trusted with the expenditure of all money voted by Parliament for elementary instruction, and will have authority to establish public schools; to grant aid to certified denominational schools; to appoint and remove teachers and school-inspectors; and to frame regulations for the performance of their own duties under the Act, —for defining the course of secular instruction; the training, examination, and classification of teachers; the examination of scholars; and the discipline to be observed.

A public school may be established where there are at least twenty-five children who will attend regularly from the commencement. In districts where it is not practicable to found a public school, itinerant teachers may be appointed; and in thinly-populated districts, private schools may be assisted. Denominational schools, not more distant than five miles from, and not nearer than two, to any public school, and having at least thirty children, may be certified, being subject to the public-school course of secular instruction. In the public schools, four hours a day are to be devoted to secular instruction; and a portion of the day, not less than one hour, is to be set apart, when the children of any one religious persuasion may be instructed by the clergyman or other religious teacher of that persuasion. "Secular instruction" is held "to include general religious teaching as distinguished from dogmatical and polemical theology." The teachers are to be paid by fixed salaries, increasing with the number of their pupils, and no child between five and fourteen will be excluded from inability to pay the fees.—*Montreal Witness.*

3. THE FACTORY ACT SYSTEM OF EDUCATION.

The English government is now about extending the provisions of the Factory Acts to the hardware and other manufacturing trades. In an article on the benefits which have flowed from the regulation of youthful employment, the *Times* observes:

"But it is among the young that the beneficial effects of these Acts are most conspicuous. Formerly these poor children were physically exhausted and stunted by premature toil, and were denied any adequate opportunities of education. Their labor became valuable at an early age, and they were at once draughted off to the factories, where in their tenderest years, they were kept at work all day, and often far into the night. The system introduced by the Factory Acts is half-time. No child may be put to work before noon, and after one p.m. on the same day. The children accordingly are ordered into two sets, the one relieving the other at midday, and for the half of the day during which they are not at work they are sent to school. The result is extraordinary. These half-time children, who have spent half the day in manual labor, are actually quicker, more intelligent, more industrious, and more successful at their lessons, than those who spend all their time at school. In the first place it seems that study and work mutually refresh each other, but it is probably of more importance that the industrious habits acquired in work are transferred to study. Anyone who has observed or taught a school of young children must know the listless way in which they generally learn. They have no conception whatever of giving all their attention to what is before them, and, even without the evidence now afforded by experience, any good master would have pronounced that his scholars waste half their time."

A legitimate deduction from this is that in any country the hours of tuition in school may be shortened with advantage, and that they may best be made to alternate with some light forms of labor which shall develope habits of industry and application in the child. In Canada we have no manufacturing system carried on in the manner that manufactures in England are carried on; but we have a school system which it is every man's desire to improve, and the facts which have been brought out in England by the employment of the "half time" system are not altogether to be ignored.

4. THE NEW ENGLAND COLLEGES.

According to a compilation in the last number of the Yale College Courant, the aggregate number of the undergraduates in the regular academical course of the various New England Colleges is, 2,234, and including the numbers of the professional and scientific departments, the number is 3,508. The order of magnitude in the institutions is as follows: Harvard University, 961 students; Yale College, 709; Dartmouth, 248; Bowdoin, 232; Amherst, 225; Brown University, 190; Williams College, 196; Wesleyan University, 131; University of Vermont, 127; Holy Cross College, 120; Boston College, 70; Trinity, 59; Tufts, 55; Colby University, 54; Middlebury College, 52; and Norwich University, 40. Divided by classes, the students rank as follows: Seniors, 449; juniors, 484; sophomores, 608; and freshmen, 693. Of the professional schools connected with the colleges, there are five of medicine, with 593 students; two of law, with 188; and two of theology, with 45. The aggregate number of students in the colleges has been steadily increasing from 2,067, in 1807, to 3,508, in the present academical year. As in the number of students, Harvard leads in the number of volumes in her library, which is reported at 168,000. Yale has 77,500; Dartmouth, 40,000; Bowdoin, 32,300; Amherst, 30,000; and Williams, 22,000.

IV. Papers on Scientific Subjects.

1. A NEW PSYCHROMETER.

At a sitting of the Academy of Sciences, M. Becquerel, sen. described a new psychrometer, so modified as to act by electricity, and which he considered a most valuable instrument for climatological purposes. The old psychrometer is composed of two thermometers, the bulb of one of which is dry, while that of the other is kept constantly moist. The temperature of the latter diminishes continually until it reaches a certain *minimum*. The observer then takes the reading of both thermometers; then the atmospheric pressure; and these three data are sufficient to determine the elastic force of the aqueous particles contained in the atmosphere means of a formula founded by August and modified by Regnault. M. Becquerel substitutes for the two thermometers a thermo-electric circuit composed of iron and copper wire of a diameter dependent on their lengths; the longer they are the greater their diameter. Within this circuit there is a galvanometer provided with a short wire, and intended to show when the temperature is the same at both the points where the metals have been soldered together. One of these points is placed in a medium, the temperature of which is lowered until the needle of the galvanometer returns to zero, in which case the temperature is the same at both points, this result being independent of the magnetism of the needle; the only condition requisite being, that the zero of the scale remains unchanged in the course of the observation. The second point of junction is placed in the medium containing the aqueous vapour, the elastic force of which is to be determined. The apparatus, however, cannot be employed until set right, so to say, by comparing it with the common psychrometer, an operation requiring a series of preliminary trials. With its assistance M. Becquerel has ascertained the elastic force of aqueous vapour at an altitude of three metres above the surface of the soil, at the top of a lime tree, and at the surface of a river.—*Galignani.*

2. SCIENCE OF PHOTOGRAPHY.

It is not much more than twenty years since the science of Photography was first introduced into England. Within that time one person claimed to practise the art professionally in that country, while now it is computed that between 15,000 and 20,000 gain a livelihood by their connection with Photography. The number of professional photographers in the United States is estimated at about 15,000, and it may fairly be assumed that at least an equal number are to be found spread over the continent of Europe, besides those who practise the art in British India, British America, Australia, &c. This is an indication of the immense progress which the art of Photography has made within a quarter of a century, but a more curious estimate of its immense development may be found by a glance at the consumption of some of the materials required. The following facts we gather from a very interesting article on the subject of Photography, which lately appeared in the *British Quarterly Review*:—

"A single firm in London consumes, on an average, the whites of two thousand eggs daily in the manufacture of albumenized paper for photographic printing, amounting to six hundred thousand dollars annually. As it may be fairly assumed that this is but a tenth of the total amount consumed in this country, we obtain an average of six millions of inchoate fowls sacrificed annually in this new worship of the sun in the United Kingdom alone. When to this is added the far larger consumption in Europe and America, which we do not attempt to put in figures, the imagination is startled by the enormous total inevitably presented for its realization.

In the absence of exact data we hesitate to estimate the consumption of the precious metals, the mountains of silver and monuments of gold which follow as matters of necessity. A calculation based on facts enable us to state, however, that for every twenty thousand eggs employed nearly one hundred weight of nitrate of silver is annually used in this country alone in the production of photographs. To descend to individual facts more easily grasped, we learn that the consumption of materials in the photographs for the International Exhibition of 1862, produced by Mr. England for the London Stereoscopic Company, amounted to twenty-four ounces of nitrate of silver, nearly fifty-four ounces of terchloride of gold, two hundred gallons of albumen, amounting to the number of thirty-two thousand eggs and seventy reams of paper; the issue of pictures approaching to nearly a million, the number of stereoscopic prints amounting to nearly eight hundred thousand copies."