The government, it seems, in order to obtain a supply of rock salt, began the sinking of a shaft 16 feet in diameter. At a depth of 280 feet salt was reached, but excavations were continued, the bit still remaining in the salt deposit, which thus exhibits the prodigious thickness of 3,907 feet.

The supply of water from an artesian well is practically inexhaustible. At Aire, in Artois, France, a well, bored over a century ago, has since then flowed steadily, the water rising 11 feet above the surface at the rate of 250 gallons per minute; and at Lillers, in the same country, one well has yielded a continuous stream since the year 1126. This fact, coupled with the large amount of water delivered, renders the artesian well of the greatest value for the irrigation of desert plains. Up to the present time, some seventy-five shafts have been sunk in the Desert of Sahara, yielding an aggregate of 600,000 gallons per hour. The effect of this supply is said to be plainly apparent on the once barren soil of the desert. Two new villages have been built and 150,000 palm trees have been planted in more than 1,000 new gardens. Water, it is stated, is reached at a very slight depth, in some cases hardly 200 feet

The success attending the efforts of the French engineers in Africa has led to the excavation of numerous wells in the dry alkali plains along the line of the Union Pacific Railroad. There is a desolate and arid section, extending along the Bitter Creek Valley for a length of about 120 miles, and varying in width from 20 to 50 miles. Since the building of the road, water trains have been running over the whole distance, supplies being obtained from the Green and other rivers. The cost of running these trains was about $80,000 a year. It became therefore absolutely necessary to produce some other means for getting water for the locomotives, and the miners working in the coal mines along the route. The only relief available was boring artesian wells, and a correspondent of the *Tribune* says that, last year six were begun. The subsequent success has been all that could be desired. The first well is at Separation, 724 miles from Omaha, and the last one is at Rock Springs, (1,145 feet deep) 832 miles. Another is in progress at Red Desert. There are layers of clay mixed with sandy loam, clear sand and water-worn pebbles (in which the supply of water is usually found), layers of sandstone of varying degrees of density, and beds of sulphate of alumina and iron chemically combined, resembling the peculiar bluish clay of some of the surface soil. The Rock Springs well rises 26 feet above the surface, discharging at the latter 960 gallons per hour. The water in the various wells, it is said, sometimes holds in solution as much as 280 grains of mineral salts to the gallon, and hence produces undesirable effects on steam boilers. It is believed, however, that for agricultural purposes these salts could, with plenty of water, be, washed out, when the result would be a remarkably productive soil, which would be as valuable as guano. A flowing well furnishing 1,000 gallons per hour will water a section of 640 acres.

An artesian well, we learn, is also in progress at Denver: it is already down 800 feet, and water has risen nearly to the surface. The government has appropriated $10,000 to sink one at Fort D. A. Russell, and it is now nearly 900 feet deep. A well 1,000 feet deep costs about $10,000; and out on the plains, this outlay would make a most productive farm and might be made the nucleus of a stock range of thousands of acres.

Beton Coignet Artificial Stone for Ornamental Architecture.

Some seventeen years ago, M. Coignet introduced his *béton* stone into France. Although at first encountering popular prejudice, the material speedily made its way, through its intrinsic merit, into favour, and finally, after being experimented upon for a period of two years, was adopted by the French government in the construction of many important edifices and structures. Forty miles of sewers in Paris, the immense aqueduct of Le Vanne, the arches which cross the sandy valley of Fontainebleau for a distance of thirty-one miles, the supporting arches of the Exposition building, the docks at Bourdeaux, and in various others prominent engineering works the *béton Coignet* has been entirely employed; and also in Egypt the material has been used, for lighthouses and in forming the massive blocks used in the building of the Suez Canal. In a large number of private and public edifices in the vicinity of this City (New York), recently erected, this stone has been employed. Prominent instances among these are the arches, columns, and traceries of the great Catholic Cathedral, now in progress on the corner of Fifth Avenue and 50th street, and in the various architectural ornamentations of Prospect Park, in Brooklyn. This material is specially advantageous for decorative purposes, as it offers great facilities for the reproduction of ornamental detail. A design, once well modelled and prepared for carving, can readily be repeated.

A large new manufactory of *béton Coignet* has been established by the New York and Long Island Coignet Stone Company—the works are very extensive and are capable, we understand, of turning out fronts of ten ordinary houses per day, besides a large quantity of fine ornamental work. The process of manufacturing consists in first grinding down the constituent elements of the stone to be imitated, and mixing them by machinery until they reach a plastic slate. The moulds are then filled by a peculiar process which entirely excludes the air, and are immediatly removed. The stone within a few days, is ready for transportation, and continues to increase in density.

The *béton* is impervious to water; and so far as experience proves, withstands the frost of extreme northern climates, and will withstand a crushing pressure of about four tons to the square inch. Structures composed of it are much lighter than those of natural stone, while the strength is equal, if not, in many instances, greater. A cubic foot of the material weighs about one hundred and forty-six pounds. Walls of it present a homogeneous mass, and are not liable to the accidents common to brick and morter structures.

We learn that, since the failure of both granite and marble in the great fires of Chicago and Boston, tests have been made as to the capability of *béton coignet* to resist intense heat, and the results show that it neither explodes like granite, calcines like marble, nor warps and twists like iron structures. It is, besides, a non-conductor of heat to no small extent, and therefore tends to check the passage of conflagrations from building to building.

General Gillmore, of the United States Engineers, some time since visited Europe for the express purpose of inspecting the structures made from this stone, and on his recommendation the government has adopted if for use in the construction of the casemates, sally-port, floors, and other portions of Fort Wadsworth, on Staten Island. It would be difficult, we imagine, to limit the employments for which the material appears eminently suitable. The cost of manufacturing is said to be about half that of natural stone when cut.—*Scientific American.*

MISCELLANY.

Mill's Education.—Among the numerous misrepresentations now current of John Stuart Mill's Autobiography, perhaps none is more strikigly at fault than that which describes the unique education which he received from his father as an education of cram. It is true that Mill became an accomplished scholar when a mere child; and it is quite natural for people to suppose that so much knowledge could have been got into so young a head only by being crammed in. But this view of the case is very distinctly repudiated by Mill himself, who certainly was quite capable of analyzing the process to which he was subjected, and was quite candid in giving his opinion of it. "Most boys or youths," he says, "who have much knowledge drilled into them have their mental capacities not strengthened but overlaid by it. They are crammed with mere facts, and with the opinions or phrases of other people, and these are accepted as a substitute for the power to form opinions of their own; and thus the sons of eminent fathers, who have spared no pains in their education, so often grow up mere parroters of what they have learnt, incapable of using their minds except in the furrows traced for them. Mine, however, was not an education of cram. My father never permitted anything which I learnt to degenerate into a mere exercise of memory. He strove to make the understanding not only go along with every step of the teaching, but, if possible, precede it. Anything which could be found out by thinking I was never told until I had exhausted my efforts to find it out myself." And this testimony not only settles the question concerning the character of Mill's education, but expresses in a lucid and forcible way a vital principle in the proper education of every child.—*Christian Union.*