

SCIENCE AND PROGRESS.

INTERESTING FACTS FOR STUDIOUS READERS.

The Kniepp Cure—Machine Writing—Power of Dynamite—The Nicaragua Canal—Sorting and Cleaning Wool.

Sorting and Cleaning Wool

The wool comes into the mill dirty, greasy, burry, sometimes washed by the farmer, but generally just as it is sheared from the sheep, a filthy and unwholesome thing, giving little sign of the beautiful white and flossy substance into which it is soon converted. It must first be sorted, each fleece containing from six to eight quantities of sorts, which the careful manufacturer separates, devoting each quality to the purpose for which it is best suited. No skill in carding, spinning, weaving, or finishing can possibly produce a soft or fine piece of goods from a coarse, hard fiber. When a woolen thread is to bespun to the length of 15,000 yards to a pound, or in the case of a worsted thread to twice that number of yards to a pound, everything depends upon care in the selection of the fleece and in the sorting. These sorts are impregnated with a greasy substance called the yolk or suint, caused by the animal secretions and the perspiration of the skin, a compound of potash and animal fat, which must be completely eradicated. The elimination of the yolk, dirt, and foreign substances, common to all wools, results in a shrinkage of from fifty to seventy per cent.

Our ancestors secured their wool in tubs, such as our wives and daughters scour our clothes today. In the hand-washing of wool, a tub was filled with the suds, in which one or two men with long poles stirred the wool until clean, when they lifted it upon a traveling apron, which carried it between a pair of rollers which squeezed out the water. The same principle is applied in the automatic scouring now in vogue. Great forks or rakes seize the wool, and it is carried by rollers from a feeding apron into the iron tanks, and by alternating motions of their teeth give it a thorough scouring. Thus cleaned, the wool is delivered by rollers to the drying machines, where hot air and great fans are now utilized to extract all the moisture without tearing the fiber.—Popular Science Monthly.

The Kniepp Cure.

One of the most novel resorts among the numerous "cures" of Europe, is a little Bavarian village, Vorshofen where the village priest, Sebastian Kniepp, now seventy years of age, instructs his patients in a method of treatment which he invented for himself nearly fifty years ago, and which he has thrived on ever since. His plan of hardening or invigorating the body is the practice of walking or running barefooted in wet grass or freshly fallen snow from five minutes to half an hour, after which the patient puts on dry socks of coarse linen yarn without drying his feet, and then takes a smart walk. This is said to cure everything from chilblains to toothache. He also recommends cold baths during only five minutes, putting coarse linen underclothes on the still wet body, then the outer clothes, and a quarter of an hour's brisk walk. He has curious notions about diet, denounces tea and coffee, objects to much meat, and favors bread, fruit, vegetables, and milk in the main. He recommends brown bread, but his two particular fancies are peas and sauerkraut. He believes the more moderately a man eats, the better chance he has of keeping his digestive organs in good order until old age. He advises drinking before eating, never while eating, and also hard beds, and cool-well-ventilated bedrooms. He does not object to smoking. Three-fourths of his ideas we could endorse, but we do not doubt that his treatment is well adapted to gross, over-fed, dyspeptic, rheumatic and gouty individuals who are still robust enough to bear all of his heroic methods.

Machine Writing.

Writing by machinery has now come to be almost the universal practice in the business world, and the click of the typewriter is heard in nearly every business office. A different class of work, however, is that of authors and others who themselves operate the machine to put their thoughts upon paper, and it has been thought by many that it would not be adapted to this work, for the reason that the attention necessary to be given to the machine would interfere with the interrupted thinking necessary to do such work. Experience is proving, however, that this difficulty exists only in the imagination, and some of the best writers of the day, including Mr. Howells, Frank Stockton, Robert J. Burdette and Margaret Deland, are said to regularly write their copy on the machine, some of them declaring that the click of the keys seems to make their thoughts flow more freely. And after all there should be little surprise at this. The keyboard of a typewriter soon becomes as familiar to the operator as the keys of a piano to the musician, and after that the making of letters by striking the keys is really a more simple matter than by making them with the pen, for with the machine precisely the same motion is required for each letter, and they are made without the necessity for thinking of the means by which they are made. A number of our correspondents send in typewritten manuscripts and a constantly increasing proportion of the matter appearing in this paper is written by machinery.

The Nicaragua Canal.

Mr. A. M. Wellington, C. E., one of the editors of the Engineering News, speaks in very emphatic terms about the Nicaragua Canal. A member of the News staff, Mr. Stauffer, has made a personal investigation of the route of the canal, and both he and Mr. Wellington are satisfied that it is a feasible and promising project.

"The great trouble with the Panama Canal of De Lesseps," said Mr. Well-

ington to me "aside from the enormous amount of work involved in cutting through the mountain for a side level canal, was the difficulty of controlling the Chagres River. A three hours storm transfers it into a raging torrent, which has time and again done untold damage to the works. The canal will probably never be finished, even with locks, now that the American enterprise is progressing so favorably. The Nicaragua River, you know, is not subject to floods. The great lake at its source acts like an enormous reservoir to equalize its flow. It is like the St. Lawrence in this respect. The work of constructing a canal along its channel will be very simple. The entire route has now been very thoroughly surveyed.

"Another advantage the Nicaragua route possesses is its climate, which is by no means unhealthy, except, perhaps, in mid-summer."

Theory.

Theory is a word which has great terrors for some, but it should not have, for theory is only another name for speculation. The very men who abhor theory, as a term, often theorize the most. It is because the name is so frequently misapplied that men are afraid of it. Theory is supposed to be something which a practical man, so called, detests; but the practical man, of all others, uses it the most in daily work. He can not see the actual cause of the grunting in the cylinder, but he forms a theory as to what it is, and soon finds the remedy. Would that we could test all theories as promptly! Students and others theorize, or speculate in their researches upon the cause of cylinder condensation, but they can not put them to conclusive tests. Some men are called theorists, in distinction to practical men. We are all theorists in daily work when we can not obtain positive proof. Where we can not see with our eyes and touch with our hands, we must speculate, conjecture, build on a slight foundation of fact a superstructure of possibilities which may stand or may tumble down. It seldom does this last if the speculator is well grounded in practical work.

New Style of Chain.

The manufacture of chains has been very much facilitated by the introduction of electricity for welding purposes, but a London firm has gone a step further and produced a chain which required absolutely no welding. This is done in a most ingenious way. A cross-shaped bar of steel is drilled at proper intervals with holes, the size of which are dependent on the size of link required. The bars are then notched roughly to the shape of the links by suitable machinery, after which it is flattened to prepare it for the following out of the links and their rounding up by stamping. In the next stage the links are punched through and parted, and the concluding operation is the cleaning and truing up of the links to their final form. The makers claim that the chains are considerably stronger than those made in the usual way. Apart from the possibility of defective welds the fact that the new chain is of steel gives it a great advantage over ordinary chains, which, on account of difficulties of welding, are usually made of iron. It is stated that the new steel chain can be made equal in strength to the ordinary chain at a third-class weight.—Pittsburg Dispatch.

Power of Dynamite.

Shooting a candle through a two-inch solid plank without disturbing it in the least is being outdone by dynamite, which is so quick in its action that a tender green leaf can be compressed into the hardest steel before it has time to flatten. One of the experiments of the United States Torpedo Works was to place some leaves between two heavy, flat pieces of iron, set them on a firm foundation and see what gun-cotton would do in forcing the iron pieces together. The reaction was so great from just being exploded in the open air that one of the iron pieces was driven down upon the other quick enough to catch an exact and complete impression of the leaves before they could escape. It is also a singular fact that the gun-cotton itself should sink deep into the iron when it explodes, showing the points of the letters stamped into the cartridges. This novel method of engraving by gun-powder is one of the wonders of this century.—Cleveland Plain Dealer.

The Printing of Wall Papers.

In machine printing the plain paper arrives at the factories in great rolls of various qualities to suit the different purposes and prices for which it is required. These long rolls are useful for machine work, which is not cut into lengths until after it has been printed. In hand work, on the contrary, the rolls are cut into eight-yard lengths the first thing. The paper is grounded with one coat of color, although sometimes two coats are given. The cylinders are fitted with scrupulous exactness. The paper then enters the machine, taking up one color after another as it passes around the great drum; entering the machine as plain paper it passes out embellished with a pattern of many colors. Then, by a species of aerial railway, it is carried up and over elevated rods continually moving until, at the very end of the factory it is rolled up dry into ordinary roll lengths.

A Novel Electric Climber.

At Seattle there is about to be put into operation a novel method of running electric cars up steep grades. The electric railway there has a very steep grade about 800 feet long, and it has been found that the motors on the cars are inadequate to surmount the hill. To correct the difficulty a small conduit about two feet square is constructed, and in this is to run a small car as a counter-balance. Two ropes will be attached to the counter-balance cars, with grips at each end, and will run around pulleys at the bottom of the incline up the counter-balance car to the top. When an ordinary balance car is attached to the rope, the counter-balance runs down the hill, but when it reaches the top of the hill it runs down the other side, and, aided by the motor, it pulls up the counter-balance car, which is now ready to bring up another car.

THE COLONEL DIDN'T SHOOT.

If He Had Done So He Would Have Been Wiped Out.

One hot summer day after climbing the old "government" road, which winds in and out of the gulches, but always up from Cooper Basin, my companion, Col. Bigelow, and myself, writes a correspondent of the Arizona Republican, reached the cool spring which bubbles from the rocks just before the divide is reached from which the road commences to descend to Prescott, which is eight or nine miles away. The mountains here are covered with tall pine trees which spring from the ground covered with immense granite boulders.

Resting ourselves at the spring the colonel pointed to a trail leading up the side of the opposite mountain and said, "A good many years since—I think it was in 1865; and when I felt much younger than now—I came very near being taken in by the Indians up on the trail where it passes over the divide. I'll tell you how it was.

"I had been down to Prescott for a month or two, having a good time with a lot of the boys, until I had become tired of so much hilarity, and I made up my mind to strike out for camp, which at that time, was at the mouth of the Grand wash, which leads down into the Hassayampa, four or five miles below Cooper Basin.

"I started out from Prescott and was coming up the trail on the other side of that ridge over there, all the time keeping my eyes open for Indians, for in those days a person was always on the lookout for Indians and always had his gun ready for instant use.

"As I came up the hill I noticed a movement of the boughs in the top of a tall pinon pine-tree which stood on the top of the ridge. Not being able from my position to discover what made the commotion in the pine-tree top, I carefully made my way up the hill until I had a good view of the tree, and what do you think I saw? Well, an Indian had shinned up the pine tree, and, with a long, light rib of a saghuara, was knocking off the pine cones, which hold the sweet pinon pine nuts.

"I felt very comfortable when I saw the Indian up that tree, for I imagined the result if he had caught me up the tree. I made up my mind that he was my Indian, for the Apaches had made things particularly hot for me on more than one occasion. Without any regard as to whether he would fall on a soft spot or not, I took good aim and then—didn't shoot."

"No? What was the matter?" I asked.

"I'll tell you why," continued the colonel. Hearing a slight noise I looked down the trail on the other side of the hill, and there, not more than 100 yards away, were coming seven or eight Indians in single file, and all were armed. They had not seen me, I suddenly concluded I hadn't lost an Indian that day, and I lay flat down in the brush while they passed along the trail in full view of my hiding-place and disappeared over the hill.

"As I didn't care to call a band of the red fiends upon me by shooting, I just crawled away from them without letting the Indian up the tree know how near he had been to being my meat nor how near my scalp had been hanging to the belt of one of his tribe."

Intelligent Chimpanzees.

Among the most remarkable stories in Mr. Stanley's book on Africa is one told to the explorer by Emin Pasha. Here it is:

The forest of Moangwa is infested by a tribe of chimpanzees of great stature, who make almost nightly raids on the villages and little plantations of the Mswa natives, carrying away their bananas and other fruits. There is nothing very remarkable about this fact, since many kinds of animals make pillaging forays upon the habitations of men; but the surprising part of Emin's narrative is the statement that in these thieving raids the chimpanzees make use of lighted torches to hunt out the fruits.

"If I had not been myself a witness of this spectacle," Mr. Stanley reports Emin as saying, "nothing would ever have made me believe that any race of monkeys possessed the art of making fire."

On one occasion, Emin says, a chimpanzee of this intelligent tribe stole a drum from the huts of his European troops and made off with it, beating it as he ran.

The monkey took the drum to the headquarters of his own "people," who were evidently much charmed with it, for the Egyptian soldiers often heard the monkeys beating it vigorously, but irregularly. Sometimes in the middle of the night some sleepless chimpanzee would get up and go to beating the drum.

But what the other chimpanzees thought of this midnight musical performance will never be known positively, but from the fact that no sound of battle and slaughter among the intelligent chimpanzees ever followed, the Egyptians were forced to conclude that they liked it.

Here at least, therefore, we find an indication that the grade of intelligence of even the chimpanzees of Moangwa is still far below that of the human race.

His Invisible Companion.

The Atchison man who had the strange experience with his deceased wife's empty chair, which rocked in a strange manner, is having another experience that is still more remarkable.

Whenever he goes to bed he hears a soft footfall keeping step behind him. Every step he takes, wherever he goes, he hears that mysterious step, joining with his own. In crossing in the snow the other morning, side by side with his own footprints, there appeared the prints of a woman's foot. He is sure that the ghost of his wife is shadowing him, and that for some reason it distracts him. He is feeling very much worried about it.—Atchison Globe.

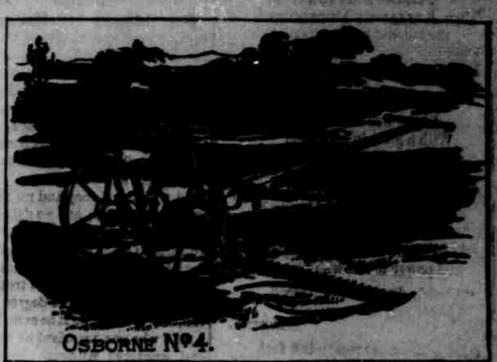
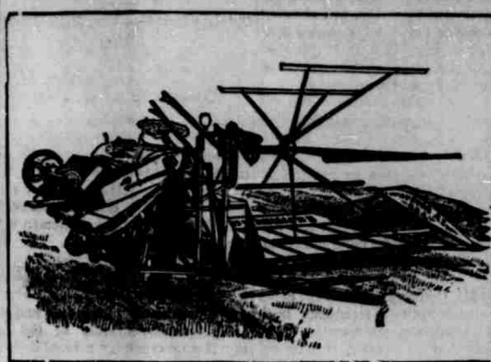
A Kind-Hearted Tramp.

"Madam," said the tramp, respectfully, "are you alone in the care of this house?"

"Well, sir, I'm almost alone. I have only the assistance of this dog and this double-barreled shotgun. Do you want anything?"

"Only to inform you, madam, that there may be suspicious characters about. Good evening, madam."—Def Monte Wars.

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