

From the tables accompanying the report, we learn that during the year 1851-2 the number of public schools in the state was 4056; the number of scholars was, in summer, 185,752, and in winter, 199,183—the average attendance being respectively 186,309 in summer, and 152,645 in winter. The number of teachers, summer and winter, was 2454 males and 6456 females. The average length of schools was 7 months and 15 days, and the average wages of male teachers was \$37 26 per month, and of females \$15 36. The amount of money raised by taxes for the support of schools, including only the wages of teachers, board, and fuel, was \$910,216 04. This is exclusive of \$39,763 87 voluntarily contributed, and \$25,858 25, the income of school funds belonging to towns or districts. The income of the state school fund distributed among the towns was \$41,558 22. Besides the public schools, there are 71 incorporated and 749 unincorporated academies and private schools in the state, with an average of 16,131 scholars.

The secretary, in commenting upon the tables, gives some facts and figures to show the increased interest which is taken in the public schools and the progress of education in the state. In 1841-2, the money raised for schools by tax was an average of \$2 79 for every child in the state between four and sixteen; in 1851-2, the average was \$4 49 for each child in the state between five and fifteen. In the appropriation of money raised by tax from 1811-2 to 1851-2, inclusive, the increase was 76 per cent., while the increase of population was only about 35 per cent.

In 1841-2 the number of public schools was 3198; in 1851-2 the number had increased to 4056—27 per cent. The number of teachers and the average attendance has proportionally increased.

**DARTMOUTH COLLEGE—LIBERAL DONATION.**—A correspondent of the New Hampshire Patriot states that George C. Shattuck, M. D., of Boston, has recently made a donation of \$7,000 to Dartmouth College, for the erection of an observatory and the purchase of astronomical and philosophical instruments; also a donation of \$1000 for the purchase of books for the library. Prof. Young will proceed to Europe early this season to purchase the instruments for the observatory and books for the library.

## Literary and Scientific Intelligence.

### MONTHLY SUMMARY.

Mr. Cobden has in press a pamphlet, entitled—"1793 and 1853," in which he traces the causes of the last war with France, and compares the policy of England towards France then and now.—Lord J. Russell has announced the speedy publication of the "Memorials and Correspondence of Charles James Fox."—Alexandre Dumas has just stated to the public, that from the commencement of his literary career up to the present time, he has produced not fewer than 700 volumes and 50 plays.—Mr. Charles Knight, the projector and publisher of the *Penny Cyclopaedia*, now proposes a more pretending work of the same kind, to be entitled the *Imperial Cyclopaedia*. It is to be in two parts or sections, the first, consisting of nine volumes, to comprise the sciences and arts; and the other to embrace geography, history, biography, &c.—A large sale of autographs, comprising 1480 articles, has just closed in Paris. A letter of Galileo produced 206 francs; a signature of Benevento Cellini, 222f.; signature of Michael Angelo (of doubtful authenticity), 309f.; one of Madame de Sevigne, 175f.; one of Mary Tudor, 74f.; one of the Duke of Marlborough, 81f.; and one of his wife, 70f.; two horse's heads and five human arms, drawn with a pen, and five lines of figures, by Raphael, sold for 350f. The highest was obtained for a signature of Molière, the French dramatist, which produced 430f. The entire proceeds of the sale amounted to 27,249f. Five francs are equal to 4s. 8d. of our currency.—The Academy of Sciences at St. Petersburg has elected the Earl of Rosse, P. R. S., an honorary member of their body, in consideration of the very eminent services that he has rendered to astronomical science.—Dr. Pereira, author of "Elements of Materia Medica and Therapeutics," died at London, 20th January, from some internal organic disease, at the age of 49. This death is a loss to the medical world.—The Rev. Dr. Scoresby (the ex-sailor), says that whales are known to descend perpendicularly from 4200 to 4800 feet; and at the latter depth he has calculated, from accurate data, that a large whale would have to sustain the pressure of 211,200 tons distributed over its entire surface, or about 137 tons on every square foot of its body.—The Liverpool Free Library exhibited on the 62d day since the opening a truly gratifying result, 32,995 books having been issued and returned in that period.—Mr. Ingersoll, the American Minister in England, has made a donation of books, &c., to the Free Public Library at Manchester.—The trustees of the Astor Library in

New York have presented their annual report to the legislature, from which we gather the following facts. The funds and property of the institution are valued at \$450,000. The cost of the building and site has been \$70,000; and the expenditure for books thus far \$75,364. More than 60,000 volumes have been collected, and Dr. Cogswell is now in Europe authorized to expend \$25,000 in the purchase of additional works. The books are expected to be arranged on the shelves in April, and the library open to the public in May. Commencing with about 80,000 volumes, free from debt, and having a vested fund of \$180,000, the interest of which is to be steadily applied to enlarging the collection, this must ultimately become one of the largest libraries in the world.—The literary executors appointed under the will of the late Mr. Webster intend to collect whatever can be found of his works and correspondence not already known and published as his, and whatever may, in any way, serve to illustrate his life, character, or public services.—At Oxford the site of the new Museum of Science is decided on, in the parks adjacent to Wadham College.—An important piece of news reaches us from Italy—namely, that an Italian astronomer, named Pompilio de Cuppis, has practically discovered that the moon has an atmosphere—he having clearly observed the refraction of a star's rays on the passage of the moon. Details of the alleged discovery have been submitted to Father Secchi, Director of the Observatory at Rome, and we await his decision before going into them.

**DOUBLE CURRENT IN THE OCEAN.**—Lieut. M. F. Maury, of the National Observatory, Washington, read a scientific paper, lately, in Broadway Tabernacle, New York, in demonstration of the theory that the water of the ocean circulates by means of a double current—one setting from the equator to the poles, and the other from the poles to the equator. Its aim was to show, also, that the great currents of the ocean are as perfectly in accordance with law and order as the "harmony of the spheres;" that the Gulf Stream and other organic currents could not have existed had the sea water not been salt; that salt was one of the most powerful agents in oceanic circulation; whence comes the salt in sea water; how shells and marine insects become important agents in vegetation and modifying climate; how these little creatures build their houses and cells; and how they prevent the sea from becoming more and more salinous.

**THE NEW GRINNELL ARCTIC EXPEDITION.**—We learn that Dr. Kane has been officially appointed to the command of the new expedition, which by the liberality of Mr. H. Grinnell and Mr. Peabody, is to be despatched to the Arctic regions. He is also charged with duties of a scientific character. It is announced also that Lieut. Page, under instructions from the Secretary of the Navy, is preparing for an exploration of the Plata and Paraguay. The expedition to Japan is also furnished with the requisites for scientific investigation. The United States will thus be simultaneously conducting physical researches in the Eastern seas, in Africa, in South America, and in the polar regions.

### THE CALORIC SHIP ERICSSON.

The externals of this curious ship are merely those of a graceful steamship. There is no novelty in it except that the huge chimney of the ocean steamer has given place to four very modest little funnels, hardly bigger than stove pipes. Indeed at a little distance it is very hard to detect them at all. These little chimneys are the only flues to furnaces that are to generate power for a first class ship of twenty-two hundred tons register. A finer hull, or a stronger, or, for her tonnage, a more costly one, has never been launched in America. She has received her engines under the superintendence of their inventor whose name has been given to the ship. These engines are the first of their kind ever applied to marine purposes, and they may prove to be the last, for this ship with "Caloric Engines" is simply a stupendous experiment, unequalled in point of audacity, in the history of mechanics. In the "Caloric engine" it is proposed to use the well known expansibility of atmospheric air by heat, as the motive power, in place of steam. The mechanical elements of the engine will, of course, be identical with those of the steam engine. Cylinders, reciprocating and parallel motions converted by the crank to the required rotation, all strike the eye familiarly. "But all else how changed." The boilers with their volcanic furnaces are gone. The air pump—the condenser—the familiar engine room—and the deep-dawn darkness where the side-levers play,—these are all gone or transformed past all recognition. The low pressure developed by the new agent requires increased area of piston head, or cylinder section. In the Ericsson these are enormous. 168 inches is the diameter of each of four cylinders, that stand in a line upon the ship's keel. Thus each working piston presents an area nearly four times larger than any steam engine piston-head in the world! Two experimental caloric engines, of five and of sixty horse power respectively, have been in operation for several months. But the stride is a tremen-