Scientific American.

ESTABLISHED 1845.

MUNN & CO., Editors and Proprietors.

PUBLISHED WEEKLY AT

No. 361 BROADWAY, NEW YORK.

O. D. MUNN. A. E. BEACH.

TERMS FOR THE SCIENTIFIC AMERICAN.

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The Scientific American Supplement

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Address MUNN & CO., 361 Broadway, corner of Franklin Street, New York.

NEW YORK, SATURDAY, NOVEMBER 17, 1888.

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(Illustrated articles are marked with an asterisk.)

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SCIENTIFIC AMERICAN SUPPLEMENT

No. 672.

For the Week Ending November 17, 1888.

Price 10 cents. For sale by all newsdealers.

THE PARIS EXPOSITION OF 1889.

The preparations for the great exhibition of the industries of all nations to be held next year at Paris are going on apace. The Eiffel tower has passed the 200 meter mark, and now exceeds in height the Washington monument. All the scraps and waste from its construction are being saved to be made into paper weights and similar memorials. Other buildings are completed or in process of erection. Applications for space are pouring in, and Great Britain has already requested an extension of room, a good indication of her interest in the affair. The United States Commission have issued a circular calling the attention of the public to the fact that the space allotted to this country is rapidly filling up. The Commissioners undertake to forward and return, free of freight, all articles sent for exhibition. The allotment of space is set for November 15, and shipments begin in January. Absolute impartiality is to be exercised in the distribution. The cost will be met out of the appropriation of $250,000 made by the U. S. government, to be expended under the direction of the Secretary of State to defray all expenses. All communications should be addressed to the Commissioner, General William B. Franklin, or Assistant Commissioner, General Somerville P. Tuck, Washington Building, No. 1 Broadway, New York. The French Commission will not correspond with exhibitors. All indications point in the direction of a great success, and it is to be hoped that America will occupy as honorable a station among the family of nations as she has hitherto held in such competitions.

THE FOOTBALL MALADY.

Tennis and baseball have each their especial form of ailment, or, rather, there is a particular affection which those who indulge too freely in these sports—too freely for their strength—are wont to complain of. Recently an English physician has discovered and formulated an ailment that is peculiar to those who play football. Not being familiar with the game himself, he does not offer any explanation of how the hurt is received, but any one who plays can make a fairly good guess at this. In "rushing," as well as in following or heading off, when the "backs" or "half-backs" come together, the front lines get the most shocks, those stepping highest in running usually getting the most harmless if not the lightest blow, for their high-poised knees act as fenders. But the blow given by this high-poised knee to the adversary is on the front and outside of the thigh. Often a player, after a severe "rush," feels faint and helpless without being able to assign any cause, with perhaps neither pain from nor recollection of a blow. He soon pulls himself together, and goes on with the game. Next day, though still without pain, he cannot run, and finds himself limping. Dr. Werry, of England, writing on the subject, says: "On examination, there may be effusion into the knee joint, a soft and somewhat tender area over the quadriceps extensor femoris, and the patient cannot lift the limb when it is kept extended. Ecchymosis is not common. The amount of knee joint effusion depends on the position of the injury with regard to the bursa behind the quadriceps tendon, and whether the man has tried to continue his sport or walked much after the accident. The blow may be in the middle of the thigh and cause an effusion into the joint; the player may complain of a swollen knee, forgetting the real malady. Usually the muscle is found to be more bruised than broken."

"MOSQUITO DEFENSE."

Those who have pinned their faith to big ships, big guns, and heavy armor have had cause, more particularly of late, to doubt the efficacy of the system they espouse. For several years the naval party in England that bent its efforts to furnish Britain with the Thunderer and Benbow type of sea-going monsters has been losing ground; the chief naval constructor employed in carrying out their plans was removed, the size of new ships lessened, the speed increased, till now—since the recent naval maneuvers—the revulsion of feeling is so strong that the entire system of war-ship construction is likely to undergo a change. In the face of the attempts made during the recent British naval maneuvers to weaken the torpedo boat attack from the shore, its efficacy appeared so clearly, the vulnerability of the big ships was so evident, that no further attempts at concealment will avail, and the highest authorities are admitting the necessity for torpedo boats in harbor defense. One military journal declares that half a dozen torpedo boats would avail far more in offshore work than the big belted ship which costs as much as a dozen of them. Another says that Admirals Rowley and Baird could not blockade a hostile fleet in a British port, though heavier than it, because of the torpedo boat annoyance. The enemy, knowing the time he would try to escape, could husband his coals, in some cases not even keeping his fires banked, while outside it was necessary to keep steam up against sudden attempts to run the blockade and to avoid the continual machinations of the torpedo boats.

There are others, some of them well known for their knowledge of naval warfare, who have gone even further; one portion of them taking the ground that a torpedo fleet, for shore defense, would prove as effective as a line of battle ships, thus permitting the dispatch of the big boats to the channel and other uncovered points, while the other portion openly declare that a torpedo fleet should be constructed and maintained for harbor defense because it is likely to be more effective, to say nothing of cheapness, than great armor clads could be.

In a recent paper by Sir George Baden-Powell, M.P., on "Mosquito Defense," he points out, though tardily it must be said, the necessity for a torpedo fleet, and shows how valuable an aid the steam yacht fleet could be made in protecting the coasts from a hostile fleet. In this country we long since discovered this, and, indeed, an attempt was once made to get authority for enrolling them in a naval reserve. The author describes, as others have done, the awkwardness of the big ships, how slow they were in turning, the enormous appetites they had for coals, their liability, not only to exhaust the supplies in the bunkers, but to exhaust them suddenly.

He noticed, as others did, the ease the quick-heeled torpedo boats approached and maneuvered about these Titanic monsters when the night was dark or the weather thick; circling them, dodging in between them, and he might have declared, and reasonably too, that the mere fact they were thus able to approach, though, because engaged in peaceful maneuvering, not permitted to strike, was good circumstantial evidence of their effectiveness. For it is admitted that advancing torpedo boats can be protected from the fire of machine guns, and, of course, nothing heavier can be handled quickly enough for use against them.

For us, now engaged in building a navy, these lessons are invaluable. So far we have a new fleet of slow ships that can neither fight nor run away. All naval authorities are agreed that the only types of big ships that can be made effective in war are the ponderous floating battery, slow but heavily armored and armed, and that which can steam at least 18 knots an hour—even then she cannot catch the fast merchant steamers. In our new fleet we have not a ship that can do better than 16 knots, and, strange to say, these slow ships are not heavily armored, so as to be able to stand the shock of battle with ships of other navies which could overhaul them on the high seas. Add to this that they are not heavy enough for harbor defense, and one may reasonably inquire what purpose they were intended to serve. If only for showing the flag in foreign parts, surely less costly boats, with wooden sides painted to represent steel, and pierced for Quaker guns, would have done quite as well.

Situated as we are, the necessity for an effective mosquito fleet seems more urgent than for a fleet of big ships, but if we are to have big ships, let us have fast ones.

Peruvian Whistling Jugs.

The silvadors or musical jugs found among the burial places of Peru are most ingenious specimens of handiwork. A silvio in the William S. Vaux collection at Philadelphia consists of two vases, whose bodies are joined one to the other, with a hole or opening between them. The neck of one of these vases is closed, with the exception of a small opening in which a clay pipe is inserted leading to the body of the whistle. When a liquid is poured into the open-necked vase, the air is compressed into the other, and in escaping through the narrow opening is forced into the whistle, the vibrations producing sounds. Many of these sounds represent the notes of birds; one in the Clay collection of Philadelphia, Pa., imitates the notes of the robin or some other member of the thrush tribe peculiar to Peru. The closed neck of this double vase is modeled into a representation of a bird's head, which is thrush-like in character. Another water vase in the same collection, representing a llama, imitates the disgusting habit which this animal possesses of ejecting its saliva when enraged. The hissing sound which accompanies this action is admirably imitated. A black tube of earthenware ornamented with a grotesque head in low relief, to which short arms are attached pressing a three-tubed syrinx to its lips, deserves special mention, as it suggests the evolution of this instrument from a single tube to more complicated forms.—*The Clay Worker.*

People Fret too Much about Trifles.

Women find a sea of trouble in their housekeeping. Some one says they often put as much worry and anxiety into a loaf of bread, a pie, a cake, into the weekly washing and ironing as should suffice for much weightier matters. Suppose these things go wrong to-day, the to-morrows are coming in which to try again, and the thing is not worth clouding your own spirit and those around you, injuring yourself and them physically—for the mind affects the body—and for such a trifle. When a thing is beyond repair, waste no useless regrets over it and do no idle fretting. Strive for that serenity of spirit that will enable you to make the best of all things. That means contentment in its best sense.