during the progress of the operation is therefore required, nor does the machine, we are informed, need any attention except to replenish its supply and remove its completed product. Our engravings give a general view of the apparatus as set up in the factory, and also perspective elevations of its principal portions in greater detail. The entire length of the machine is 218 feet, including two ovens, respectively 100 and 50 feet long. Referring first to Fig. 2, at A are two hoppers placed above stationary cylinders. Within the cylinder on the left is a horizontal shaft carrying six radial partitions, which divide the interior of the cylinder into as many equal spaces. Into the larger hopper the coal slack is shoveled, and this, descending, fills the spaces between the partitions in succession, and is emptied out as the shaft revolves. The smaller hopper and cylinder are similarly constructed, and are used for the supply of clay. The spaces between the partitions are less in size than those in the coal cylinder, and are so constructed as to discharge regularly five per cent of clay, while ninety-five per cent of waste is supplied from the larger cylinder. The mixture takes place in a chute, B, which conducts the dry compound under the chain elevator, C. At this point the mingled coal and clay is moistened by sprinkling with milk of lime, or water to which five per cent of lime has been added, the liquid being distributed by the rose nozzle shown on the tank, D. The damp compound is now picked up by the elevator buckets and carried up to another chute, whence it passes to a short cylinder, E, within which are revolving spiral blades which force it into the mixer, F. Inside the latter are arranged seven upright shafts, each one of which carries four toothed arms, crossing each other in all directions. By suitable gearing, these shafts are rapidly revolved, working the compound in the mixer into a plastic mass. An ingenious device allows of the removal of any or all the shafts for repair or replacement without moving the frame on which they stand.

Through apertures in the bottom of the mixer, F, the mass next passes to a pug mill, G, in which are spiral wings, rotating on a vertical shaft and arranged to force the compound down through an opening at the bottom, the size of which is governed by devices, one of which is shown at H. Leaving thus in a continuous sheet, the mixture is received between two rollers operated by the wheels, at I, which rotate in contrary directions. The peripheries of these rollers are indented with molds, oval in form, so that the mass emerges, after pressure, in egg-shaped lumps. It should be noticed that this part of the apparatus constitutes the compressing system, and differs materially in its action from other devices, which aim to drive the mass into its smallest compass by a sudden and heavy blow, often causing breakage of the working parts. Here the water is gradually though rapidly squeezed out, leaving the pieces in compact and nearly dry condition.

Under the rollers is one extremity of an endless belt of wire cloth (not represented), strengthened along its length and at the middle by a wire rope. On the latter are attached cast iron balls, which are so arranged as to secure the wire rope to the belt, and which run in a continuous gutter placed under each portion of the band. The object of the gutter is to carry the weight of the belt, ropes, balls, and coal above and to support the return portion of the belt below. The balls, as they pass over the pulleys, fit into concave receivers cut into the peripheries of the same, thus insuring the wire cloth from slipping. Upon the band thus arranged, the lumps fall, and are carried straight into the first long oven, at the further end of which the opposite belt pulley is placed. At each end of this oven is a furnace by which it is heated. As soon as the lumps reach the end of the upper belt, they are thrown off upon an inclined chute, which conducts them to a second endless band below, upon which they travel back again; thence they fall in a similar manner to a third, fourth, and fifth belts; so that they pass through the oven five times, and, over a distance of five hundred feet, are subjected to a powerful heat, and finally emerge thoroughly dry.

The extremity of the long oven is represented on the left of Fig. 3, and at J the end of the lowest endless band is seen. This throws its load into the buckets of the elevator, K, which carries the fuel to a chute from which it passes to another endless band, L. Just above the latter is a tank in which is placed the waterproofing material, a mixture of crude benzine and rosin. The band, L, is forced by balls on its sides, acting in grooves, to pass down under this liquid, a quantity of which is drawn, by the faucet shown, into the shallow reservoir, M; and partitions are placed along the length of the belt to prevent the sudden fall of the pieces into the mixture and also to carry them out of it. The excess of liquid, which drops from the coal as it emerges from the bath, falls through the wire netting to a gutter, N, and hence it is collected in a suitable vessel placed below.

The lumps next fall into the second oven by the spout and hopper at O. Into this receptacle, in order to insure the evaporation of the benzine so as to leave a thin varnish of rosin over each piece, rendering it thoroughly waterproof, a current of hot air is driven by means of the fan blower, P. Subject to this powerful blast, the lumps traverse three belts in precisely the same manner described as taking place in the first oven, and finally drop from the last band into an adjustable chute, and thence pass into a coal car placed ready for their reception.

The advantage of this drying apparatus will be appreciated by comparing it with the labor, necessitated by the European systems, in heaping the large blocks of fuel into perforated cars, by hand, dragging the same into the ovens, waiting for their contents to become almost completely carbonized, then waiting still longer for both cars and load to become cool, when even further handling is necessary to prepare the material for transportation. There is no mixture of resinous matter with the fuel, thus avoiding the loss of cohesiveness due to the consumption of the tar, pitch, or asphalt first taking place, which allows the small particles of coal to fall through the bars before they have given off their full heating power. The waterproofing compound simply forms a light varnish over the surface, which protects the interior from moisture, and, while rendering the handling of the lumps free from the annoyances of dust and dirt, serves also as a kindling material.

At a recent trial of the fuel under one of the boilers, at the present Fair of the American Institute, we were afforded an opportunity to examine its cohesive quality. The pieces were thrown into a furnace where very active combustion was in progress; and although allowed to remain there for a considerable period of time, they did not lose their shape or run together. As regards heating power, the inventor considers the same to be equal to the best coal. No unpleasant odor is given off, there is of course no slate, and we are assured that clinkering does not take place. The ash, being mixed with clay, is heavy; and hence, where the fuel is used for domestic purposes, does not rise in light clouds, covering carpets, furniture, etc., with dust. The oval shape of the lumps is designed to insure a free draft through the interstices. As to cost, the inventor demonstrates that the material can be supplied at about one dollar per tun.

The machinery and process has been patented in this and other countries through the Scientific American Patent Agency, by Mr. E. F. Loiseau, of Mauch Chunk, Carbon county, Pa., to whom inquiries for further information may be addressed.

Scientific American.

MUNN & CO., Editors and Proprietors.

PUBLISHED WEEKLY AT

NO. 37 PARK ROW, NEW YORK.

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

TERMS.

One copy, one year	$3 00
One copy, six months	1 50
CLUB RATES { Ten copies, one year, each $2 50	25 00
CLUB RATES { Over ten copies, same rate, each	2 50

VOL. XXIX., No. 21. [NEW SERIES.] *Twenty-eighth Year.*

NEW YORK, SATURDAY, NOVEMBER 22, 1873.

Contents.

(Illustrated articles are marked with an asterisk.)

WHAT TO DO IN HARD TIMES.

In consequence of the present inactive state of the financial world, many persons are deprived of their usual employments and know not what to do with themselves, or how to occupy their time to advantage. They are also made to suffer by the constant croakings concerning the lack of money and the gloomy prospects ahead, which now so constantly form the staple of ordinary conversation. This sort of talk is on everybody's lips, spreads like an infection, and tends to depress the feelings of even the most buoyant persons. But we advise our readers to resist and disperse its influence. It is only an incubus, a passing cloud, which must soon break away, revealing new prospects for business and enterprise, better than ever before experienced. The country was never in a more healthy or prosperous condition than at this moment, and the present financial blockade is only of a temporary nature. The curtailment of work or the suspension of industrial establishments cannot long continue; for money holders must employ their capital, which stands idle and unproductive when factories and mills cease to work. A healthy reaction will soon set in, and in a few weeks the hum of industry and the clatter of progress will be heard throughout the land. Meanwhile we urge upon every man or woman who happens at this juncture to be unemployed, to seize the golden opportunity for self improvement of some sort, or the working out of something useful at home. To young men especially, we say: Do not become loafers and topers. Keep away from grog shops and idle companions. Go to the libraries and read good books. Supply your minds with useful and ennobling subjects of thought. Hunt up your arithmetics and refresh your mathematics. Improve your penmanship. Learn to draw. Study the history of your own and other countries. In short, make effort to keep yourself busy about something that is profitable.

It is in hard times generally that new inventions flourish. People have time to study, and are perhaps urged to it by necessity. We shall be happy to assist our readers in this respect, and we invite them to write to us by letter in respect to their new inventions. The effect of thinking and of studying out devices will benefit them, even if nothing novel should result.

As suggestions in this direction, we will mention a few of the subjects in which special calls for improvements are made. In reflecting upon these, the inventor will be likely to be led towards other and better things. All the wants of mankind are open to the improving touch of genius.

It will be remembered that the State of New York lately offered a reward of one hundred thousand dollars for the production of any method superior, in practice and economy, to the present mode of towing canal boats by horses and mules. The time for competition has expired, and no person has as yet satisfactorily produced the required invention. The reward may or may not be renewed. The fact that it has been offered for three successive years shows the need of the improvement.

We lately chronicled the reward offered by the German railway companies for a good self-acting car coupling. Many lives are annually sacrificed in this and other countries for the lack of a really practicable coupling.

The Society of Arts, London, offered several months ago five prizes, each of $250 money and a gold medal, as follows: 1. For a new and improved system of grate, suitable to existing chimneys as generally constructed, which shall, with the least amount of coal, answer best for warming and ventilating a room. 2. For a new and improved system of grate, suitable to existing chimneys as generally constructed, which shall, with the least amount of coal, best answer for cooking food, combined with warming and ventilating the room. 3. For the best new and improved system of apparatus which shall, by means of gas, most efficiently and economically warm and ventilate a room. 4. For the best new and improved system of apparatus which shall, by means of gas, be best adapted for cooking, combined with warming and ventilating the room. 5. For any new and improved system or arrangement, not included in the foregoing, which shall efficiently and economically meet domestic requirements.

Among the simpler articles for which calls are made, the following may be mentioned: An improvement for straightening pins for home use; a new and cheap folding umbrella; a household water filter; stove attachments for cooking and saving fuel; cheap and light washing machine; a combined knife scourer and sharpener; a sweeping machine for floors and carpets; a scrubbing machine for floors; devices for cleaning and washing windows; flexible pipes for water and other purposes, cheaper than rubber or lead; flexible transparent membrane, capable of substitution for glass; folding beds and sofas; self-acting device for regulating the warmth of apartments; instrument for exhibiting to the eye the purity or impurity of the air in public halls and private apartments; electrical alarms and new applications of electricity of all kinds; portable houses; new and more economical methods of building cheap dwellings; new household appliances or combinations of every sort; new methods of advertising; improved styles for putting up articles; new ornamental designs, for furniture, carpets, oil cloths, and goods of every description; new mixtures of medicines; cements; new alloys; new chemical combinations. The subjects for inventions are almost exhaustless, and in future numbers we shall offer further suggestions.

A GREAT "LICK" IN ASTRONOMY---THE MILLION DOLLAR TELESCOPE PROVIDED FOR.

We note, with no small degree of gratification, that the project of a colossal telescope, which is to be the largest and most complete instrument that modern scientific knowledge can suggest, or ingenuity devise, is actually in progress of elaboration. The scheme of a "million dollar telescope," to which we have so frequently referred, and which has encountered such an earnest support among large numbers of the readers of our journal, is in fact to be carried out; though whether it will be found necessary to expend the whole of this large sum of money is not determined. It is known that the cost of the great Washington instrument, which was to be $50,000, has not amounted to a sum greater than $30,000; and hence there is a possibility that that of the mammoth telescope now contemplated may fall below the large aggregate first proposed.

In a recent address before the California Academy of Sciences, Professor George Davidson made the following remarks—words which we are sure will find their way to every quarter of the civilized world, and engender the liveliest pleasure to every lover of science and her advancement: "With a telescope of the largest size and most consummate workmanship that American skill can devise, properly located ten thousand feet above the sea in the clear skies of the Sierra Nevada, with every variety of apparatus commensurate therewith; with masters of observation and ingenuity in research; with ample funds reserved to devise other instruments and methods which those instruments and the highest genius must suggest, we hope at no distant day to see solved the mighty problems of creation that are yet beyond our grasp. Such an outfit and such provision have been the lifelong objects of James Lick; and after much earnest solicitation, I have overcome his shrinking from what he considers vain glory, and obtained his permission to announce to the Academy his intentions, which I have faintly sketched in the preceding sentence. There will be no let or hindrance in carrying out his views; the amplest means are provided; the rarest skill has been invoked, and the plans are taking definite and practical shape."

The *Mining and Scientific Press* of San Francisco, of which city Mr. Lick is one of the wealthiest denizens, notes that the scheme, as already indicated by Professor Davidson, is being quietly perfected, and that the geological, mete oro logical and other peculiarities of various sites of the mountain range above named are soon to be carefully scrutinized and reported upon. A peak will be selected which, from its high altitude and clear surrounding atmosphere, will afford the finest possible view of the heavens throughout the longest period of the year, and there the observatory will be permanently located.

How large the proposed instrument is to be is of course impossible to say, definitely, nor can its probable cost be with any accuracy ascertained. Experiments must be made with glass, and the most careful investigation will be needed in order to determine the feasibility of constructing a lens of the extraordinary diameter and focal length required.

Our contemporary suggests a 40 inch objective as of a suitable size; but it seems to us that, when this undertaking is begun, nothing short of the grandest possible results should be aimed at. Hence the researches should be made with a view of determining how large a lens can possibly be manufactured. We have already pointed out the capability of a twelve foot objective with a focal length of 120 feet; which, with an eye piece of $\frac{1}{20}$ inch focus, would give a magnifying power of 28,800 times the linear dimensions, or over 800,000,000 times the surface of a body. Although the spectroscope has proved that most of the nebulæ which the great telescope of Lord Rosse has failed to resolve into stars are hot hydrogen, it is possible that so vast a power as above noted would render visible other clusters now totally unseen, and thus give to the eye the ability to gaze into the star depths billions of miles further than it has ever heretofore penetrated. The reader can easily calculate the apparent proximity to which the planets would be carried to our earth, and also the large visual angles which their spheres would subtend. Mars, for instance, would, so to speak, be brought within 4,000 miles of us, and would appear 100 times as large as the moon, covering an angle of 50°. The magnitude of the discoveries which might be made, while we are thus enabled to scrutinize the Martial surface mile by mile, cannot be estimated or even imagined. The problems regarding the physical constitution of Saturn's rings, of Jupiter and his possibly inhabited satellites, of the vagrant intermercurial planet and others which will readily suggest themselves, will receive new light shed upon them, by which, doubtless, a clear path to their solution will be found. As for our moon, let the reader seriously think of having that satellite within eight miles of him; so near that, if inhabitants there be, he can see them. Even if no more astonishing discoveries be made, the effects of volcanic action upon the surface will form a prolific field of study.

About one year ago, when first proposing the idea of so vast an instrument—a plan, by the way, which even up to the present time has continually called forth expressions of approval, coupled, frequently, with offers of subscriptions from many of our readers—we said: "It is impossible to speculate on what such a telescope would discover in regard to the other planets or the vast regions of the firmament; let us hope that some day the amount of capital necessary will be forthcoming, on the most liberal scale, for the progress of the most sublime of all the sciences." The day has arrived; the capital is forthcoming, and there is every favorable probability that, in less than five years, one of the grandest enterprises of modern times will be successfully consummated.

ENGLISH PRINTING PRESSES IN AMERICA.

In the early days of newspaper printing in this country the machinery came chiefly from England; but when the Yankees began to invent, the importation ceased, and for many years the United States supplied novel presses to British and continental publishers. But English ingenuity appears to have taken a new start, and has produced printing machines of such superior capacity that New York newspaper owners are now buying fast presses in London.

We lately witnessed the practical working of two of the celebrated Walter presses, at the *New York Times* establishment in this city, and must confess to an agreeable surprise at their perfection and extraordinary performances. They were built in London by Mr. Walter, the inventor, and set up here, under the immediate supervision of Mr. Gilbert Jones, of the *Times*.

They are known as perfecting presses, that is, both sides of the sheet are printed in passing once through the press. In ordinary presses, the sheets are introduced separately, printed on one side, then passed through again, and printed upon the other side. This involves much handling, the employment of cumbersome machines, and many attendants.

In the Walter press, the paper to be printed is arranged in the form of a roll, like the goods in a calico printing machine. This roll of paper, 3 feet in diameter, weighing one fourth of a tun, and containing paper enough for say six thousand copies of the *Times*, is placed at one end of the machine; the web passes thence between the printing types, which, in the form of curved stereotype plates, are secured upon the exteriors of a pair of geared cylinders. Rollers carrying ink press against the types, and the rotation of the type cylinders draws the paper along between them and the impression cylinders, thus printing the web on both sides; the web then passes between rotating shears, which divide the paper into separate sheets; and these, guided by a beautiful and ingenious arrangement of delivering tapes, are discharged in two separate piles, at the end of the machine opposite to that where the white paper enters. The paper travels through the press with a velocity of ten or eleven miles per hour, and delivers at its highest speed some sixteen thousand printed copies of the *Times*, which, as all our readers know, is a large quarto paper—one of the largest in the country. A single number of the *Times* contains an amount of type matter equal to 147 ordinary octavo book pages. Perhaps we cannot better illustrate the astonishing rapidity of this machine than by saying that the printed matter it delivers in one hour would cover more than two hundred and thirty-five thousand book pages, or nearly four hundred volumes of six hundred pages each.

These remarkable printing presses are built with steel at all of the gearing parts, are the perfection of mechanism, and run with the steadiness of time pieces. One machine, attended by two men and two boys, is capable of a duty nearly equal to that of two of the old style, separate-sheet, ten-cylindered presses, operated by twenty-five men. One of these old time monsters now stands idle in the *Times* press room. It is twenty feet high and forty feet long, full of complications. The new and simple new comer, by which it is replaced, occupies hardly a third the room of the other.

We have not space here to describe the various other mechanical appliances employed in printing the *Times*, such as double engines, boilers, blowers, steam ink pumps, folding machines, stereotype apparatus, etc., all of which are of admirable character, and have cost the proprietors over one hundred and twenty thousand dollars. This peculiar machinery, taken in connection with the enormous editions of the *Times*, exemplifies to a certain extent the wonderful progress which the world is constantly making in knowledge and the mechanic arts.

THE NOVEMBER METEORS.

We would remind our readers that on the 13th and 14th of the present month the earth crosses the second of the great meteor belts, and that on the nights of the above dates, if clear, a quite brilliant display of shooting stars may probably be seen. The November star showers appear to be periodic in splendor. For intervals, ranging from a single year sometimes to five and six, meteors appear of remarkable magnificence and in extraordinary numbers, then they wane, and it is not until a cycle of 33 years has elapsed that the maxima again arrive. In other words, instead of these vagrant bodies being distributed uniformly around their vast orbit, forming a complete ring of meteoric particles, a large majority of them are clustered together in a dense cloud which makes a revolution around the sun once in 33 years, and intersects the earth's path at the position of our globe on the 14th of November.

It is a remarkable fact that, as astronomers have shown the coincidence of the path of the August meteors with that of the bright comet of 1862, so have Peters and Schiaparelli independently discovered that Tempel's comet of 1866—a body visible only with the telescope—has elements which may be regarded as absolutely identical with those of the November belt. As to what connection exists between comets and meteors, it is, with our present knowledge, impossible to determine. We know, however, that meteors have paths as eccentric as those of the orbits of comets, and hence it is deduced that the earth encounters no less than 56 meteor systems, thus giving proof that the total number of these systems in the universe must be estimated by billions.

The November meteors appear to radiate from the constellation *Leo*, and the aphelion of their orbit is something beyond the planet Uranus. Proctor considers that the denser portion of the system, known as the "gem of the meteor ring," cannot be less than 1,000,000,000 miles in length, while its thickness is in the neighborhood of 100,000 miles. The width is estimated at ten times the latter dimension; and taking the average of four displays, in the years 1866–69, it was found that the earth encountered one meteor per minute. Roughly calculated, the distance separating meteor from meteor would be about 1,000 miles, so that the great cluster cannot contain less than one hundred thousand million members. Herschel, from observations of the amount of light given by these bodies, and also by calculations based on the velocity with which they enter our atmosphere, concludes that they are very small, rarely exceeding a few ounces in weight; or, on an average, not over one one-hundredth part of an ounce each. This would make the weight of the cluster one thousand million ounces, or only 28,000 tuns.

Professor Daniel Kirkwood communicates to the *American Journal of Science and Arts* a note on the November meteors, in which he mentions displays, remote from the regular epochs, which, he thinks, cannot be satisfactorily accounted for by the hypothesis of a single great cluster. He points out that, as the display on November 14 occurs in but five or six consecutive years at most, the nebulous cloud cannot extend around more than one fifth of the orbit. But meteoric phenomena have been witnessed about the 13th of November, when the principal group was near its aphelion, and in the years 1787, 1818, 1822, 1823, 1846, 1847, 1849. Those of 1818, 1822 and 1823 may be regarded as all derived from a single extended swarm. Those of 1787 were due to a return of the same cluster, as the intervening period was about 33 years; hence we may expect another shower from this source between 1885 and 1889. A short interval of 12 years, between 1787 to 1799, cannot be explained on the hypothesis of a single group, and accordingly it is inferred that the Leonids entered the solar system in two separate masses, to which the disturbing influence of Uranus gave slightly different periods. The meteors of 1846, 1847 and 1849 were observed after the periodicity of the shower had been recognized, and were noticed in consequence of a watch instituted for the purpose. In regard to these straggling members, it is considered that, whenever the earth passes through the meteoric current, its disturbing influence changes the orbits of such meteoroids as happen to be moving in its immediate vicinity. These disturbed portions of the ring, at their subsequent returns, must pass through the point of greatest perturbation. As the periods will vary within very wide limits, the same is considered an obvious explanation of the phenomena.

DECORATED SCIENTISTS.

"It seems to us unjust and cruel that men of science, to whose labors it is mainly owing that our country and the world generally are mounting higher and higher in the scale of civilization, should be practically debarred from accepting the few honors that come in their way. Moreover we should think that those who have the framing of these regulations * * * should afford every facility to those who are thus honored to accept and wear the foreign orders which may be offered them."

We extract the foregoing lines from a recent issue of our excellent English contemporary, *Nature*, in which they occur in the course of an editorial on "Foreign Orders of Merit." It appears that the Emperor of Brazil and the King of Sweden wanted to decorate some of the British scientists, but these gentlemen, "from loyalty to Her Majesty's stringent regulations," refused the proffered distinctions. Whereupon the above named journal deprecates the course of its government in having such regulations, and urges that there is no reason why men of science, as well as military men, should not receive foreign rewards.

While no one more than ourselves would delight in seeing the scientific workers of any nation gain the most exalted of human distinctions—and no class of people better merit the same—we utterly fail to perceive either the applicability of these so-called orders as a reward for the attainment of learning or for original discovery, or even the inherent honor which our contemporary thinks so great. Does *Nature* mean to say that the fame of such men as Tyndall, Huxley, Lockyer, Spencer, Proctor, Darwin, Roscoe, Huggins, Carpenter, Joule, Grove, and a score of others whom we might readily name, would be enhanced in the smallest jot if their Majesties of Sweden or Brazil should hang a scrap of ribbon or a jewelled star on their doctors' gowns? Or further, is it supposed that any one of these illustrious discoverers would value, to the extent of a snap of his finger, the conferring upon him of medals and crosses by all the crowned heads on earth, in numbers sufficient to make the breast of his coat look like a checker board, like Marshal Bazaine's, as represented in published portraits? "Flunkeyism," as Thackeray terms it, and science can never be made to coöperate. The snob and the scientist are never mingled in one person. And if an ostentatious pride in a worthless gift, not from a people or even given in their name, but merely as a mark of favor by an individual or a ministry in power, is not arrant flunkeyism and snobbery, we fail to appreciate what is. For our parts, we doubt if a much more absurd idea could be proposed than to suggest that men whose grand labors and discoveries have benefitted a world for all time, and whose names will be household words to posterity for centuries, could be honored by the notice of a person who, now a king, will in a few years live in the memory of mankind but as an abstract index to a period of his country's existence.

Some time since we noticed in an English journal a somewhat similar article to that above quoted from, but which advocated the elevation of certain eminent scholars to peerages as a reward for their varied attainments. While it struck us then that Lord John Tyndall, or Earl Darwin, or Baron Huggins would sound decidedly incongruous, a rather more laughable idea occurred to us as to the probable effect if our American scientists should, through the pages of their favorite newspapers, set up a howl because the constitution prevents them, while citizens of this country, from obtaining patents of nobility or orders from foreign powers. Suppose, for instance, that Professor Agassiz should think himself ill used because Congress would not pass an act or constitutional amendment allowing him to be Duke of Penikese; or that Professor Mayer, of the Stevens Institute, should feel deeply injured because he would not be permitted to receive, from the Governor of New Jersey or the Khan of Tartary, a diamond cross or a red feather in recognition of his recent admirable discoveries in the mosquito line?

If the time ever should come when scientists of any nation seek after foreign baubles, such men will not be of those whom people call great, nor will the latter be the ones upon whom such distinctions will be conferred. In fact the distribution of honors will, we imagine, be something resembling the award of prizes by a certain old French semi-scientific, semi-literary society. This learned body rejected an essay by Voltaire, but eulogized to the skies a paper in which reference was made to the "freezing and torrid poles of our earth."

The Niagara River Bridge.

The last span of the bridge across the Niagara river, from Buffalo to Fort Erie, was quite recently placed in position. There are eight piers of solid masonry incased in an armor of half inch iron plate, to protect them from the ice. The Pratt truss, of iron, extending over spans of from 197 to 240 feet, is used. One of the two draws on this structure has an opening of 160 feet, and is said to be the largest in the country. The bridge has but one railroad track, but is leased by four roads—the Grand Trunk, Great Western, Canada Southern, and New York, West Shore, and Chicago railways.

PROGRESS OF THE HOOSAC TUNNEL DURING OCTOBER, 1873.—Headings advanced westward, 170 feet; eastward, 140. Total advance during month, 310 feet. Distance opened from east end westward, 14,747 feet; distance opened from west end eastward, 10,042 feet. Distance remaining to be opened to November 1, 1873, 242 feet. The whole length of the Hoosac tunnel is 25,031 feet.