Herodotus describes the Bay of Triton, between his day and the first century of our era, a shore formed between the bay and the sea, and to the bay succeeded a lake which Pomponius Mela and Scylax describe in similar terms. All these three writers tell us that a large river, the Triton, emptied into the Bay of Triton; but they give us no details as to its source or upon the features of its course. But this gap is filled by Ptolemy, who speaks of the source of this river in Mount *Ousaleton*. In its course three lakes lie—lakes Triton, Pallas, and Libya. These details, with many others, are carefully examined and identified by M. Rouire.

"Thus," he concludes, "source, environs, and delta of the river Triton, the aspect of the country traversed, the lakes in which this stream empties before meeting the sea, all are found identified upon the environs of this new water course in central Tunis."

HORSERADISH.

The botanical name of this well known garden plant and popular condiment is *Armoraciæ radia*, a native of western Europe. It is remarkably tenacious of life, and spreads itself without artificial aid, coming up sometimes at long distances from the parent plants in soils adapted to its growth. The root contains an acrid oil similar to, if not identical with, that of mustard, and to the pungent flavor of this oil is due the desire for grated horseradish as a condiment. It is considered medically as a harmless stimulant, of use in dyspepsia, and a sirup prepared from the root is used in colds and rheumatism.

In some cities, the horseradish is grated at the doors of the customers; or dealers stand at the street corners, and grate from the heaped roots a gill, half pint, or more at the call of the customer. All this work is done by hand, and is intended to counteract the popular idea that turnip forms a large part of the bottled horseradish. This is not so, for the turnip would turn the horseradish black, or discolor it, and, besides, it costs hardly more to raise horseradish than to raise turnips. The absolute whiteness of horseradish (except the color of the vinegar) is a necessity to its commercial value. This whiteness cannot exist in adulterated horseradish. In the manufacture of the grated horseradish in large quantities the graters must be made of white metal or of sheet tin, as the contact of uncovered iron would blacken the product.

The cultivation of the root is simple. At the harvest, in the autumn, those roots which are too small for commercial purposes—less than a pipestem in diameter—are packed away in sand in short lengths of from four to six inches. In the spring these are planted in plowed furrows by means of a hand dibble, making a hole to plant the slip in, upper end just below the surface. It grows with the commonest cultivation—field cultivation—and is harvested by the plow and the potato digger.

In preparation for the market the roots are freed from sand or soil, and are scraped by hand until every discolored portion is removed. The cleaned roots are then put into a tumbling barrel with water, and thoroughly washed. To be ground, they are fed into a hopper over a cylindrical grinder of white metal with its corrugations like those of a nutmeg grater, and held down to its surface by the weight of a block of wood fitting, like a piston, the sides of a rectangular box into which the hopper leads. The grated root is mixed with vinegar, bottled, and sealed immediately. And herein is the trouble about adulterated horseradish. Exposed in a grated form half a day, the horseradish is tasteless; the aroma goes with the air like a whiff. Nor will dry horseradish retain its strength. Horseradish is like the rose; it must be smelled—or tasted—immediately on its ripening, or it is "scentless and dead."

An Artesian Well in Nevada.

A very deep well is being sunk at White Plains, Nevada, on what they call the 40-mile desert, in the neighborhood of the sink of the Humboldt. The well is being put down by the Central Pacific Railroad Company as a test well, not alone for the satisfaction of obtaining water for their own use, but to determine the feasibility of getting it elsewhere on the line of their railroad, as well as in other parts of the State. The only good supply of water for the desert is brought from the Truckee River, 35 miles west of the new well on White Plains, and is hauled in tank cars for the supply of engines and domestic purposes, showing the necessity of testing thoroughly by artesian wells to get water. The desert contains many specimens of Indian curiosities—arrow heads, Indian mortars, etc.—being formerly fine hunting grounds.

A record of the progress of this well will be of interest to many persons. They have found salt water, hot water, and finally, at a depth of 1,650 feet, they came across wood. Mr. W. C. Chapin, who has charge of the drilling of the well, sent to the Academy of Sciences samples of the wood brought up by the drills, and gave a brief record of the material passed through in boring.

From the surface to 20 feet they passed through clay with a four inch stratum of fine decomposed quartz; then to 36 feet it was tufa and cement; then two feet of cobbles, sand, and hard shells. At 38 feet they struck a strong stream of salt water in gravel; from 40 to 70 feet there was sand, cement with seams of rock, and cobbles. This kept on until they reached 144 feet, when they met cement clay, with sand and gravel, which continued to 205 feet, when they met fine brown sand; then down to 300 feet there was cement, gravel, sand, and shell conglomerate. From 300 to 340 feet, compact sand or sand rock; to 367 feet, various kinds of cobbles; then followed white tufa, fine sand, cement, sand, and gravel to 400 feet. A stratum of conglomerate was then found, which passed into cement at 420 feet, where cobbles and gravel were met with, and then fine sand; at 486 feet bedrock was found. Eight inch driving pipe was driven to the depth of 486 feet, the part above this being all surface wash. From 486 to 520 feet was black rock, when red volcanic rock was met, continuing with slight change to 575 feet, where black basalt was found. At 595 feet there was red rock and red mud; then came black rock with seams of clay. From 625 to 635 feet there was a reddish-gray rock with cement, which mixes up with the water—red rock probably from above. Gray muddy rock then came in, and from 655 to 665 feet a reddish-brown sand rock; then a soft green rock. Between 666 and 685 feet there was very compact black sand, and then hot water was struck.

Between that point and 697 feet was reddish-black sand, changing to coarser below, when at 703 they found red rock again, which continued to 745 feet. From there to 950 feet was black, red, and gray rock, in strata. From there to 1,000 feet, and to 1,049 feet was red rock, fine and very hard. From 1,040 to 1,050 the rock was slate-colored. From that to 1,140 black (basalt), and then a red slaty clay, followed by blue clay (slate) and volcanic ash. The volcanic ash continued to 1,300 feet, when conglomerates and rock were met, lasting to 1,550 feet, when a soft, muddy, white rock came in, continuing to 1,610 feet.

From 1,610 to 1,615 feet was a fine gray sand, and from 1,615 to 1,624 was a stratum of *wood*. This wood is not silicified, but is black and hard, though it breaks readily when handled. Some large pieces were found. It is rather remarkable to find wood at such a depth, and so thick. Iron pyrites were found near by. Below this, again, is conglomerate, with some fine sand. At 1,825 feet very muddy rock came in, and also more sulphurets, followed by a soft, dark rock, very loose, and falling in on the drills. From 1,890 to 2,088 feet very hard black rock was met. The well is now down over 2,100 feet, but no water has yet been found, aside from that which is hot or salt, as mentioned.

The work of sinking is, however, being continued, with the hope of eventually striking a flow of water.—*Min and Sci. Press.*

The Effects of the Excessive Use of Alcohol on the Mental Functions and Brain.

Dr. Clouston, of the Edinburgh Asylum at Morningside, the noted author and specialist, in a recent lecture on this subject writes as follows:

The effects of a single dose of alcohol differ widely in different individuals, and this lies at the root of all scientific inquiries into the matter. The variety of the effects on the mental faculties of different brains is also extreme. This indicates such different qualities and susceptibilities in different brains as regards this agent, that it makes the whole question of the effects of alcohol a most complicated one, not to be explained by a few unqualified assertions. In reply to the question, What are the normal effects of alcohol on the mental forces of the brain? the scientific man must reply, What kind of brain do you mean? And it is only by a careful study of the qualities, the tendencies, and potentialities of different brains, that we can answer the first question properly. We need to study the mental qualities of the brain at different periods of life, in the two sexes, in different temperaments and constitutions, in different races, in different states of health and vigor, and with reference to the hereditary tendencies of the organ; for all these things influence the effects of one single small dose of alcohol. So we find, looking from the point of view of the amount of the doses, the effect is very different. There is, I believe, no other agent known which differs so greatly in different instances in the dose needed to produce the same effect on the mental powers as a dose of alcohol, and herein again we find that there must be the greatest difference in the power of resisting the effects of alcohol in different brains. Taking the lower animals, that difference is exceedingly small; an ounce of alcohol given to a dozen dogs of the same size will practically have the effect on them all; but an ounce given each to a dozen men has not only the most different effect in the mental faculties it stimulates, as we have seen, but in the *amount* of the effect it causes. Some brains are exceedingly sensitive to very small quantities; other brains have the power of resisting or tolerating alcohol in a wondrous degree, this being an innate quality quite apart from the effect of the use and custom. These differences are so great as to compel us to conclude that there are enormous inherent disparities in human beings in this respect, and this is no doubt one of the very great dangers in the use of alcohol.

So we also find at the various periods of life, ordinary small doses of alcohol have very different effects. In a child the effect is extremely great; in a boy or girl it is also great, but it is not so great in a growing adolescent. In the two sexes there are also considerable differences, the female having less resisting power, her brain being usually much more susceptible to the influence of this agent. Looking at different races, the difference of effect of the same dose is also extremely great. There are some savage races that are so subject to its influence that a very small dose indeed—half an ounce—will have greater effect on them than two or three ounces will have on an ordinary European. The psychological, the mental, effects of small doses of alcohol are therefore exceedingly various, and we have not yet discovered the precise qualities of brain which caused these differences. We cannot tell beforehand which brain will be susceptible to its effects, and which will not. Looking at the matter next from a point of view of the effects of a much larger dose, these will be found much more uniform. The effect instead of being stimulating is then narcotic, and we have a deadening, paralyzing, and temporary arrestment of the mental functions of the brain in every individual if a sufficient quantity is taken. But here we find much variety in the way the result is arrived at, when carefully studied.

In one person we have this paralysis, this deadening, taking place first on the intellectual faculties, in another on the emotional, in another on the propensities, and in another on the power of motion. We see a certain kind of mental degeneration of a slight type, which results in those who habitually take an amount of alcohol that is to them excessive. This slow but quite marked type of mental degeneration a doctor of experience soon comes to observe in his patients; and others a certain change mentally, morally, and bodily, in the man who is taking more than is good for him. The expression of his face and eyes—those mirrors of the mind—you see has changed, and for the worse. The mental condition of the man is lowered all round, and especially one effect is noticed, that his higher power of control is lessened. I am safe in saying that no man indulges for ten years in more alcohol than is really good for him without this kind of degeneration being observed, and that although during these ten years he was never once drunk we find him psychologically changed for the worse in his independence of mind, in his spontaneity. After a man has passed forty, such changes are very apt to be faster, and more decided. We see such a man's work and his fortune suffering, but we dare not call him either a drunkard or dissipated, because, as a matter or fact, he has never been drunk, and never intends to be drunk. Whether this degeneration takes place soon or late depends upon inherent resistive capacities of his brain cells. In some individuals the resistive capacity against alcohol is so great that for years they may indulge in its excessive use without this degeneration taking place to any great extent, but in other instances we have it very rapidly developed indeed.

Some men pass into a premature old age and become old at fifty, when they ought to have lived on and been young men up to sixty, and this merely owing to the excessive use of alcohol. Memory and the power of thinking are affected, but you see the lowering most in the finer faculties, the tastes, the more delicate perceptions of things, and the force of character. This is an effect which, I believe, is especially to be observed in men who have used their intellectual powers constantly and vigorously. We often see this effect on the brains of men in our profession of medicine, at the bar, and even among the clerical profession, in a very marked degree, without their owners having been once drunk. In such persons, their mental powers having been greater to begin with, and with a finer edge on them, you notice in a more marked way this degeneration in its progress. This, I may say, is the least marked mental effect of alcohol taken, not so as to produce drunkenness, but taken in greater quantity than the physical constitution of the brain can stand over a long period. In some brains a very small quantity indeed, taken daily, will produce this degeneration.

Mechanical Properties of Galvanized Iron and Steel Wire.

At the wire mills of Witte & Kaemper, a series of tests has been made to ascertain the mechanical properties of galvanized steel and iron wire, with the following results:

	Steel.	Iron.
Diameter, inch...	0·16	0·161
Tensile strength per wire, pounds	2447	1345
Elongation, per cent	5	15

A torsion test made showed that on a length of 11·81 inches the steel wire could be twisted four times before it broke, while the iron wire stood 18 revolutions. For the tensile tests, the length of specimen was 5·96 inches. The galvanized steel wire is used for wrapping ocean telegraph cables, while the iron wire is used for surface telegraph lines. The steel used is generally made by the Bessemer process, while the iron was puddled from a mixture of Westphalian mill pig, Siegen charcoal pig, and pig from the Georg Marie Hütte at Osnabrück. The quality of the galvanizing is tested either by dissolving the coal in hydrochloric acid or by dipping the specimen a number of times for a given time for each immersion in a solution of sulphate of copper. The wire must not show any signs of a deposit of copper. For the German telegraph service, the sulphate solution is a mixture of one part of sulphate and five parts of water, and the wire must undergo five immersions of a minute each. For the steel cable wire, the specification is a tensile strength of 53 tons per square inch, an elongation of 1·5 per cent., and a bending test of wrapping the wire twice around a piece of wire having the same diameter and straightening it out without breaking it.

THE Louisa County (Va.) pyrites are to be very favorably exhibited at the New Orleans Exposition, in the collection of the National Museum. Samples of massive pyrite, both copper and iron, from veins thirty-seven feet wide, will open the eyes of foreign visitors to resources of this country.