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ARTESIAN WELLS IN UTAH.

It has of late been discovered that flowing wells of water can readily be obtained by boring from one hundred to two hundred feet in depth in all that part of Utah lying northerly about one hundred miles and southerly about two hundred miles from Salt Lake City, and in the San Pete Valley.

This part of the Territory is thickly settled. Towns of from 500 to 5,000 population are numerous, and farmers and town residents are availing themselves of this abundant and easily obtained supply to the partial neglect of the old method of irrigating ditches.

A good flowing well will irrigate five or six acres, saving the expense of a yearly water tax and having the water daily at command, to be turned on or off as desired.

Nearly every residence in the beautiful city of Provo has its own artesian well, part of which is frequently utilized in a fountain in the front yard, throwing a copious jet thirty feet into the air, while hydrants are stationed at intervals in the garden, barn, and elsewhere about the grounds. For farmers and others it could also be used where light power for churning, sawing wood, thrashing, etc., is needed.

A stranger passing through a village, and not knowing the source of supply, would attribute it to a system of water works. The water is turned off and on by faucets, and is easily controlled.

The green lawns, the luxuriant gardens, and abundance of thrifty fruit and shade trees are in marked contrast to regions dependent on rainfall for their water supply.

These wells are being rapidly extended, and it is hoped that much of the Territory heretofore considered out of the reach of irrigation will soon be brought under cultivation.

SALT AT SALT LAKE, UTAH.

The manufacture of salt around the shores of Salt Lake, Utah, is an important and growing industry.

Nearly all the land adapted to the purpose has been appropriated by settlers.

A level meadow is usually selected, a few inches above and adjacent to the water of the lake.

The surface of the soil is scraped and made level and hard like the floor of a brick yard.

A storm or high wind will drive the water in from the lake and cover it, and a slight dam prevents its return. It quickly evaporates and leaves a residue of solid salt six to ten inches deep, that is shoveled into farm wagons and marketed.

This salt, owing to the considerable percentage of soda it contains, is not considered desirable for meat and butter, and does not command the price of a purer article, but is in general use in the Territory.

Its preservative qualities once cost a life insurance company \$5,000.

A well-known resident of Salt Lake City, meeting with financial reverses, thought, it was supposed, to benefit his family by drowning himself in the lake. No trace of him could be found. The insurance company refused the insurance to the widow and orphans, as no proof could be brought of his death.

Three years afterward some hunters discovered the remains in a remote inlet at the westerly end of the lake, in a perfect state of preservation. They were easily identified by his friends, to the discomfiture of the insurance company.

MILITARY NOTES.

An interesting bit of news that crossed the ocean last week in the military journals was that concerning the new magazine rifle invented by Lieutenant Dohet, of the 14th regiment of the line, of the Belgian army. Save in length, it has much in common with our own "Colt" revolver, there being a revolving drum at the base of the barrel; the mechanism for loading, throwing out the empty shell and recharging being, however, quite different. The drum contains eight cartridges, according to *L'Avenir Militaire*, and the action of re-cocking the piece throws out the empty shell, turns the drum, as is the case with the ordinary revolver. But no sooner has the empty receptor clicked home in its new position, when, from a magazine in the small of the stock, a fresh cartridge is automatically shot into it, and so on till each of the remaining seven cartridges has been duplicated. This, as will be seen, makes the gun's total fire without reloading 16 shots, a veritable pepper box indeed; and when we remember that every man in a line of battle where such arms were used could fire sixteen shots in quick succession and then fall back to reload, only to make way for a second line similarly armed, the formidable character of the arm is apparent. In no gun thus far devised with a pocket magazine under the breech has the maximum been more than six shots, and unless the average soldier is able to detach the empty magazine and clap on another in very quick time, it would seem that this new Belgian piece has a palpable advantage. Indeed, should it prove as efficient as is promised, a dash through Belgium territory by either French or Germans may come to be looked upon as quite impracticable.

The Austrians are astonished at the remarkable accomplishment of the Maxim machine gun. The *Wiener Militar Zeitung*, commenting upon some recent tests made by the general staff of the Austro-Hungarian army, says of this gun:

It's more like a human being than a gun, and even this seems only scant praise, so accurate is the automatic apparatus; for indeed the average soldier could not be trusted to throw out the empty shells, put loaded ones in their places, and keep the cooling mechanism so constantly and evenly at work as is done with the power gathered from the recoil. Here is the record of the tests, the distances being given in meters:

| Distance. | No. Shots Fired. | Time in Sec. | No. Shots to the Min. |
|-----------|------------------|--------------|-----------------------|
| 200 | 30 | 3 0 | 300 |
| 400 | 30 | 3 0 | 600 |
| 600 | 40 | 4 3 | 558 |
| 800 | 40 | 4 3 | 558 |
| 1,000 | 40 | 4 0 | 600 |
| 1,200 | 40 | 4 0 | 600 |
| 1,400 | 60 | 5 8 | 620 |
| 1,575 | 60 | 6 0 | 600 |

The deliberate opinion of the Austrian officers making the test is reported by the authority quoted to be that this machine gun is superior to all others in quickness of firing and loading, though not so accurate as some others.

The sham battle between two British squadrons under the respective commands of Admirals Tryon and Baird is now, and likely for some time to be, the chief topic of discussion between artillerists as well as naval officers. The fighting capacity of the present type of armored ship may fairly be called an unknown quantity, for there have been no maritime wars since they were designed. It is, therefore, left for the judges to decide arbitrarily as to how near one ship may approach two of the same type without getting her *coup de grace*. But, aside from the pounding and ramming power of these great ships, which must needs wait for real war to find their exemplification, the steaming qualities, the facility in turning, in getting the guns to bear, in keeping the line of battle and in general maneuvering, may readily be measured in the present sham fight. The squadron under Tryon is constructing a great boom across the approaches to Berehaven, which recalls the really formidable boom the Confederates threw across the Mississippi above the bend; a portion of it being made of chains with links of three-inch iron, and welded across the center. The present boom is not likely to be stronger than that, and one torpedo boat or a steam launch with a few spar torpedoes and a skillful man to handle them will probably have little trouble of a dark night in cutting any temporary boom that can be constructed over deep water.

As usual in these sham engagements, the work of the torpedo boats is likely to be discredited, so that Jack may not have his confidence shaken in the invulnerability of the ship he sails in. Indeed, already comes the report from Lough Swilley, North Donegal, Ireland, that the torpedo fleet "behaved very badly on the way out;" only one out of the six getting in without mishap. But considering that these are not sea-going torpedo boats, being too short and too narrow for such service, it is saying much for them that they all got in, for there was a rough sea on the passage and more than half a gale behind it.

A New Barometer.

A uniform glass tube is sealed at one end and a thread of mercury introduced, inclosing a quantity of air. An observation is taken by noting the volumes, A and B, of the inclosed air (as indicated by the divisions on the scale), when the tube is placed vertically with its closed and open ends upward respectively. The height, H, of the barometer is given by the formula—

$$H = \frac{A+B}{A-B} l$$

where l is the length of the mercury column in the tube. For convenience l is made 10 inches. The whole instrument is very portable, weighing only six ounces, and measuring about 18 inches long.—By Mr. T. H. Blakesley, M.A.

Painting a Tin Roof.

Messrs. Merchant & Co., the extensive dealers in tin, recommend the following as an excellent paint for the purpose of painting tin roofs: 10 lb. Venetian red, 1 lb. red lead, 1 gallon pure linseed oil.

The substitution of benzine or fish oils for the pure linseed oil should not be allowed.

The roof will last longer and be less liable to rust if painted on the under surface before laying. It is a good plan to put one or two layers of felt paper under the tin to serve as a cushion for same, and to deaden the noise made by the rain falling on the tin.

A year after the first coating the roof should be painted again, and then a good roof will only require painting once in four years.

A roof of first-class material well soldered and properly laid should last forty years.