THE

Scientific American.

MUNN & COMPANY, Editors & Proprietors.

PUBLISHED WEEKLY AT

NO. 37 PARK ROW (PARK BUILDING), NEW YORK.

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☞ "The American News Company," agents, 121 Nassau street, New York.

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VOL. XI. NO. 5....[NEW SERIES.]....*Twentieth Year.*

NEW YORK, SATURDAY, JULY 30, 1864.

Contents:

(Illustrations are indicated by an asterisk.)

A NEW TEXTILE FIBER.

In consideration of the high price at which all varieties of textile fabrics are now held, it is important that the materials from which such fabrics are made should be increased in quantity. Cotton is almost out of the market. Until the war is ended, and the questions at issue decided positively, we cannot count upon another crop with any certainty whatever. Flax is beginning to come into the market to some extent, and factories to spin and otherwise work it up into wearing apparel are springing up in various parts of the land. The machinery required for this branch of industry is in great demand, and we hope ere long to see some substantial evidence of energy and enterprise in the shape of cheap, durable, and elegant linens. There is always a demand, however, for coarse, heavy, and strong bagging or crash. This has hitherto been supplied from the overflowing abundance of the cotton crop, but that being cut off and foreign materials being also high, it is necessary to look about for some addition to the list of fibers from which heavy sacking can be made. Such a fiber has been discovered in the husk of the maize plant, or indian corn which is grown in such abundance in this country. The husk which envelopes the ear is now used to a great extent in Austria for making paper. Immense quantities are made and the quality is said by competent judges to be equal to the best rag-paper ever manufactured. It is in the process of obtaining the paper stock from the corn-husk that the fiber is set free. Neither are injured but are separate and distinct products of the wonderful plant. The fabric which is woven from this fiber is immensely strong. Cordage is made from it and it bears some resemblance in color to the cocoa-fiber. Although far inferior to it in strength it is much superior in point of softness and elasticity. Some samples of cloth we have seen woven from this fiber would make excellent toweling or "crash" for covering carpeting. It is also valuable for making enameled cloth, or oil-cloth, and it takes any coating applied to it readily and retains it firmly. Specimens of enameled cloth made on this fabric as a base are equal to the best English cloths.

The very general interest which attaches to the discovery of a new material which can be used in the arts should lead manufacturers to look into this subject. It is in this state an Austrian discovery, and is a valuable one. Thousands of yards of cloth made from this fiber alone (so we are assured on the authority of the Austrian Consul, Charles F. Loosey, Esq., of this city), have been shown us by the gentleman named. Samples can be seen at this office.

It will be seen that in addition to the paper stock, the husk of the indian-corn is capable of producing a marketable fiber, and still retain its value as cattle-fodder, for in these processes the life-sustaining element is not lost but obtained in all its purity. The methods of weaving and of freeing the fiber from its vegetable envelope are not completed, nor is the expense great, and we are confident that good results will follow an immediate investigation of this subject.

THE MYSTERIES OF IRON.

There is no miracle recorded in the annals of any religion more mysterious; more incomprehensible, more inconceivable, than some of the well-known properties of the simple metal, iron. Consider, for instance, its change from its ordinary to its passive state. If a piece of the metal in its ordinary condition is immersed in nitric acid, it is powerfully acted upon, entering into combination with the acid and losing its metallic form. But if a piece of platinum wire has one end inserted in the acid, and the iron is then immersed in contact with the wire, it is so changed that the acid has no power upon it, and this condition continues after the platinum wire is withdrawn. The contact of a single point with the platinum sends a transformation through all of its particles which renders them invulnerable to the attacks of the most powerful acid. Even more wonderful is its change under the influence of a current of electricity. When a bar of pure soft iron is wound with an insulated wire and a current of electricity is sent through the wire, the bar is instantly converted into a magnet. It is endowed with an unseen force which stretches out from its ends, and seizing any other piece of iron within its reach, draws them to itself, and holds them in its invisible grasp. The object of insulating the wire is to prevent the electricity from leaving it, and yet through this insulating coat a power is exerted which changes so strangely the nature of the iron, enabling it to act on substances with which it is not in coutact. As soon as the circling current ceases, the iron becomes like Sampson shorn of his locks, its miraculous power has departed.

Not less mysterious than either of these is the more familiar phenomenon of the fall of a piece of iron to the ground, under the simple action of gravitation. What is that invisible force which reaches out in all directions from the earth, and clutches all matter in its grasp? The fibers of this power are imperceptible to any of our senses. If we pass our hands under a suspended rock we can feel nothing reaching from it to the earth; and yet there is *something* stretching up from from the earth, taking hold of the rock, and drawing it down with the strength of a hundred cables! We walk enveloped in mysteries, and "our daily life is a miracle."

AMERICAN RIFLE-SHOOTING.

The New York *Times*, July 15th, contains an article recommending the formation of rifle clubs in this country after the example of Switzerland and Germany, and remarks:—"We now stand in fearful need of better proficiency in the use of the long-range rifle."

This remark would be refreshing from an Englishman. Many foreigners have recognized the fact that the absence of game-laws in this country has made us a nation of marksmen. In what part of the country could the editor of the *Times* have been reared if he is ignorant of the fact that it is the first ambition of every country boy to be able to fire a gun, and that field sports are the most universal recreation throughout the length and breadth of the land. From Maine to Texas there is scarcely a farm-house that is not provided with its shot-gun and rifle, and few are the farmers' sons who grow up without being accustomed to the use of these arms. Nearly every town has its body of marksmen who meet during the fall months, and shoot at turkeys for twelve cents a shot. So rapid has been the improvement both in guns and marksmen during the last thirty years, that the regular distance for setting up the turkeys has gradually increased from one hundred yards to a quarter of a mile. What are the Swiss rifle clubs, or the occasional practice of a few thousand English volunteers, compared with this passionate devotion of an entire nation to a special amusement?

Let the editor of the *Times* start from the north-east corner of New England and travel westward to California, and he will find in every town at least a hundred men, each one of whom can take the false-muzzle rifle invented by Mr. Clark, of Boston, and beat any Swiss, German or Englishman who can be found, at any range over four hundred yards.

THE MONITORS.

The course of a large portion of the public press upon the monitor system seems to us exceedingly unreasonable. When the first vessel achieved her glorious triumph there was but one opinion, and that a favorable one, of the general plan and principle of the vessel. It is now suddenly discovered that of all iron-clad ships the monitor type is the worst, and the indignant guardians of public safety, who were once so zealous in the cause, loudly demand that some other plan be tried. We have no objections to make to this proposition; on the contrary we think it a good one. We have doubtless monitors enough for all present purposes and another class of vessel may be found to answer all the purposes that they do. But apart from this consideration there is nothing to be gained by decrying the vessels now. They are not inefficient. They are excellent ships for the service designed for them. They are invulnerable in their vital parts with the present ordnance, they stand the sea sufficiently well to go from point to point upon our coast, they are in all respects reliable and trustworthy for the work they have to do, and they have already done more than any other type of iron-clad afloat in the world. They have withstood storms of shot and shell that would have sunk any other iron-clad that ever floated, and can go through the same ordeal to-day. They have been blown out of the water by torpedoes, but in spite of it have gone on their way practically unharmed. It is nothing against them that they have achieved no very brilliant deeds of late. Captain Ericsson never contracted to put brains in his turrets, but if he had, no doubt a cast-iron head would have done as well as some others which have been in them.

The original monitor also comes in for a share of vituperation. The opponents of the system say that the *Merrimac* still continued to be a terror to the enemy long after her engagement, and that the *Monitor* was too weak to follow her into Norfolk. This was no fault of the turreted ship, but of her guns. She was constructed for heavier ordnance but none could be procured at that time. The eleven-inch gun is rated with a heavier charge now than it was supposed to be capable of bearing at that time, and if the *Merrimac* was not blown out of the water she was at any rate morally destroyed. Foreign officers are now or have been recently examining these vessels. They are fully acquainted with the peculiarities of other iron-clads abroad, and they concur unanimously in the opinion that heavy guns cannot be protected or worked in any other way than under a monitor turret, and also that the strength of the armor over the battery must be concentrated, and that the turret offers greater advantages than any other system for this purpose. In view of these facts how can we seek to undermine the public confidence in the navy—an arm of the Government which has always commanded the respect and admiration of the people?

In the *Evening Post* of the 14th instant, a long leader on the monitors contains this sapient sentence:—"If the monitors can stand fire so can the *Warriors*—both are iron-clad, but the *Warrior* could run down a dozen monitors in succession and at her leisure, without getting seriously hurt." By a parity of reasoning we might say that if a steam carriage can go twenty-five miles an hour, so can a wheelbarrow, for both are wheeled vehicles. So far as regards the capacity of the monitors to withstand an attack of a heavy ram there is no reason to feel any apprehension whatever. The *Warrior* could not run a monitor down, for she draws too much water, and the