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NEW YORK, SATURDAY, MAY 8, 1897.

Contents.

(Illustrated articles are marked with an asterisk.)

Table listing various articles such as Balloon voyage, Bicycle bridge, Books, New York, Chimney cowl, Constantinople, Copyright decision, Courtesy, international, Deer with, Electric lamps, Elephants, Furnace, Galata bridge, and Inventions recently patented.

A GRACEFUL ACT OF INTERNATIONAL COURTESY.

We mentioned in our previous issue that the manuscript log of the Mayflower had been delivered to the United States through its representative, Ambassador Bayard, on an order given in the Consistory Court of London. In this issue we present our readers with a photographic reproduction of this priceless relic, which, in point of its unrivaled historic interest, may be said to stand quite alone.

The manuscript volume of the log, at the time of the petition for its removal to the United States, formed part of the library of Fulham Palace, the residence of the Bishop of London, and among the precedents which were quoted on behalf of the petition was the case of the Library Company of Philadelphia. This company discovered that certain manuscript volumes presented to the library in 1799 formed part of the national archives of Great Britain, as was proved by the fact that they consisted of official correspondence which bore the sign manual of James I and of Elizabeth. The volumes were at once restored to Great Britain, and the Master of the Rolls, Lord Romilly, into whose official care they passed, acknowledged the great obligation under which the British nation had been placed, and expressed his conviction that such acts of courtesy and friendliness would tend to draw closer the ties connecting the two countries.

The return of the log of the Mayflower to this country has been made with the same readiness and in the same friendly spirit which characterized the Philadelphia transfer, and, if anything, we are placed under an even greater debt of obligation than that which Lord Romilly acknowledged on behalf of England in the previous instance. Without depreciating in the least degree the generous spirit in which the Philadelphia transfer was made, it may be pointed out that the British archives which were voluntarily surrendered related to England alone, and had no historical interest to connect them with this country. The records of the Mayflower, on the other hand, have naturally a great intrinsic interest for the English people, as being the story of the struggles of early English colonists who had the full sympathy of the middle English classes, from which they came and of whose sterling qualities they were faithful exponents.

The fact that there was no opposition to the request of Ambassador Bayard, and that, after this valuable document had been over a century in their undisputed possession, it should be so freely surrendered at our first request, is another striking evidence of the friendly feeling unselfishly entertained by the English people toward this country.

FREE DISTRIBUTION OF SEEDS BY THE GOVERNMENT.

There is a growing agitation against what is known as the free distribution of seed by the government. The system is too well known to the majority of our readers to need any explanation; but for the benefit of city residents it may be said that the government has been in the habit of doling out annually to Congressmen for distribution among their constituents about \$140,000 worth of seeds. This has been done with the expressed object of securing reports from the users as to the results obtained. Whatever theoretical advantage there may have been in the proposal, it has failed utterly to produce any practical results, and according to all reports the experiment has degenerated into a positive farce. The United States Agricultural Department in its report on this subject says: "While one purpose of the law was to secure reports from the receivers as to the results of actual experiment, the reports actually received did not amount to one-hundredth of one per cent of the persons supplied. A careful review of the department reports, especially those of the chiefs of the seed division during the past decade, in which over \$1,000,000 was expended for free seed distribution, fails to reveal a single instance of benefit to agriculture attributable to this distribution." In the face of this official statement, one asks with no small amount of bewilderment, why did the last agricultural bill, which recently passed both houses of Congress, contain an appropriation of \$150,000 for carrying on this palpable folly? If Congressmen can see any sound ethical or political reasons for a paternal distribution of seeds, why should they stop just here? Why not appropriate another \$150,000 for spades, plows and fertilizers? As a matter of fact, the system is wrong in principle as well as a failure in practice, and it is to be hoped that this year will see the last of it.

THE FASTEST VESSEL AFLOAT.

It is a great triumph for the "rotary impact" form of steam engine that the first one of this type fitted to a steamship should have driven it at a speed far in excess of the world's record, yet this is what has recently been achieved by the engines of the torpedo boat Turbinia. This little vessel of 100 feet length, 9 feet beam, and 44½ tons displacement, was built at Newcastle, England, specially for a marine trial of the compound steam turbine designed by the Hon. Charles Parsons. The Parsons turbine utilizes the steam in three stages and has shown remarkable economy, an

engine of this type which is at work in the electric works, Cambridge, England, having achieved a consumption of 15.1 pounds of steam per indicated horse power per hour. The Turbinia was at first fitted with a single engine and screw, and in the trials the "cavitation," or vacuum formed behind the propeller, was such that very disappointing results followed. The single turbine was removed and replaced by three separate turbines directly coupled to three screw shafts, the turbines being respectively the high pressure, intermediate and low pressure elements of a triple expansion engine. The results were truly remarkable, a speed of 29.6 knots being realized. After further experiment to determine the proper pitch for the screws, a series of trial runs were made on April 1 of this year, when a mean speed of 31.01 knots an hour was realized. The particulars of the run were as follows:

Table with 2 columns: Item and Value. Items include Revolutions of engines (mean), Steam pressure, Thrust, horse power (calculated), Indicated, Consumption of steam per indicated horse power per hour, and Indicated horse power per ton of total machinery.

Nine days later the Turbinia realized a speed of 32¾ knots an hour, thus surpassing the world's record by about a knot and a half. This is equivalent to 37¾ miles an hour, or equal to the average speed of many so-called express trains.

WAR MEASURES IN TIME OF PEACE.

The naval armor question seems to be getting into a state of hopeless entanglement, and the proposal of Senator Chandler that the government shall forcibly seize the plant of the Bethlehem Iron Company and proceed to make its own armor plate therewith simply makes "confusion worse confounded." The law by which the government would be enabled to take possession of these works for the manufacture of war material is intended to cover cases of emergency in time of war; but it has never been construed to give the government the same right in a period of profound peace such as the present. It is reassuring to learn that the bill is likely to receive very little, if any, support. Secretary Long's letter to Congress relative to the bids in answer to the department's advertisement of March 10 states that the department did not feel justified in accepting or rejecting the bid of the Illinois Steel Company, and points out that the government is liable to incur heavy expense due to the delay in furnishing armor for the three battleships recently laid down, if some steps are not immediately taken to procure the needed supply. The secretary closes by recommending that authority be given the department to make contracts at a price not exceeding \$400 per ton, "the rate recommended by my predecessor." This figure was arrived at as being a just price after the question had been carefully investigated by a board of experts, and under the circumstances it looks as though the recommendation of Secretary Long was the easiest way out of the deadlock.

HIGH SPEED TELEGRAPHY.

By making use of the alternating current and special designs of receiver and transmitter, two well-known American specialists have succeeded in sending messages over a wire at the rate of twelve hundred words a minute, and they confidently assert that between three thousand and six thousand words a minute may be dispatched by the same system between points that are a thousand miles apart. The new telegraphy marks a wonderful advance over existing methods. An operator using the Morse key sends only forty words a minute, and by the Wheatstone system about one hundred and fifty words can be sent over a single wire in the same time.

This epoch-marking invention, which, if it fulfills its early promise, will rank as one of the greatest of the century, is the result of the joint labors of Lieutenant G. O. Squier and Prof. A. C. Crehore, and it was first announced in a paper which was read at the New York meeting of the American Institute of Electrical Engineers on April 20. The paper, with complete illustrations, is published in the current issue of the SUPPLEMENT, and it will be found to be one of the most valuable contributions ever made to the literature upon this subject.

The new scheme, as we have said, uses an alternating in place of a constant current. In the latter, a break in the contact of two wire terminals causes the emission of a spark; but if an alternating current be broken at the zero line, that is just where the alternation takes place between a positive and negative wave, there will be no spark. The Squier and Crehore device takes advantage of this feature and interrupts and restores the current at the zero points of oscillation. The operator adjusts his instrument until the sparking disappears, at which point he knows that its action is synchronous with the frequency of the current employed. Hence these gentlemen have given their telegraph the name of synchrograph. If the Morse alphabet of dots and dashes is employed, a break in the current lasting from the beginning of a positive wave to its end would signify a dot, and a break lasting from the beginning of a posi-

TABLE OF CONTENTS OF Scientific American Supplement

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Table listing various articles such as I. ASTRONOMY, II. BIOLOGY, III. CYCLING, IV. ELECTRICAL ENGINEERING, V. GEOLOGY, VI. MILITARY TACTICS, VII. MISCELLANEOUS, VIII. NAVAL ENGINEERING, IX. PHOTOGRAPHY, X. PHYSICS, XI. RAILROAD ENGINEERING, XII. TECHNOLOGY, and XIII. TRAVEL AND EXPLORATION.