

cent., or 47 cents per year, per horse-power, making the total \$11.08. There is no way of separating this amount from the total in the regular accounts."

So far as known, this is the lowest cost of steam-power in any New England textile mill. The tons fuel per horse-power per year is 2.08—the lowest noted; others run about 2.20 tons per horse-power and upward.

R. H. T.

#### SCIENTIFIC NOTES AND NEWS.

PROFESSOR MICHAEL FOSTER will deliver several lectures in Baltimore in October and will visit Boston later to deliver a course of lectures at the Lowell Institute.

PROFESSOR JAMES E. KEELER, of the Allegheny Observatory, has accepted an invitation to make the dedicatory address at the opening of the Yerkes Observatory.

DR. FRIDJOF NANSEN is expected to arrive in New York on the steamer *St. Paul*, on October 23d. After visiting Washington as the guest of the National Geographic Society, he will give his first lecture in Carnegie Hall, New York, on October 28th. At the close of the lecture a medal will be presented to him by the American Geographical Society. The collections now at Stockholm will be brought to America and exhibited here.

SIR WILLIAM TURNER, President of the Anthropological Section, of the British Association for the Toronto meeting sailed from Montreal on the 22d. He will in future devote his time less to histological and more to anthropological researches.

WE regret to notice the death of Dr. Holmgren, since 1864 professor of physiology in the University of Upsala, at the age of sixty-six years.

THE following deaths are also announced: Dr. August Mojsisovics Edler v. Mojsvar, professor of zoology in the Polytechnic Institute at Graz; Mr. William Archer, F.R.S., librarian of the National Library of Ireland; Dr. T. Bogomoloff, professor of medical chemistry in the University of Kharkoff; Dr. John Braxton Hicks,

F.R.S., one of the pioneers of British work on diseases of women, and a Fellow of the Royal Society since 1862.

THE British Association, at the recent Toronto meeting, granted £1,350 for scientific research. We hope to give next week details of the appropriations.

THE French Academy has accepted a legacy from M. Pierre Lassere amounting to over \$100,000; the income from one-third of this sum is to be awarded by the Academy of Sciences for a scientific discovery.

A SMALL fund, founded in memory of Surgeon-Major Arthur Barclay, is to be used for a bronze medal to be awarded every third year by the Asiatic Society of Bengal for the most meritorious piece of work done in original research in biology, with special reference to India.

A BRONZE monument, erected in honor of Marcello Malpighi, the eminent Italian anatomist and botanist of the seventeenth century, was unveiled at Crevacore, near Bologna, on September 8th.

THE new museum of the Brooklyn Institute of Arts and Sciences will be dedicated on October 2d. Addresses will be made by President Eliot, of Harvard University, and by Mayor Wurster, of Brooklyn. There will be a reception in the evening in the Academy of Music.

It is reported that plans have already been made for the new building of the American Geographical Society, New York, although the site has not yet been decided upon. The present building in West 29th street, purchased in 1875, has long been outgrown by the Society, and it has assets amounting to nearly \$400,000. The Society owes its present position and great growth to Judge Daly, who for thirty-three years has been its President.

THE Greek Archæological Society has secured possession of a quarter of Athens lying immediately under the Acropolis. The inhabitants will remove to the suburbs, and excavations promising important discoveries will begin shortly.

A SERIES of seven kites of the Hargrave type, sent up from the Blue Hill Observatory on Sep-

tember 19th, reached a height of 9,386 feet above the summit of the hill, this being the highest ascension thus far made. The kites carried an aluminium box with instruments for recording temperature, pressure and humidity, and the records are a further demonstration that kites may become a valuable addition to the methods of meteorology.

A MICROTOME for making sections of the entire human brain is being constructed by Messrs. Bausch and Lomb on the pattern of the 'automatic precision microtome,' recently described in our pages. The manufacturers expect that the new instrument will make large sections of greater thinness and accuracy than it has been possible to obtain hitherto.

THE *Atlantic Monthly*, 'devoted to literature, science, art and politics,' has completed its fortieth year with the current number and publishes an editorial retrospect eight pages in length. Its scientific work is thus described: "In 1862 scientific articles by Agassiz began to appear, and a long succession of his writings was brought to an end by a paper published in 1874, just after his death. Even if the *Atlantic* had done nothing else in the field of science this record would be worth making; but the great achievements of these later years have always formed an important part of its contents, and have been related by men like Rodolfo Lanciani, Percival Lowell, N. S. Shaler, G. F. Wright and T. J. J. See, who has a notable article in the present number." Compared with the men of letters mentioned by the *Atlantic Monthly* this list indicates that its devotion to literature has exceeded its devotion to science.

THE New York State Library Association, at its meeting in 1896, recommended the fifty books of 1895, regarded as best for a village library. The scientific books included are as follows: Edward Clodd, 'Story of primitive man'; Percival Lowell, 'Mars'; S. H. Scudder, 'Frail children of the air'; M. O. Wright, 'Birdcraft'; Philip Atkinson, 'Electricity for everybody.'

THE University of the State of New York has published the report of the Public Libraries Division for 1896, which gives a complete and

interesting survey of the growth of libraries in the State. 806 libraries of 300 volumes or more have sent in reports. These libraries contain a total of 4,647,661 volumes, of which number 296,498 were added during the year. The libraries in the State having over 100,000 volumes are as follows:

New York, N. Y., Public Library, Astor, Lenox and Tilden foundations 367,808; New York, Mercantile Library, 253,783; Albany, New York State Library, 223,547; New York, Columbia University Library, 223,000; Ithaca, Cornell University Library, 186,683; Brooklyn, Brooklyn Library, 124,299; New York, General Society Mechanics and Tradesmen Library, 106,440.

The libraries that added over 10,000 books during 1896 are as follows:

Columbia College Library, 20,580; New York Public Library, 15,594; New York State Library, 14,570; Cornell University Library, 13,578; New York Free Circulating Library, 11,201.

THE Minnesota Child Study Association, organized in 1895, has published a hand-book of 60 pages, which may be secured for 30 cents from the Secretary of the Association, Mr. E. A. Kirkpatrick, Winona, Minn. The pamphlet contains a number of suggestions and syllabi for the study of children, which will prove useful, more especially in view of the lack of a systematic treatise on the subject.

IN a letter, lately published, from Mr. Voorhes, Vice-President, to Mr. Charles H. Fahl, the engineer of the train, the former gives the figures for the runs of the train between Camden and Atlantic City last season, and gives deserved credit to the engineer. The facts are most remarkable and creditable, and the action of the Vice-President of the road is commendable in a remarkable degree. Were it an ocean steamer of which the performance was thus described the credit would have been given solely, in the usual case at least, to the commanding officer; the engineer would have been forgotten. Mr. Voorhes says: "The train record shows that for the fifty-two days the train ran, from July 2d to August 31st, the average time consumed on the run was forty-eight minutes, equivalent to a uniform rate of speed, from start to stop, of sixty-nine miles an

hour." \* \* \* "This performance, I believe, has not been equaled in the history of railway service, either in this country or abroad. It is one of which the management is proud, and is accredited to the track, the equipment, and, especially, to the skill with which you performed the task entrusted to you." The distance was fifty-five and a-half miles, and the train consisted of five or six cars. It was always delayed by its connections at starting, and always came in ahead of schedule time; the total thus being brought four minutes under schedule time. The thanks of the railway officials are tendered Mr. Fahl.

THE Congrès Olympique recently held at Havre has passed resolutions summarized in the *British Medical Journal* as follows: Every three months parents are to be informed of the physical development of their children being educated in schools and colleges. That hygiene, physical training and athletic sports should be introduced in all schools, *lycées* and colleges. In all schools, colleges and *lycées* a service of hydrotherapy should be in working order. That a diploma for gymnastics be created, requiring a practical and oral examination.

THE Eleventh International Congress of Orientalists has held a successful meeting in Paris, many important archaeological papers having been presented and plans having been made for further explorations in the East.

THE Council of the Society of Arts have appointed the following Committee to investigate the causes of the deterioration of paper: Major-General Sir Owen Tudor Burne, G.C.I.E., K.C.S.I., Chairman of the Council; Sir William Anderson, K.C.B., F.R.S.; Mr. Michael Carteghe; Mr. C. F. Cross; Sir John Evans, K.C.B., F.R.S.; Dr. Richard Garnett, C.B.; Dr. Hugo Müller, F.R.S.; Dr. J. W. Russell, F.R.S.; Mr. W. L. Thomas; Professor J. M. Thomson, F.R.S.; Mr. Henry R. Tedder; Dr. Quirin Wirtz; Sir Henry Trueman Wood, Secretary. *Nature* states that, in the course of a circular letter which has been sent to those who are interested in the preservation of paper, it is pointed out that many books of an important character are now printed upon

paper of a very perishable nature, so that there is considerable risk of the deterioration and even destruction of such books within a limited space of time. This is believed to be especially true of books which are in constant use for purposes of reference, and are therefore liable to much handling.

ACCORDING to the New York *Tribune* the most interesting work now going on at the Weather Bureau is the preparation of an exhibit of this Bureau for the Paris exhibition in 1900. Professor Moore is taking a deep interest in the matter, and, as planned, it will be one of the largest and most complete expositions of this character ever made. A feature of the exhibit will be a daily weather chart of the United States. A code has been adopted by which the conditions of the weather in all parts of the United States will be transmitted by telegraph to Paris. From the material thus obtained maps will be constructed on the order of those now in general use. Professor Moore, with five or six of his subordinates, will represent the Weather Bureau at the exposition, and nothing is being left undone to make a showing worthy of the United States Bureau, which is acknowledged by scientific authorities to be the finest in the world.

LIEUTENANT PEARY, on arriving at Philadelphia, is reported to have said that in addition to securing the meteorite he laid the plans for next year's expedition, and when he leaves again, which will be about the end of next July, it will be to remain in the Arctic regions until he reach the Pole or lose his life in the attempt, even if it take five years to accomplish this object. Next summer he will take his vessel up to Sherard Osborne Fjord and make that place his base of supplies. On the last trip he made arrangements with the Arctic Highlanders, a tribe of Esquimaux consisting of 230 men, women and children, known as the most northerly tribe of human beings on the earth, to spend this coming winter in obtaining bear, seal and deer skins for clothing and in securing all the walrus meat they can for dog food. He has singled out eight young men of the tribe, with their wives, canoes, dogs, sledges and tents, to accompany him to Sherard Osborne

Fjord, which is about three hundred miles further north than their present abode. The party will consist of a surgeon, possibly another white man and Lieut. Peary; the rest will be Esquimaux. The latter know how to drive dogs; they can go hungry and know how to get food. The conditions under which he will make the coming expedition are of the most satisfactory character. The American Geographical Society has assured \$150,000 to meet all expenses. Lieutenant Peary has five years' leave of absence. He will probably buy a new ship for next year, though he may possibly use the Hope again.

#### UNIVERSITY AND EDUCATIONAL NEWS.

##### INSTITUTIONS FOR HIGHER EDUCATION IN THE UNITED STATES.

THE report of the Commissioner of Education for the year 1895-6 reports that the total number of universities and colleges for men and for both sexes reporting during the year was 484, of which number 345 admit women to undergraduate courses of study. There are 188 institutions which have not as yet any endowment; 54 have endowment funds less than \$25,000, and only 4 institutions have endowments exceeding \$5,000,000. In a large number of the institutions a comparatively small part of the work is collegiate. There are at present 278 institutions having less than 100 students in undergraduate collegiate courses. The number of instructors reported by the 484 institutions was 12,277, while the number of students of all classes, secondary and higher, was 159,372. Of the latter number 47,014 were in preparatory departments, 68,629 in collegiate departments, 4,673 in graduate departments and 25,438 in professional departments. The property reported was as follows: Volumes in libraries, 6,453,677; value of material equipment, \$134,093,435; endowment funds, \$109,562,433. The benefactions for the year, so far as reported, amounted to \$8,342,728, and the income, excluding benefactions, was \$17,918,174.

The 162 colleges for women had, in 1894-'95, 2,552 instructors and 24,663 students. The material equipment was valued at \$15,568,508,

and the endowment funds amounted to \$5,308,558. The income was \$3,456,983, and the benefactions received during the year amounted to \$611,245.

The number of schools of technology, excluding technological departments of universities and colleges, was 48, having 1,118 instructors and 12,816 students. The total value of all property was reported at \$24,105,242, of which amount \$10,384,293 was reported as endowment funds. The income of these institutions was \$3,526,018, of which amount \$2,402,332 was appropriated by the General and State governments. The gifts and bequests received by the schools of technology amounted to but \$96,133.

The increase in attendance at these universities and colleges is shown in the accompanying figure:

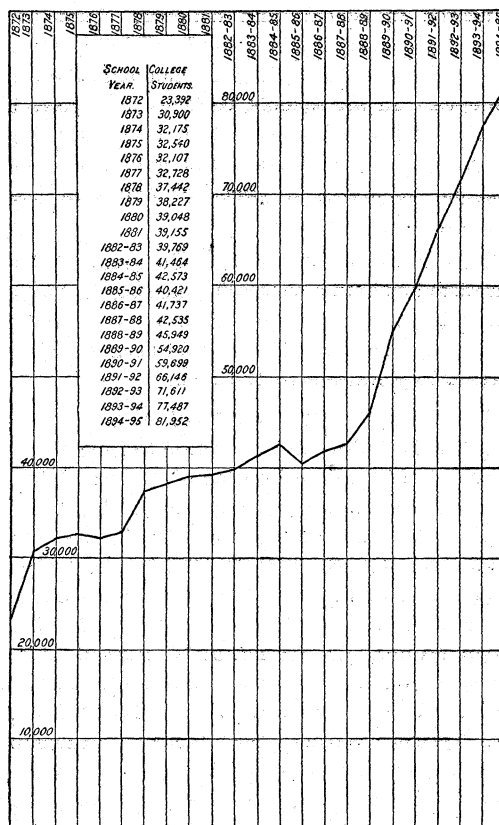


FIG. 1. The increase in attendance at American universities and colleges from 1872 to 1894-5.