature of the ranching business is furnished by the brothers Hartwell, who went from Bloomington, Ill., in the fall of 1875. The aggregate of their worldly possessions amounted to \$48,000. This sum they invested in 4,500 cattle. Now they are the owners of 60,000 head, and are worth at least \$1,500,000. The largest ranch in the State is that of Mr. Charles Goodnight, at the head of Red River. He began buying land only four years ago, and now he controls 700,000 acres. To inclose his landed possessions, 250 miles of fencing are required. He has the finest, though not the largest, herd of cattle in Texas. His recent sale of yearlings fetched \$20 per head, the average price being \$15. The Matador Cattle Company's ranch is another immense property, which was recently sold to a company of Scotch capitalists for \$1,250,000.

A Useful Bath Bed.

A correspondent in the *Lancet*, writing from Liverpool, describes and recommends the following substitute for a water bed, which has been introduced into an infirmary in the latter city. It consists of a large wooden tank, about five feet long by two and a half feet broad, and a little more than a foot in depth. It is lined inside with zinc, and has a tap fixed to the bottom for draining purposes. It is supported on an iron bed cot, and is filled with water to within a few inches of the top. A large mackintosh sheet is spread over the surface of the water and allowed to fall over the sides of the tank for a foot or so on each side. This sheet may be fastened, if necessary, to the side of the tank. The patient is laid on the mackintosh sheet, a blanket or linen sheet intervening, and he practically floats in the water. The water can be kept at any temperature that is thought proper. At present the bath bed is being used for a case of



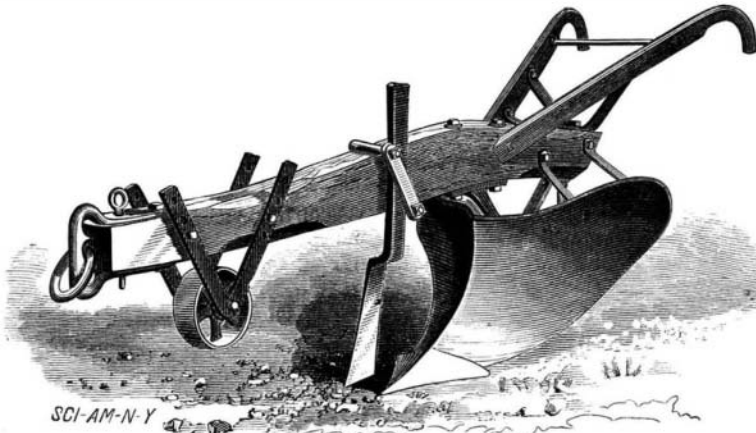
WESTERN UNION UNDERGROUND SYSTEMS.

typhoid fever with hyperpyrexia, and is filled with cold water at a temperature of 60° F., so that the patient has all the benefit of the cold water treatment by plunge bath or douche without the many inconveniences. In many cases of collapse, also where warmth is useful, the temperature of the water can be raised to 80° or 90° F., and kept at that temperature. The bath bed can be used besides for cases of prolonged illness with tendency to bedsores, for the prevention of which it is superior to the ordinary water pillow.

W. H. HERRICK, whose engraving of automatic water still appeared on page 146, present volume *SCIENTIFIC AMERICAN*, desires parties to address him at Grinnell, Iowa.

IMPROVED PLOW.

Letters patent have recently been issued to Mr. Charles C. Coleman, of Honolulu, Hawaiian Islands, for an improved double mould board furrowing plow, the object of which is to make a furrow from 12 to 16 inches deep in previously plowed and prepared land for planting sugar cane. The essential feature of the plow consists in making the mould board so that all its horizontal lines from the apex to the rear end are straight instead of concave, as heretofore made. This form presents the same angle to the earth all the way from front to rear, thereby avoiding the greater angle along the rear part, which causes the earth to clog until the cavity is filled up to a straight line, making the plow draw very hard by reason of the increased friction and



COLEMAN'S IMPROVED PLOW.

of the mass of earth that must be pushed ahead. The mould boards are extended higher and lower and also further back to prevent the earth from running back into the furrow when plowing deeply, and also to enable the angles of the board to be made sharper for a given width of furrow. The inventor states that he has found, in actual use, that the plow readily clears itself in soil which cakes on the ordinary plow.

THE WESTERN UNION UNDERGROUND SYSTEMS.

Two systems of underground tubes are now being laid in this city to connect the Western Union building, at the corner of Broadway and Dey Street, with a new structure now being erected by the company on the southwest corner of Fifth Avenue and Twenty-third Street, a distance of about two and a half miles. For convenience in constructing, both systems are being placed in one trench, the lower, or pneumatic one, being sunk below frost line, while the other, designed for electrical conductors, is about midway to the surface.

The pneumatic system is, practically, the extension of similar methods which the company has used for shorter distances during several years. By its use the present delay, caused by telegraphing messages from uptown stations to the central office and there recopying them, will be avoided, as the first copy taken will be sent direct through the tubes. As the work has but just been commenced, we can give only a general idea of the projected plan, omitting all details. There are four separate lines of brass tubes, whose ends are bolted together and which are inclosed in pairs in flat boxes. When in use the exhaust and pressure methods will be combined; that is, engines will furnish an exhaust in front of the piston carrying the message, and at the same time exert a pressure behind it.

The upper system may be considered as the beginning of the movement to place all telegraph wires in the city underground. The capacity of the pipes now being laid is not only amply sufficient to carry all the Western Union wires which, from their location, belong in them, but there will be room for future demands. Extensions will be made when practicable, and as fast as possible the overhead wires will be transferred to the tubes.

This system consists of two iron pipes five inches in internal diameter, the joints being made in the ordinary way with lead and jute. The engravings show the manhole from two points of view; one looking perpendicular to the line of direction of the trench, and the other at right angles.

The manholes are walled with masonry as shown, and of a size sufficient to easily admit a man, and are about 400 feet apart. A single iron wire is pushed through, as the sections of pipe are laid, from one manhole to the one adjoining, and to this wire the cables will be attached and pulled through. The inductors will be No. 16 copper wire insulated with either kerite or gutta-percha, but in localities where the heat from the steam pipes will be felt, it may be necessary to substitute rubber. It is calculated that the tubes will carry 300 wires.

After a cable has been placed in position in the tube it becomes a difficult matter to remove it when, for repair or other purpose, this is desired. This will be especially difficult if the defective cable should happen to lie in the bottom of the tube; the weight of the other cables bearing upon it and the long distance it would have to be pulled would make a resistance sufficient to strip it of its coating. To obviate this a plan has been proposed of filling the interior of the iron tubes with small tubes made of paper, in each one of which a cable would be placed. The removal of any

particular one would then be an easy operation requiring but little time and labor. In the lower corner of one of the engravings is shown a cross section of a tube filled in this manner.

Hemlock as a Beverage.

The *Northwestern Lumberman* claims that until lately beer has never been supposed to have any very intimate connection with the lumber business, except it adds as an internal fuel to fire the ardor of a lot of dock wallpapers or to induce a lot of men to hustle up a drive. Now it is asserted that beer is made of which hemlock bark is a principal ingredient, though it never has had much of a reputation beyond the modesty of a plain tea. The cargo arrivals of hemlock bark are numerous, and it is stated by persons who claim to understand the ropes that the tanneries are not the only importunate consumers, but that the bark is extensively ground and sold to makers of beer at outside points. How much or how little is consumed in Chicago in that way seems to be a vague proposition. The following elucidation of the subject has been furnished by a man who investigated it:

It is used as an adulteration for beer. Large quantities of it are ground up and shipped to other points. Chicago brewers can afford to make pure beer, and the *Lumberman* says they do; but this bark is fixed up here and sent to other places. I suppose you know, adds the writer, that brewers do not report the ingredients of which their beer is made, as they once did. The courts have decided that they are not compelled to do so. I have made some casual inquiries, and I learn that tanbark and soda are the principal substances used. A little rice malt gives it body and makes it hold the foam.

Hemlock bark is a new discovery in this respect, and is useful because it takes the place, to a certain extent, of both malt and hops. It is not poisonous, but it certainly cannot be said to contain any nourishment. It adds the pungent, bitter taste, and gives the dark reddish color to the liquid. It is very cheap, and the brewer who use it must grow rich very fast.

Passage of a Ramrod through the Brain.

Dr. G. Fisher reports an instance of recovery after severe injury to the brain, which recalls the well known case of Dr. Harlow, of Vermont, in which a tamping iron was forced through the head by a premature explosion. In this case an iron ramrod was discharged during the loading of a gun. It entered the back to the right of the fourth dorsal vertebra, passed upward along the ribs, and through the muscles of the neck, and forced a passage through the skull and the brain, projecting out nearly twelve inches from the left side of the head. An incision was made in the neck, and the ramrod was forced back by a hammer and extracted



WESTERN UNION UNDERGROUND SYSTEMS.

through the wound thus made. The patient recovered, but lost the sight in the right eye. A ramrod being propelled in the same direction through a dead body, it was found that in its course through the neck no important nerves or vessels were injured. The instrument passed through the right optic foramen, tore the optic nerve, and passed through the fissure between the frontal lobes. The destruction of brain substance in this region was only a little over an inch in extent, and was confined to the anterior portion of the left frontal convolution. According to our present knowledge, such an injury should cause no motor or sensory disturbances. The author apprehended the appearance in time of insanity as the result of the accident.—*Centralbl. für Klin. Med.*, August 18, 1883.