SCIENCE AND PROGRESS.

INTERESTING RESEARCH IN SCIENCE AND INDUSTRY.

Recent Inventions--A Battery Inkstand--Wood Pulp--Picture Transmission by Electricity--Electricity in the Home.

Recent Inventions.

One of the most beneficial inventions recently reported in a type writing machine which can be easily and effectively operated by the blind. In constructing the machine, the greatest care has been taken to provide means of insuring accuracy of manipulation and after a little practice, it is confidently stated, those who are deprived of sight can work the machine with as much certainity as those who can check with their eyes the work of their fingers.

One of the great discomforts of artificial dentures, where all the teeth have been lost and much absorption of the gums has taken place, is the constant tendency for them to slip forward. To overcome this difficulty, a Scotch dentist has developed a method of fixing dentures by means of two or more gold pins attached to the under surface, which enters holes either made by drilling the jawbone or left after the extraction of a tooth. In other words, when necessary, an artificial tooth can be riveted to the jawbone. This method of treatment has been adopted with great success.

Prof. Barnard, of Lick Observatory, Cal., has made a very ingenious utilization of the property possessed by selenium of changing the electric resistance when exposed to light. He has so arranged the selenium cell in connection with the telescope that the light from a comet will immediately cause connection to be made with a battery and give an alarm.

The most curious thing about this process is that the light of ordinary stars does not affect the apparatus, which is susceptible only to comets. The watching and waiting which constitutes a considerable element in the astronomer's life can now be materially mitigated. He can set his telescope and go to bed in comfort, feeling assured that if a comet should during the night sweep across the face of the prism which influences the selenium cell, the fact will be instantly announced by the loud ringing of a bell in his bedroom.

A Battery Inkstand.

Mr. Edison has been the recipient of many presents, but none of them is more curious or interesting than the inkstand set which now occupies a conspicuous place on the great inventor's desk of the laboratory in Orange. It is a gift from Krupp, the German maker of big guns, and is naturally of very war-like appearance. It consists, in fact, of miniature guns and shells made out of Krupp steel. The inkwells are made out of shell stood on end point upward, so that the pen may lie across them. The pen-tray is made of half a shell.

The pen-wiper is stuck in the mouth of a heavy siege gun, which is mounted on a turn-table, and is provided with the usual gear for elevating and depressing. This is no make-belief, for the whole mechanism works as easily and smoothly under the touch of the finger as though it were a real gun maneuvered by a company of artillery.

The tall candlesticks are also made out of "Long Toms"—or whatever may their modern name—and are highly finished, grim bits of metal that look quite capable of sending a dynamite, charge two or three miles. It is rather amusing to see this bellicose outfit on the desk of such a man as Edison, who has an intense dislike of the modern militarism of Europe, and has always refused to turn his genius to purposes of destruction, except in the case of the Sims-Edison torpedo, which he thinks, could end a war in short order and save countless lives and millions. The batteries he is inclined to are those whose victories are made over nature, and whose triumphs are to be seen in inventions that have added immeasurably to the comfort, convenience and happiness of his fellow-creatures.

Wood Pulp.

Wood fibre has come into general use as a substitute for the cotton rags and other materials formerly employed in the making of paper. This fibre is called pulp, having taken the name which used to be given to the cotton and linen fibre when it had been prepared by maceration for spreading into sheets of paper.

The wood fibre used to be prepared, only a few years ago, by a wholly mechanical process. The blocks of wood were ground, or rasped off by action applied obliquely to the grain. The length of fibre depended partly upon the angle at which the block was held during this process.

In place of the old mode of obtaining wood pulp, chemical treatment of the wood is now in vogue. As formerly, the bark is stripped from the wood to secure fibre of uniform quality. All discolored or decayed parts are removed for the same reason.

Then the wood is cut across the grain into thin chips, which are carried to the top of the mill and dropped into large drums about 14 feet in diameter, and 24 feet long.

The drums are made strong enough to bear a pressure of from 75 to 200 pounds to the square inch. When a drum is packed full of chips it is filled with sulphuric acid and other chemicals.

The wood is converted into a cotton-like product, which is then pressed dry and mashed. It is next mixed with water, rolled flat, and cut into shape for bundling. In this condition it is said to be made up of 90 per cent. fibre.

In this shape it goes to the paper mill. It is found to be better to pay the freight on the contained water than to cheapen the cost of transportation by pressing out the water, for the pulp packs hard when it is dry.

One cord of spruce wood is estimated to make 1200 pounds of dry fibre, worth from $1 to $1.50 a hundred pounds. A sulphite plant that will use up from eight to 15 cords of wood every 24 hours costs about $10,000. —Youth's Companion.

Picture Transmission by Electricity.

A company with a capital of $1,000,000 has been formed in Cleveland, O., to operate patents covering a device for the reproduction of a photograph at a distance by means of electricity.

The machine is described as a small contrivance of iron and brass connected by a single wire with the telegraph battery. A photographic negative, whereon the image is in relief to the extent of about one-thousandth part of an inch, is fixed in position, and by means of a tracer, a perfect engraving is made on wax or metal at the other end of the line, from which a print may be taken.

When the transmitter passes over a light portion of the subject the receivers cause a depression, or maximum cut, to be made upon the surfaces; and when the dark portion is under the transmitter the receivers will make no record. The product of the receiver is an engraving from which stereotypes can be made for printing on ordinary presses.

This meagre description does not give sufficient basis upon which to form an accurate judgment, but it does not seem impossible that a rough outline of the subject might be produced in this way. If it does one-half what is claimed it will take its place as a great invention, as the field for it is almost as unlimited as for the telegraph or telephone, and greater, perhaps, than that of the phonograph.—Practical Electricity.

Electricity in the Home.

The extent to which electricity is entering into modern home life may be inferred from the fact that a book has just been published on "Decorative Electricity," by a woman who has made a special and practical study of the subject. The author is Mrs. J. E. H. Gordon, wife of a prominent English electrical engineer, and she speaks out of the fullness of some ten years' experience with electric lighting.

Few people have an idea of the extent and refinement to which the details of the new art of illumination has been carried, but when Mrs. Gordon can show a neat little arrangement for the cooking range, by means of which a light can be put inside any kettle or saucepan to see how its contents are getting along, it is evident that the day is at hand when we can enjoy these new conveniences of the bedroom, parlor and kitchen.

Incidentally, too, Mrs. Gordon speaks of electric hair curlers, and it is the fact that electric heating apparatus is already finding its way into houses, as, for instance, in the shape of little stoves for making a cup of coffee, foot warmers for the bed, cigar lighters, etc. It has been shrewdly remarked that there are two good reasons for the popularity of electricity among the ladies of the household.

Asbestos.

Abestos is a mineral that crystallizes in longfibres. The fibres can be separated as easily as those of our softer woods, and are woven into a variety of articles, which are worn for protection against fire.

Among these articles are mittens to guard the hands of firemen, assayers, refiners, and others who are exposed to burning. As the material is not affected by heat, the workmen thus protected can grasp hot irons, crucibles, and the like without discomfort.

Masks for the face are also made of asbestos. It is said that the heat from the hottest fire cannot penetrate through them to the skin. Air for breathing is supplied through a tube from beneath the mask, so that the flame or the burned atmosphere is not inhaled. In this way the discomfort of working directly in front of retorts and furnaces is greatly relieved.

Complete suits of fire-proof asbestos cloth are now made for firemen's wear. As the material is indestructible, and a bad conductor of heat as well, the wearer is protected in the midst of flames. Of course air for breathing must be supplied through tubes in some such way as it is supplied to the diver when he is under water.

Paper Insulation for Electric Cables.

One of the most recent innovations in the manufacture of insulated wires and cables is the use of paper as the insulator. The paper is now made expressly for the purpose, and has to be stored like wood, to become duly seasoned. It is made in rolls of half a mile to five miles long, and weighs from twenty to ninety pounds per ream. It is cut up into strips by circular shears, and these strips are mounted on mandrels made to fit the covering machines, which, revolving at various speed from fifty up to five hundred turns per minute, lay the paper on in overlapping spirals. As each spiral is laid on, the cable is passed through closely-fitting dies and the result is a very hard, dense, compact and flexible covering. This insulation is afterward subjected to treatment with a compound, and then receives a covering of lead. These cables are yielding remarkable results, and thus paper has found another use.

Scientific Notes.

Mr. Dowd, of New York, has found that each cubic inch of soil contains from 60,000 to 2,250,000 minute organisms.

A grain of fine sand would cover one hundred of the minute scales of the human skin, and yet each of these scales in turn covers from three to five hundred pores.

The saltiest piece of water upon the earth is Lake Urumia, Persia, more than four thousand feet above the sea level. It is very shallow, and no living thing can exist in it.

A new industry that has recently sprung up in Russia is run by two Englishmen, and consists in operating special machinery for cleaning the rice supplied from Persian fields.

Oxygen is the most abundant of all the elements; it composes at least one-third of the earth, one-fifth of the atmosphere and eight-ninths, by weight, of all the water on the globe; it is also a very important constituent of all minerals, animals and vegetables.

WHAT BACCARAT IS.

A Game Like Vingt et Un, but With More Combinations.

Baccarat, rarely played in America, is the favorite fashionable gambling game of England and the continent. It is gambling pure and simple, may be played by any number of packs of cards. All bet against the dealer, who banks and deals from a box similar to a cigar box. The face cards each count ten, and the others according to the number of their spots. After the bets have been made the banker deals two cards to each of the players, including himself, but the other players must receive their cards before the banker is served.

The aim of the players is to make the numbers, 9, 19, 29, or as nearly those as possible, as 8, 18 and 28. Any player is at liberty either to "stand," with the two cards first dealt or to call for more at the risk of exceeding 29, when his stake is forfeited to the dealer. If, after the first distribution of two cards to each, any player has a "natural"—that is a sum making 9, or, next in value, 19—he declares it and the banker pays all who holds superior hands to his own and claims from those holding inferior hands. The players stake their money separately, there being in fact, as many separate games in progress as there are players, and the spectators may wager their money on and one of them, all of which must be accepted by the banker.

Prior to the banker making a start he states the amount in the bank—for example, £50. Any one sitting down at the table has a right to call the whole of the bank, selecting the left or the right on which to pick up the cards. If the bank is not called then the banker proceeds to deal to £25 a side, or as much as it may be "marked" or called—the former meaning that the money is placed on the table, the latter that the banker has accepted the bet without the money being staked. The latter course, however, is quite the exception, the ready coin being invariably planked. Previous to the banker dealing the cards it is the duty of two croupiers, one on the right and the other on the left to count up the stakes deposited on either side, and then make up the bank. Thus the banker knows to the smallest coin the exact amount of his liabilities. Had the game been properly played at Tranby Croft no one would have stood an earthly chance of cheating.—Atlanta Constitution.

UP TO SNUFF.

The Reporter Was Equal to the Occasion and Came Off Best.

"Hold on a minute, young man!"

The tone was imperative, and the young man turned quickly and looked into the business end of a 44-caliber revolver.

"Shell out and make no brash plays!"

"But, my dear sir—"

"Shell out!"

"Certainly, sir. What'll you have—a pocket bank, a plugged nickel, or a brass match safe?"

"Everything you've got. Turn your pockets out and quit talking."

"With pleasure. Will you—"

"Quit! Just keep your eye on the banker and drop everything into my side pocket."

The orders were obeyed in silence, and then came the admonition.

"Get a move on you!"

"Excuse me, Mr.—Mr.—; well, never mind the name; you're probably modest. But will you favor me with a pencil?"

The man with a slouch hat pulled down over his eyes kept the young man covered with the revolver in his right hand while he reached into one of his capacious pockets with his left and pulled out a short pencil.

"Course I don't want to be mean," he said.

"Thank you! Thank you! And a piece of paper! No! Well, never mind; I'll use my cuff. Have to make notes or I forget everything, and this is a rattling good story. Wouldn't miss it for anything. You get a pocketbook worth 10 cents, with three dimes in it a plugged nickel, a match safe worth 12 cents, and a sea bean worth nothing. I write up the story and get $2.40 for it easy. Maybe you got the best of it, but I'm satisfied. Much obliged, old man; here's your pencil. Good-night!"

And the newspaper man walked on whistling, while the highwayman leaned up against a fence and muttered: "Well I'll be hanged."—Chicago Tribune.

An Emperor in Disguise.

People who imagine that his Imperial Majesty the Emperor William passes all his time in christening new-born sons, meditating on the wickedness of Prince Bismarck, and quarreling with Count von Waldersee are very much mistaken. He likes his fun also, and takes it. There is a certain music hall in Berlin where the Emperor enjoys adventures worthy of the Caliph Haroun Al Raschid. Whether he is recognised or not it is hard to say, as his Magesty is an adept in the art of "making up." However, policemen, detectives, and others are far too wise to express suspicions in case they have some idea they are in presence of the lord of Germany. It is confidently said that the other day, in the guise of a Hebrew peddlar, his Majesty wandered through the haunts of the Jewish community in his capital, and dicussed with a number of working Israelites the condition of their race in his own dominions and the effect of the harsh measure recently promulgated against them in Russia. On another occasion, the Emperor is said to have passed many hours of the night wandering among the saloons used by sailors and common soldiers, arguing and inviting criticism on the life of a private in his army or an able-bodied seaman in his navy. All these things doubtless assist the young sovereign in his endeavours to act as the father of his people; but occasionally the fact that he is a young man bursts upon him, and he is apt to join in vigorous dancing, and play high jinks generally, as enthusiastically as the latest Jack ashore. Then, in the middle of a can-can or a schoppen, comes the memory, "Ich bin der kaiser, and his temporary boon companions are surprised to see their new comrade suddenly draw himself up, turn on his heel, and leave the place, followed by a couple of, till that moment, supposed to be drunken chums.