Railroad Station Wells.

The series of driven wells near a Pumping Station of the Pennsylvania Railroad Company having been connected to the suction pipe of a new steam pump in the engine house, they were tested and gave an average of thirty-five gallons of water per minute, about one hundred and sixty gallons being the amount required. The pipes or tubes are forced by concussion down through the surface soil to water level in the gravel or sand stratas generally found overlying a strata of clay or rock, which being somewhat impervious to the water filtered or soaked in from rains, drainage and other means from the surface, acts as a reservoir; but the supply is affected by dry weather sometimes, and is liable to be impregnated with organic matter or vegetable decomposition unless the tube passes through a thick stratum of clay before reaching the water-bearing vein of gravel or sand.

The water when pumped at first is discolored and contains considerable earthy matter, but perseverance in continuously pumping for a day or so, will generally clear it. The town of Christ's Church on the Island of New Zealand had three thousand of these inexpensive wells in use many years ago, each of them flowing, thus avoiding the expense of a pump, and they are largely used on all sand waste land, like our American plains and those of Australia. They have been improved of late years by the addition of a cast iron point fastened on the end of the pipe to make it drive easier, otherwise it is the same as the old fashioned pipe or tube well. Any one can put in one of these inexpensive little wells if they do not use the cast iron point on the pipe. Every farmer can thus have the convenience in each pasture field of watering stock, without driving them in the hot sun oftentimes to ponds and shallow places in creeks which become putrid from the animals' use of them. Ordinary gas-pipe is all that is used, and a wood auger welded onto a piece of small pipe can be used to test with to ascertain when water has been reached. Have each length of gas-pipe cut into four pieces, and have the threads cut well down so that the ends of the pipe will meet when screwed up into the socket; use a cap on top of the pipe to drive or strike on, and thus avoid burring the pipe. Use wooden malls for hammering it down, and turn the pipe while driving to ease its downward progress, put in the auger and bore the dirt out frequently at the bottom to diminish the resistance at the bottom in driving the pipe. Having bored and driven your pipe into four feet or more water-bearing gravel or sand, use an ordinary pitcher pump, if the water be within easy suction distance, say not over twenty-five feet, if beyond that depth a lift-pump with a cylinder run into the water or within easy suction distance may be used, and a nice job done at an expense not exceeding thirty dollars all complete. — *Bryn Mawr (Pa.) Home News.*

The Sense of Weight.

At a recent meeting of the Anthropological Institute, London, Francis Galton, F. R. S., exhibited and explained some apparatus contrived by himself, with a view of testing the muscular and other senses. This apparatus consisted of a box, something like a backgammon-board, containing trays of weights arranged for measuring the relative delicacy of the muscular sense (the six, added by modern psychological science to the five recognized by the ancients) as existing in different persons. The principle Mr. Gatton claimed as a new one. It established, he said, a grand scale of sensitivity, and was applicable, by means of analogous methods, to testing the delicay of other senses, such as taste and smell. He employed small weights arranged in sequence, which were numbered in succession 1, 2, 3, etc., and differed by equally preceptible variations, as calculated by Weber's law.

Generally, the number of grades between the weights that any person could distinguish had to be found by trials, and that number became the measure of the coarseness of his sensitivity. The weights used were blank cartridges, filled with shot and wadding, care being taken that the shot should be equably distributed. They were arranged in trays; each tray holding a sequence of three. The person tested had to arrange the cartridges in the tray handed to him in the true order of their weights. Some provisional results of the plan were mentioned. One was that men had, on the whole, more delicacy of discrimination, than women another, that intellectually able men had more than other men. It further appeared that women sensitive to a morbid degree were not remarkable for their powers of discrimination. Sensation was produced in them by a feeble stimulus, and so was pain, but the intervening numbers of just perceptible differences did not appear in their case to be exceptionally large.

Hints for Home Dressmaking

Do not trim wool with silk; braided designs have superseded the use of piece silk for trimmings, and these are not only much more effective, but they wear better—as long as the material itself. All dresses that are used for outdoors are cut walking length, and girls do not wear trains under any circumstances before they have become a part and parcel of society life, and are "of age"—that is, over 18. Even then they do not wear long dresses for dancing or for any occasion excepting formal dinners or grand receptions where there is no dancing.

Plain plaited (box-plaited) skirts will be much worn this season, and may be either trimmed on to a lining or made entire of fine wool, with narrow side plaits under the box plaits. The edge is hemmed up and faced on the under side, braid for binding being but little used. If the skirt is draped the drapery should be narrow at the back, and well held in above the flounced or plaited edge. The short, rounded apron front is still fashionable; so are straight folds and shirring. In many instances the fullness does not descend upon the lower part of the skirt, and it is not noticeable that the drapery is cut up into a few parts and made as simple as possible.

Paniered basques are as fashionably worn as ever, but they are not very deep and are rounded over the hips, where they often connect with the drapery at the back, the skirt being trimmed with ruffles or plaitings, or alternate ruffles of lace or embroidery and plaitings of the material. Sagging puffs are also employed, of graduated width, and with ruffles of embroidery between or heading the puffs, or with insertion or lines of shirring between, upon which the edges of the puffing fall, but only lightly, the fullness being somewhat straight and scant.

Basques and bodices are cut in a great variety of ways; the deep Jersey basque, close fitting and well shaped, is stil worn, the coat basque is as fashionable as ever, neither having been quite superseded by the pointed basque, hollowed up on the hips and deepening to a point back and front. There is also the plaited blouse basque, which holds its own, and the shirred and belted waist, the double-breasted jacket basque, and the "French" waist, so-called, which is belted in broadly, but is plain upon the shoulder, and open V-shaped at the neck, where it is finished with a ruffle of lace, which extends to the belt.

The Field of Science.

A homemade barometer is easily constructed by filling a pickle bottle to within three inches of the top with water. Then take a clean Florence oil flask, and plunge the neck as far as it will go into the pickle bottle. The water will rise and fall with the weather leaving the flask entirely sometimes eight hours before a storm.

A chemist named Bitma has discovered a process of solidifying coal oil and arrangements have been completed at Baku, Russia, for manufacturing candles from kerosene which will have greater illuminating power than tallow, and can be sold much cheaper.

In Brazil large quantities of the best quality of pottery are being manufactured from the ashes of the hard, silicious bark of the caraike tree, which is powdered and mixed with the purest of clay obtained from the beds of the rivers. The ware is said to be extremely hard and smooth and in every respect superior to that made by any other process.

Scientists have adopted the theory that the duration of animal life should be five times the growth of the animal or being. Thus man gets his growth in twenty years and should live to be one hundred years old. The camel is eight years in growing and lives forty years. The horse reaches maturity in five years, and seldom lives beyond twenty-five; and so with other animals.

Pervasiveness of Natural History.

According to Mr. Richard Jeffries, in *Knowledye*, the present age thinks natural history in its higher or ideal form, just as former ages have thought metaphysics, or have been sceptical, or full of a revived classicism. It enters, he says into every phase and movement. Physiology, for instance, which is the natural history of the human body, is taught—and rightly taught—to women and even children. Sanitation is one of the most powerful movements in our time and seems likely to gather strength. Sanitation would be impossible without an insight into natural history. Its main object is to dispose of certain deleterious organisms, and if these organisms were not studied, it would be the merest rule of thumb. The germ theory, all the researches of Pasteur, and his experiments in microscopic vaccination these are the purest natural history. So in surgery, the antiseptic treatment; though, indeed, all surgery which depends on growth is natural history. As for the physician of the nineteenth century, he is purely a naturalist. Theories have disappeared; the one leading idea is to get at what nature needs.

Men's lives are saved by natural history. Athletics are based upon the results of minute researches into the absorption of food, the repair of tissues, all the processes of life, training being adapted to facilitate it. Except those who return conquerers from war, there are none so highly honored as explorers of unknown regions, such as the interior of Africa or the palæocrystic sea at the other extreme, whose work is certainly natural history. Despite the attacks made upon it, the Lyell theory, that existing causes are sufficient to explain existing things and the means by which they become as they are—this great idea still influences the mind of every investigator. An exhaustive account of the multitudineus ways in which natural science influences the mind of the age would be of unwieldly length. Everywhere throughout the Anglo-Saxon world, eager minds are seeking new discoveries in such science literally night and day. Therefore, it is strictly accurate to say that the age thinks natural philosophy, looking to it for guidance, help and future increase.

Meissonier's Dog and Nelaton's Pay.

A pet dog of the painter Meissonier one day broke his leg, rendered friable by over-feeding. Meissonier, desolated by such an accident to so beloved an animal, resolved to have recourse to the prince of surgical science, who at that time was Nelaton; but not venturing to declare the true motive, he telegraphed in hot haste for him as if to visit one of the family, then living at their charming residence at Bougival. Nelaton arrived, and entering the drawing-room, began talking on various topics with the master of the house, who, although he had painted many battles and carried off many victories, knew not how to face the present affair. At last Nelaton, becoming impatient at the delay, and knowing the value of his time, asked, to the great embarrassment of the painter, where his patient was. Presently the wounded brute was brought in on a magnificent cushion, howling with pain in spite of all the care taken. At so distressing a spectacle, Meissonier, forgetting everything else, exclaimed in agony: "Save him! illustrious master, save him!"

Nelaton dressed the fracture, and th dog recovered; and shortly afterward its master wrote a grateful letter to the great surgeon, thanking him for his kindness, and requesting to know his fee. Nelaton replied that when the painter came to Paris he could call upon him. This he soon did, and was producing his purse crammed with bank notes, when Nelaton exclaimed: "Stop, sir! you are a painter, are you not? Just put a gray coating on these two panels which the cabinet-makers have finished!" This was indeed a delicate revenge; but which had the last word? Meissonier, who, going at once to work, at the end of a few days produced two of his *chefs d'œuvre* on the panels.

Barnum and the Deacon.

A church deacon asked Mr. Barnum for a "pass" to see the "winter quarters." The veteran showman replied: "Free 'passes' are played out. We never issue one to the big show except to editors, clergymen or orphan asylums, or persons who render us equivalent service, in some way. Nobody will get inside the 'winter quarters' except editors, or in very special cases, my partners or myself accompany them. Without such precaution there is danger from the wild animals which are not so carefully railed off from passers-by as in our public exhibitions. Besides, strangers disturb the trainers of our animals, and cause our numerous workmen delay in their work." "Is that not carrying your restrtctions too far?" asked the deacon. "Perhaps you may think so," replied Barnum, "and as you generally like scriptural authority for everything, I present you this printed card to ponder." The card read as follows:

Free Passes.—"In those days there were no passes given."

"Search the scriptures."

"Thou shalt not pass."—*Numb. xx., 18.*

"Suffer not a man to pass."—*Judges iii., 28.*

"The wicked shall no more pass."—*Nahum i., 15.*

"None shall pass."—*Isaiah xxxiv., 10.*

"This generation shall not pass."—*Mark xiii., 30.*

"Though they roar, yet they cannot pass."—*Jeremiah v., 22.*

"So he paid the fare thereof and went."—*Jonah i., 3.*—*Bridgeport Farmer.*

Costly Rugs.

Where and How Made, and How They Get to this Country.

When an American buyer arrives in the heart of the rug-making country in Asia he selects the best agent he can find, and gives him an order for, say, 100 rugs of about the colors and sizes of certain samples which he may find in the bazars. The Turkish agent then employs natives of the villages where the kind of rugs selected are wanted, giving to each a bag of gold, and instructions to order four rugs. The subagent then goes among the families and talks rugs with them, drinking many cups of coffee and discussing the price for days at a time. When a bargain is concluded some money is furnished the family for wool, dyes, and food, and the agent goes away, sure that in the course of a few months the rug will be ready. Upon a carpet measuring 8x12 feet a whole family will work for months. The cotton or woolen threads which form the groundwork or warp of the fabric are stretched upon a huge frame the width of a rug, and the family, or such members of it as are able to work, sit on the floor and tie knots in the warp threads with the colored wool tufts, tightening the finished fabric now and then with a rough comb.

Each worker takes about twenty-seven inches of the rug and works along this strip. From two to four inches a day is the speed at which the rug advances if the family is large enough for the whole width of the rug to advance at the same time. A rug eight or nine feet wide requires four persons, who work side by side. The finishing of the rug, smoothing, clipping, etc., is a work requiring skill and judgment. The wages are small and the payment is according to the number of square feet. The workers know certain patterns by heart, and dye their own wools. The old dyes have in some instances been supplanted by aniline colors, which do not keep their tones, and fade without giving to the rug the softness of tint which is the chief glory of a fine Eastern rug. So many merchants have refused to buy the carpets in which aniline dyes have been used that the use of them may eventually be stopped.

The rug-makers, as a class, are poor in money, very ignorant and very religious, but live comfortably. Especially around the borders of the Caspian Sea, in the country watered by the rivers from the Caucasian mountains, are the people in comfortable circumstances, although about three centuries behind the rest of the world. Wine is still brought into Tiflis in ox-hides holding a hogshead of wine, and is sold for about 15 cents a gallon. The rugs and carpets are brought in from Persia and the neighboring districts on camels' backs, the arrival of camel-trains being one of the curious sights of the town.

Cinnamon.

Cinnamon bark is well known to all our readers. Boys and girls, as well as grown persons, like to smell and eat it. It is an article of commerce, and great quantities are brought to America every year. It is in daily use, but not many take any thought about where and how it grows and how it is prepared for market. The cinnamon plant is supposed to be a native of Ceylon but it is cultivated by the people of China, not because a better quality or more abundant crop is produced there, but because they are industrious and value commerce more highly than a Cingalese. These countries have their cinnamon harvest when all hands are busily engaged as are we in gathering the productions of this country. But that harvest commences in May and continues until October. The plants are not cut down and destroyed, but the twigs are carefully selected and cut off, ranging in in size from a half inch to two inches; the smaller the better. After they are cut from the plant, a knife made for the purpose, is run several times lengthwise through the bark, so that it may be easily stripped off. After being stripped off the bark is dried in the sun, and rolled up like quills. It is then bound into bundles of thirty pounds each, sewed up in mats and then sent to market. The "cassia buds" which are procured at the druggists, are the dried flowers of the cinnamon tree, gathered just before they burst into bloom.—*Ex.*

An Old Tree.

The oldest tree on earth, so far as any one knows, is the "Bo" tree in the sacred city of Amarapoora, Burmah. It was planted in 288 B. C., and is accordingly 2171 years old. Its great age is proved by historic documents, accordto Sir James Emerson Tennett, who says: "To it kings nave even dedicated their dominions, in testimony of belief that it is a branch of the identical fig tree under which Buddha reclined at Urumelya when he underwent hi apotheosis." Its leaves are carried away as streams by pilgrims, but it is too sacred to touch with a knife, and therefore they are only gathered when they all.

Agricultural and Statistical.

The stock raisers of Colorado estimate the aggregate value of their flocks and herds at $35,000,000. The number of horned cattle is placed at 2,250,000.

The English butchers prefer cattle weighing from 1,300 to 1600 pounds and sheep about 150 pounds live weight Wethers bring from one to two pence a pound more than ewes, and black-faced sheep are preferred.

Sugar-beets and yellow mangolds are excellent feed for making milk. Their healthful effect upon the cows, and their aid in digestion and assimilation of other food tend largely to increase the yield of milk, and the abundant nutriment contained in them gives quality and flavor.

We see it stated that the amount paid for imported cattle during the year 1881 was $3,675,500. For 1882 it is estimated that the amount will not fall below $5,000,000.

Onions cut up with food for chickens are said to be an effectual remedy for chicken cholera. A little ground ginger mixed with their meal once every day or two is also beneficial when symptoms of cholera appear.

Sheep suffer greatly from exposure, and need to be well housed, especially during storms. Throwing fodder on the ground is a wasteful practice. Racks can be made at small cost, and they will more than pay for themselves in a single winter.

We want no better sign of a good farmer than that he prizes manure, and believes in returning to the soil something like an equivalent for what is removed. The secret of good farming lies in making the land produce the best possible results without deterioration.

GREASY HEELS IN HORSES.—Grease is akin to scratches on the heels, but is more injurious to the horse, and not so easily cured. Wheat bran is a good sedative for such affections, and should be fed at least half and half with Indian meal or whole corn, and one-fourth to one-third of oats, rye or barley. The horse should also be kept well salted. A teaspoonful, even full or heaping, according to his size, and mixed up well in the bran at night, is a fair dose.

TOOLS.—Every implement needed on the farm should be overhauled before the time for using them arrives. Sharpen all edged tools, and oil the various parts of the farm machinery. Look well to the bolts, that none may be missing when the day for using the implements is at hand. The little things of the farm are very important, and no one can hope to succeed without paying strict attention to them.

AGRICULTURE IN COMMON SCHOOLS.—One great difficulty in the way of the success of agricultural schools in the United States, lies in the fact that our people do not make use of the primary schools as auxiliaries—as feeders to them. Instruction in the elements of agricultural education should begin in the common schools of the country, especially in those where farmers' sons and daughters make up the bulk of attendance. This is being done in France and other European countries. The result is entirely satisfactory. Youth of both sexes can, in these schools, be instructed in botany, in the practical culture of trees, shrubs and flowers; in grafting, budding, hybridizing, seed selecting, and a score of other things that will amuse and instruct, and at the same time beget a love for rural pursuits, and a desire for higher instruction in the science and art of agriculture, horticulture, stock breeding, etc. Public sentiment needs arousing in this direction.

WATERING HOUSE PLANTS.—The want of success that many people experience with house plants is chiefly due to the improper way in which they are supplied with water. Sometimes the earth in the pots becomes as dry as street dust. At other times the soil is kept in the condition of soft mud. In many cases there is no opening in the bottom of the pot or box through which the superfluous water can escape. As a consequence it remains and becomes stagnant and offensive to the smell. It is quite likely that malaria has resulted from the decay of vegetable matter in flower pots kept in living rooms. A German paper makes the following sensible suggestions on the subject:

"Watering plants is one of the most important things in the culture of house plants, and very special care should be devoted to it. Plants ought not to be wet until they need it. It will be evident that they require wetting if on taking the earth from the pot it crumbles to pieces like dust. A sure sign is to knock on the side of the pot, near the middle, with the finger-knuckle. If it gives forth a hollow ring, the plant needs water; if there is a dull sound, there is still moisture enough to sustain the plant. Plants must not be wet more than once or twice a day. On dry, clear days they require more water than on damp, cloudy days. On the other hand, the earth must not be allowed to dry out entirely, for that is also very injurious. In wetting them the water must be poured in such a way that it will run out again through the hole in the bottom of the pot. If the earth gets too dry it is best to place the pot in water, so that the water will saturate the dirt very gradually. They may be watered at any hour of the day except when the sun is shining on the pot or has just left it; for the earth gets hot when the sun shines on it, and then if cold water is poured on it it will cool off too rapidly. The best time for watering flowers in summer is the evening, and in winter noon is best. Well water should never be used, but always use either rain water or brook water.

STRAWBERRY CULTURE.—Moist but well-drained land is the best for the strawberry. Avoid the shade of trees. The soil should be thoroughly and deeply pulverized, and fertilizers used freely. In setting, *do not plant deep*, but press the earth very firmly about the plants. Do not plant on a windy day. Shade valuable plants with coarse litter or berry baskets, or boxes, for a few days after planting. For hill culture plant in beds four feet wide, with alleys two feet wide between them. Plant in each bed three rows of plants fifteen inches apart, and the plants the same distance apart in rows. For the matted-row system, plant in rows three feet apart, and the plants a foot apart in the rows. For the best results, mulching with some light material is indispensable, which should be applied just so soon as the ground has become slightly frozen, and partly or entirely removed before the ground has become "settled" in the spring. It is well for all to plant at least three varieties—early, medium, and late—to expand the season to its full limits.

RASPBERRIES.—Prepare the soil for strawberries. Unlike strawberries, raspberries are rather benefited by shade, if not too dense. In field culture, all but the "cap" varieties should be planted in rows five feet apart, and the plants three feet apart in the rows; the "caps" six by three and a half feet. In garden culture, plant "caps" five by three feet; the others, three feet apart each way. In planting, expose the roots to frost, wind and sun, as little as possible, and press the earth about the plants very firmly with the feet. Do not plant on a windy day, and do not plant deep. So soon as planted, cut back the canes to within a few inches of the ground, and fall-set plants should have a mound of earth made over each plant to protect them from sudden freezing and thawing. Keep the soil loose and free of weeds throughout the season, treating all suckers as weeds, except three to five to a hill, if kept in hills, or a single row, if kept in rows, for fruiting. It is found to be better to plant something of an assortment, as there is a difference in flavor and times of ripening.

Howto Take Out Screws from Woodwork

One of the most simple and readiest methodes for loosening a rusted screw is to apply heat to the head of the screw. A small bar or rod of iron, flat at the end, if reddened in the fire and applied for a couple or three minutes to the head of the rusted screw, will, as soon as it heats the screw, render its withdrawal as easy by the screw-driver as if it was only a recently inserted screw. As there is a kitchen poker in every house, that instrument, if heated at its extremity, and applied for a few minutes to the head of the screw or screws, will do the required work of loosening, and an ordinary screw-driver will do the rest without causing the least damage, trouble or vexation of spirit. In all work above the common kind, where it is necessary to use screws, and particularly in hinge work and mountings, fancy fastenings and appliances affixed to joinery or furniture work, we would advise the oiling of screws or the dipping there points in grease before driving them. This will render them more easy to drive and also to withdraw, and it will undoubtedly retard for a longer time the action of rusting.

"Progress."

It is gratifying to note that the colored people throughout the entire country are improving in every sphere of life. In the Southern States with their limited educational advantages they are making wonderful strides towards a higher and better life; they are to be eventually the owners and tillers of the soil; their thirst for knowledge has produced in almost every Southern State colleges for the higher education of youth which in time will be productive of valuable results, their being nothing to fear from either political party, as the different sections of our country are divided upon all national questions, but united upon the general welfare of the Union of the States and the prosperity and happiness of our people.