

graving shows the mounting of the telescope; the photograph was taken in November, 1896, and the rising floor is shown at its highest level. Our third small engraving shows the skeleton steel construction used in the dome. The great dome with its elevating floors is among the unique features of the observatory. The elevating floor of the Naval Observatory at Washington was designed and constructed in 1892 in a similar way to that of the Yerkes Observatory, except that the floor is operated by hydraulic rams instead of electrically, as is the case with the new observatory.

The great dome of the Yerkes Observatory, 90 feet in diameter and 60 feet high, was designed and constructed by Messrs. Warner & Swasey. The dome consists of a framework of steel girders covered with a sheathing of wood and tinned on the outside only; it weighs 140 tons and revolves on thirty-six wheels running upon a circular track of T rails built upon the masonry walls. The journals for the wheels are provided with anti-friction bearings. The dome is revolved by means of an endless cable connected with the turning mechanism and operated by an electric motor.

The two shutters are 85 feet long, covering the opening, which extends from the horizon to a point 5 feet beyond the zenith. They are supported on tangential tracks at their extreme upper and lower ends, and run on wheels with anti-friction bearings. They are so easily adjusted that a direct pull of 72 lb. at the lower end moves the shutter its whole length, its position being maintained parallel with itself throughout the entire distance of motion by special mechanism. The shutters open from the center outward and work simultaneously.

The elevating floor, also designed and constructed by Messrs. Warner & Swasey, is 75 feet in diameter and weighs 37½ tons. The floor is circular in shape, and completely surrounds the telescope column, which is placed practically in its center. The floor is supported by four cables 90 degrees apart, and is carefully counterbalanced by weights running in four columns which serve as guides. The ropes for operating the floor also run in the same columns over sheaves placed at the top, the other end of each of the four ropes being wound around separate drums 4 feet in diameter, placed at the base of each of the columns. The drums are operated by worm gearing, and all four of the shafts which run the worms are operated from a single point by means of an electric motor, the arrangement of the drums and operating mechanism being such that the different positions of the elevating floor are always parallel to each other.

A balcony five feet wide surrounds the inside of the dome at the lowest position of the elevating floor, and another one 23 feet above it at its highest position, as shown in our engraving. When the telescope is directed to the zenith, the objective will be

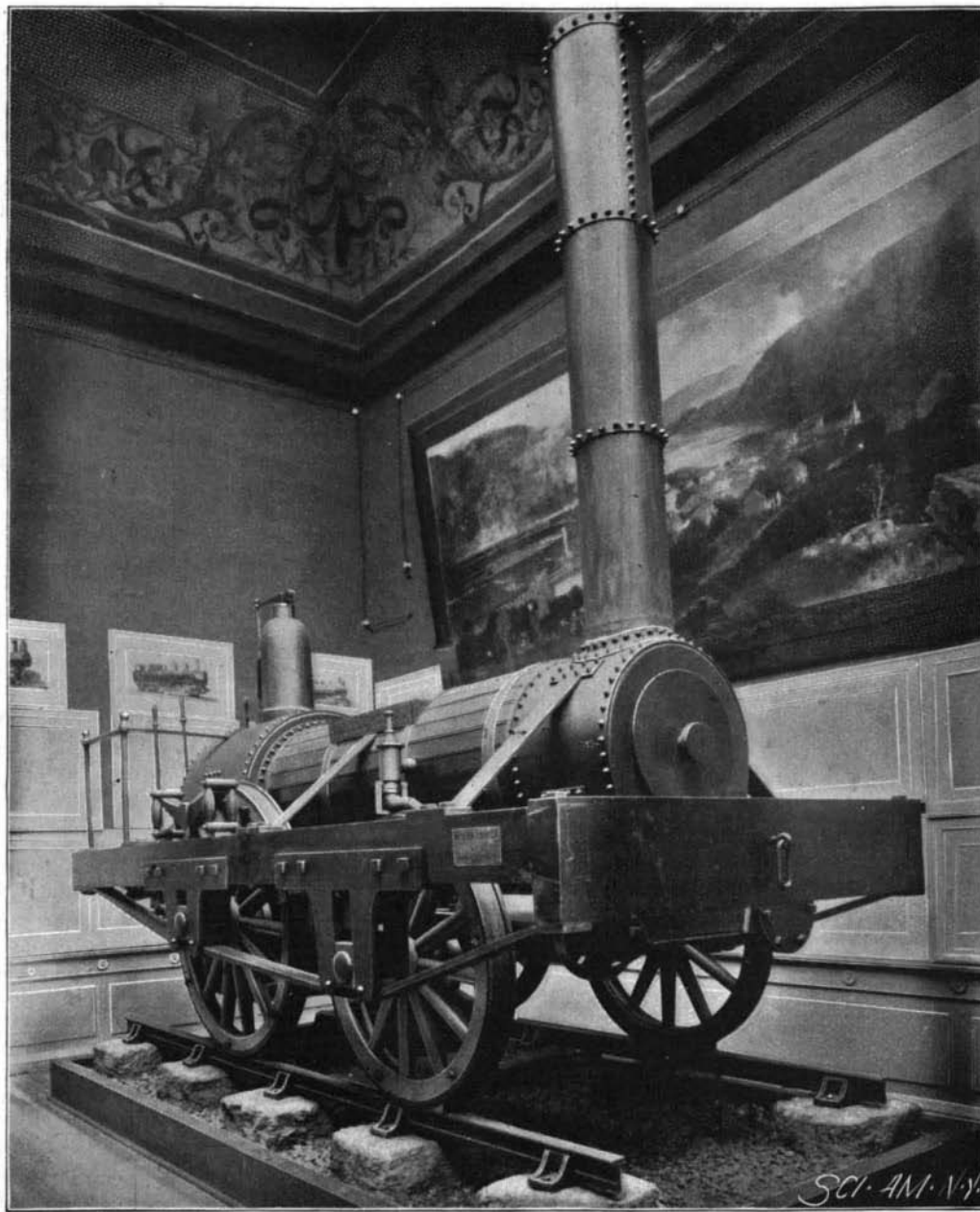


Fig. 1.—OLD IRONSIDES, BALDWIN'S FIRST LOCOMOTIVE—BUILT 1832.

some seventy-five feet above the normal level of the floor.

The organization of the Yerkes Observatory is as follows: George E. Hale, director and astrophysicist; S. W. Burnham, astronomer; E. E. Barnard, astronomer; F. L. O. Wadsworth, astrophysicist; Ferdinand Ellerman, assistant; G. Willis Ritchey, optician.

When the great object glass is in position, it is certain that the observatory will become a place of pilgrimage for astronomers of all countries.

nificance of its buildings and the unrivaled excellence of the exhibits which they contained. We refer to the classic structure known during the exposition as the Fine Arts building, but now bearing the name of the Field Columbian Museum.

The auctioneer's hammer and the great conflagration at the close of the fair swept away from the broad area of Jackson Park practically every building of note, leaving, as was fitting, the most substantial and architecturally the most choice of them all to stand as a

permanent and adequate memorial to the grandeur which once spread out before its noble facade.

There is an impression abroad that the creation of a permanent museum in connection with the exposition was an afterthought, begotten in the closing hours of "the Fair." This is quite incorrect. As a matter of fact, the idea first took shape in 1890, when it was suggested by Prof. Putnam, of Cambridge, Mass., in a letter to the Chicago Tribune. The idea was fostered during 1891 by Director Goode, of the National Museum, and by the members of the foreign affairs committee of the exposition directory. To this committee, of which President Baker was chairman, the excellence of many of the departments of the museum, especially the anthropological and transportation departments, is due; purchases being

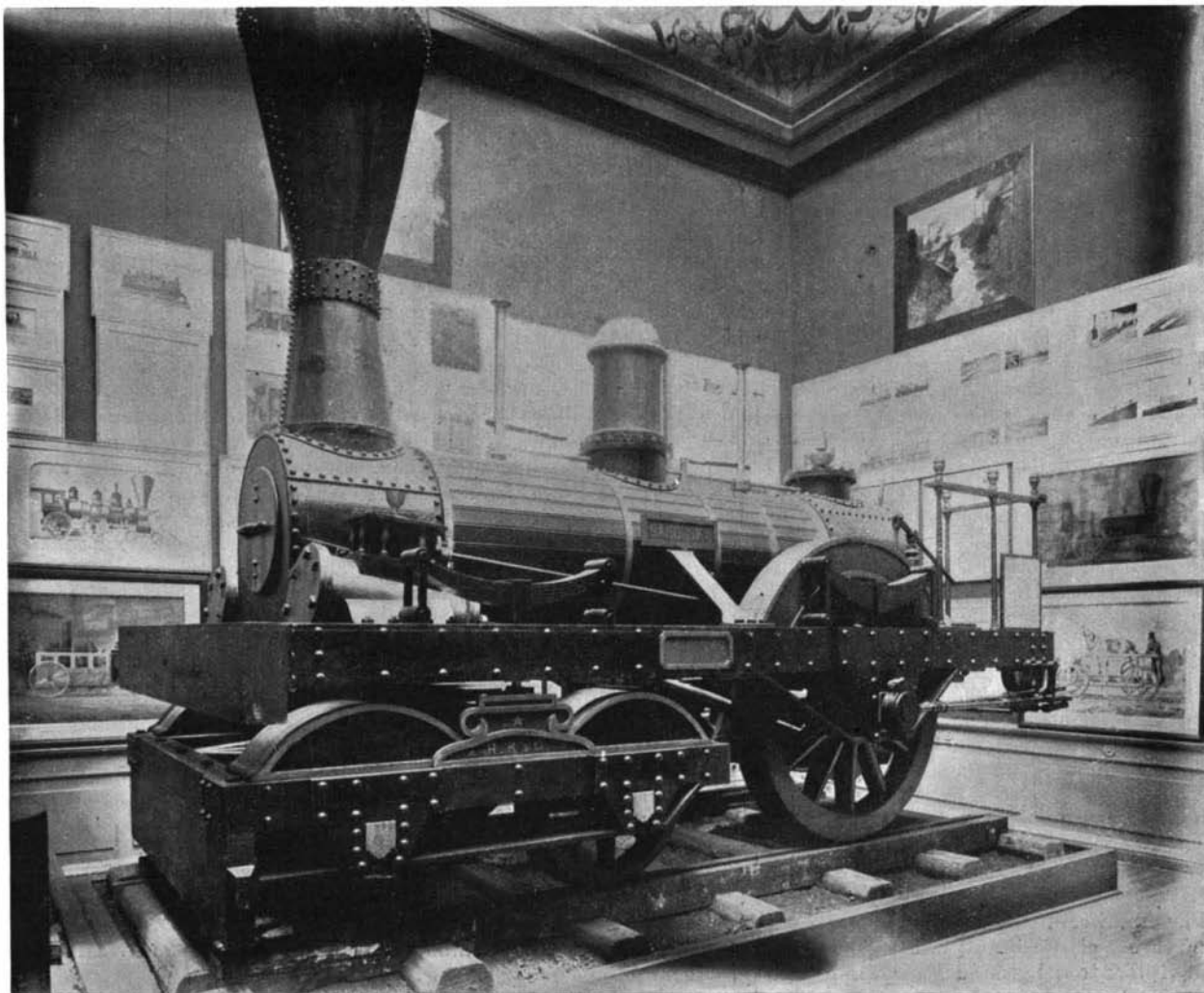


Fig. 2.—ROGERS LOCOMOTIVE SANDUSKY 1837—FIELD COLUMBIAN MUSEUM CHICAGO.

Sensationalism in science is greatly to be deplored, and it should be remembered that the instrument is but slightly larger than that of the Lick Observatory, and while it is certain that excellent work can be done with it in many departments of astronomy and astrophysics, it is not at all probable that discoveries of a sensational character will be made.

THE FIELD COLUMBIAN MUSEUM, CHICAGO.

The great Columbian Exposition of 1893, at Chicago, has left an enduring record in the practical benefits which it has brought to the world in general and to this country in particular. It served to point out in one great object lesson the unrivaled growth of the United States in everything that goes to make up the sum of modern civilization, and it brought to our shores the best products of the skill and genius of other nations. It served as a great assembly hall for the wise and gifted of all the earth, and during the months of that memorable summer the choicest minds of the old and new worlds met in the friendly discussion of the great, burning questions of art, science, and religion. These are facts that were so fully and eloquently recognized and declared at the time that it is a mere repetition of a well known truth to insist upon them now.

But apart from—or rather over and above—the unseen but none the less potent benefits which the great event left in its train, there stands to-day, at the northern end of Jackson Park, a magnificent memorial of the exhibition, which is a concrete evidence of the beauty and mag-

made abroad for these departments with a view to their preservation in a permanent museum.

The next step was the incorporation of the Columbian Historical Association, in Washington, early in 1892, by virtue of whose privilege as a scientific society, of receiving goods free of duty, the articles in the valuable collection of the Latin-American department were received and cared for. Of this association President Putnam was president, Prof. Wilson, of the Smithsonian Institution, vice-president, and William E. Curtis, chief of the Latin-American department, secretary and treasurer.

The public and vigorous agitation of the idea dates from the appearance of a letter by S. C. Eastman in the Tribune, July, 1893, and a series of editorials which followed in the Herald. Soon after, on August 11, 1893, a committee of three was formed at a meeting of the directors of the exposition which issued a call for a meeting of citizens "to adopt measures in immediate aid of the project to establish in Chicago a great museum that shall be a fitting memorial of the World's Columbian Exposition and a permanent advantage and honor to the city." A strong committee was formed and the title of "The Columbian Museum of Chicago" was adopted. The finance committee, subsequently formed, set about the important task of securing the funds for the endowment of the museum. At first there was but little response, and it was not until October 26, 1893, when Mr. Marshall Field made his splendid gift of \$1,000,000 to the enterprise, that the good work made any successful headway. Two days subsequently Mr. George M. Pullman subscribed \$100,000, and this was followed by another gift of \$100,000 by Mr. Harlow N. Higginbotham.

Mr. F. J. V. Skiff, the present director of the museum, states that, as a result of Mr. Field's generosity, confidence in the assured permanence and success of the museum was renewed, and a liberal spirit was aroused among exhibitors, and especially among foreign and state commissions and American corporations and individual exhibitors, and their contributions were increased in proportion to the liberality of the endowment. How generous their contributions have been, is shown by the collections in the museum to-day. The many valuable departmental collections that had been in danger of ruinous distribution at once became the unquestioned property of the museum, and by common agreement the different educational institutions discontinued their efforts to secure contributions in their own behalf and united in working for the museum. As the outcome of a suggestion of Mr. A. W. Manning in the local press, that exposition stock be donated to the museum, the present amount of stock donations approximates \$1,500,000 par value from over 1,100 stockholders.

The museum committee on exhibits purchased extensively during November of the same year, securing, among other collections, those from Paraguay, Peru, Java, Samoa, and the Hagenbeck collection. At this time also the Ward collection of natural history was bought for \$95,000; and about the same time the Ayer anthropological collection, valued at \$100,000, was presented. The transfer of the various exhibits to their new and permanent home began on December 7, 1893; and it is thus graphically described by Mr. Skiff:

"And now began the tremendous task of gathering the vast amount of material from every part and corner and stretch and recess of these vast grounds; from all of the buildings, large and small, from the Midway Plaisance and from Wooded Island; from the Forestry building to the Fisheries building. Hundreds and hundreds of tons of exhibits, collections and objects of every describable character were transported to this building at which we are assembled. Then the selection, alteration, arrangement and rearrangement and elaboration began. Gradually hall by hall was emptied, and, as the objects of art left the building, a mass of material poured in, heterogeneous and appalling in extent. And the beautiful products of the artist's brush and the sculptor's chisel—ours for only a summer—were supplanted by what we see in these halls to-day. A sequential and systematic exposition of the wonderful and instructive things of the world we live in began to grow. Through the same door streamed boxes and bales from the Transportation, Mining, Forestry, Electricity, Manufactures and Liberal Arts, and State buildings, from government buildings and from the Plaisance; objects from the remotest lands and the most diversified climes!"

The museum was to all intents and purposes installed on May 1, 1894, and on May 21 the name was officially changed to the "Field Columbian Museum." Such in brief is the history of the founding of this famous institution.

Of the building itself no higher praise can be given than to say that it was by common consent the architectural gem of the almost uniformly excellent buildings of the exposition. It is one of the best, if not the very best, examples of Grecian architecture in America, and its vast proportions and severe classic beauty won for it the ready praise of all visitors to the grounds.

The main building is rectangular in plan and measures about 375 feet by 550 feet. The interior consists

of four great courts which lead into a central rotunda which is surmounted by a dome of ample proportions. To the northeast and northwest of the main building are two pavilions, each of which is 125 feet by 200 feet in plan, access to these being had through covered galleries. The total depth of the building, measured from the southern facade of the main building to the north front of the pavilions, is 500 feet, and the total width, measured across the pavilions, 1,100 feet.

It would be quite beyond the limits of the present article to speak in lengthy detail of the various collections which have found a permanent resting place in the museum. There is none that possesses greater interest than the collections presented to the museum through the Latin-American department of the exposition. This comprises the historical Columbus exhibit, which consists of a series of object lessons illustrative of the history and development of America, from the birth of Columbus to the present day. Here is also a collection of articles which show the civilization of the aboriginal races of America prior to the landing of Columbus. The historical Columbus exhibit was gathered mainly through the efforts of specially appointed army and navy officers, who worked with great success in Spain, Mexico, and the smaller American republics. The efforts of Mr. Curtis, who had charge of this department, resulted in a priceless collection of documents relating to Columbus which was shown at the exposition. These were photographed, and the photographs now form part of the museum collection. In this collection will also be found the rare collection of relics and historical paintings and photographs which was shown in La Rabida Convent during the exposition.

The collection presented through the exposition departments of agriculture and forestry owes its completeness largely to the forethought of Mr. W. I. Buchanan, chief of the department of agriculture at the exposition, who laid his plans for collections long before the idea of a museum had been publicly mooted. At his solicitation, carefully selected exhibits were presented to the museum by Russia, Japan, Mexico, Brazil, British Guiana, Corea, and many other countries, and the United States Department of Agriculture responded with a complete collection of tobaccos, fiber plants, cotton, and a series of forest trees. In this collection will also be found a notable contribution from the Forestry building. The entire collections of Japan, British India, Brazil, and Mexico were turned over to the museum complete, and many of the States which are notable for their forests added valuable selections from their exhibits.

The museum is indebted very largely to Mr. F. J. V. Skiff, the present director of the museum, for the collections presented through the exposition department of mines, mining and metallurgy.

The department of mines, mining and metallurgy found that while an unexcelled showing from various localities or of isolated mining and metallurgical industries would be made at the exposition, no comprehensive survey would be made unless under the immediate direction and supervision of the department. As a result, five national and technological special collections were projected. All of these collections having been exploited by the use of exposition funds, were at the close of the exposition, by vote of the board of directors, transferred to the Field Columbian Museum.

These were: A collection of the mineral combustibles of the United States. A collection of the building and ornamental stones of the United States. A graded collection illustrating the metallurgy of the precious and base metals. A collection of transparencies. A collection of the literature pertaining to the subjects of mining and metallurgy.

The exposition department of archaeology and ethnology presented a collection which had been gathered by special expeditions sent out under the direction of Prof. Putnam, whose original idea was to use the opportunity offered by the exposition to assemble a vast number of anthropological objects representing the American peoples. The collection was made with a view to its use in a permanent museum, and it comprises objects which have been gathered from a field which included practically the whole of the new world.

The geological collections are arranged in two groups. Those illustrating geology as a theoretical science are grouped in the division of systematic geology; those setting forth its practical bearings, in the division of economic geology. The collections of the former class occupy eight halls of the museum, those of the latter, thirteen. Three halls are devoted to the section of paleontology, in which 5,000 specimens are displayed. The collection of meteorites is one of the largest in the country. The section of systematic mineralogy contains 5,000 specimens, and the section of lithology contains 15,000 specimens 1 inch by 3 inches by 4 inches and 400 larger polished slabs.

The collections of the division of economic geology were obtained through the efforts of the chief of the department of mines, mining and metallurgy of the World's Columbian Exposition from exhibits made in that exposition. Being designed to illustrate the practical bearings of the science of geology, they consist chiefly of specimens which show modes of occurrence

in nature of the minerals which have economic importance and the localities where they may be obtained. In addition to these, however, are many illustrations of the processes employed in the extraction and treatment of such minerals or ores and of the application of resulting products to human arts and industries. While these ultimate products may seem to have little relation to geology, the fact that they are the ends sought by the application of its principles entitles them to a place in the series. Moreover, as denominators of groups, they furnish the simplest and most readily understood basis of classification.

The botanical collection has been placed in the galleries of the building, the director having decided that they would furnish the best light and most advantageous position for the treasures which had been so generously donated. It includes the Japanese exhibit that was shown in the Manufactures building, and also the display from the Forestry building. This latter was one of the most complete exhibits in the building, and the museum is proportionally enriched. Russia, British India, the Central American countries, and the United States are fully represented, and a complete collection of the sylvia of this country, both commercial and non-commercial, is to be added in time.

The department of zoology includes all the classes of animals except that of birds, and for this material six large halls of the museum have been set apart. The most interesting and valuable of these groups is that of the Coelenterata, in which are included 300 species of corals.

Ornithology has found a home mainly in a hall which is used as an exhibition room for the mounted birds. Here will be found the "Cory collection," of West Indian birds, and also the fine ornithological library of C. B. Cory.

Anthropology, covering a wide field in the interests of the race and furnishing a vast range of materials available for museum purposes, naturally becomes a prominent feature in the young museum. The founders were fortunate beyond precedent in securing at the outset extensive and important collections representing many widely separated portions of the world. In this department will be found such matter as relates to comparative primitive culture, besides such of the phenomena of higher culture as have little direct bearing on the material interests of civilized people. Here are the physical and psychical laboratories and collections of cranic casts, etc., illustrating the physical characteristics of man.

The collections may be classified as to their immediate origin under the following heads: First, those acquired by the department of ethnology of the exposition, by collection, purchase and gift and transferred to the museum at the close of the Fair; and, second, those acquired by the museum directly, by collection, purchase and gift, during the period of twelve months intervening between its inception and the present date. Aside from these resources, the presence of a number of loan collections adds to the volume of exhibits.

The collections in the department of industrial arts have been classified and arranged with a view to showing the more important steps which have led to improvement in handiwork, or progress in the invention of those machines and processes which have contributed most to the world's material development. Under this head a section has been set apart to illustrate the development of the art of weaving and spinning. Here are shown an old loom used in Kentucky during the last century and what is probably the first Jacquard loom used in America. A loom is shown from Japan, together with native Japanese tapestry, and specimens of weaving machinery and its product from widely distributed parts of the world are gathered in this section of the museum.

Perhaps it is safe to say that there is no historical exhibit that is more complete, or full of intrinsic interest, than the collection presented to the museum through the exposition department of transportation exhibits. This exhibit was planned to show the gradual development of transportation methods from the earliest records down to the present time. The result has been a most comprehensive collection, which ranges from a light Scythian racing chariot, dug from an Egyptian mummy pit, to a perfected type of the American eight wheeled locomotive. The most striking feature of this collection is the historical railway exhibit, which occupies the greater part of the east pavilion. The most complete section is the collection of relics, models, photographs, drawings, and reproductions collected and prepared by the Baltimore and Ohio Railroad Company, through Major J. G. Pangborn, and by the Pennsylvania Railroad Company, through Mr. J. Elfreth Watkins. Major Pangborn was dispatched to England with instructions to buy up all the historical data that was accessible and purchasable; and so well did he carry out his instructions that there is now installed in the Field Columbian Museum a more complete set of historical plans, photographs and general data of early English locomotives than can be found in any one place in England. Our attention was drawn to this curious anomaly by Mr. C. E. Stretton in a letter to which we made reference in a recent issue. In this collection, for

instance, will be found the working drawings—most of them originals—of the early locomotives built by Edward Bury, afterward Bury, Curtis & Kennedy, for what is now known as the London and Northwestern Railway. It also includes either the original working drawings or copies of the early Great Western Railway engines; and any one who is acquainted with early English railway history will appreciate the great value of this data.

This very remarkable collection also embraces thirty-eight full size working reproductions of locomotives for road and rail covering a period from 1680 to 1848. It also includes fifteen original locomotives of the type built from 1832 to 1876.

Another notable feature in this collection is the elaborate series of drawings, showing the development of motive power from the earliest to the present time, and the very handsome display of photographs.

The locomotive models are grouped historically in the various rooms, and are standing upon specimens of the track and roadbed which were contemporaneous with the locomotives they carry. The drawings and photographs are grouped upon the walls with a similar regard for their historical order.

We present two photographic views of the interior of this section of the museum which are characteristic of the general excellence of the exhibit. They both represent full sized models of the original locomotives and the system of track which was in use at the time they were built. The engraving also shows a portion of the valuable collection of drawings and photographs which is disposed upon the walls of the exhibition rooms.

Apart from its interest to the curious and casual sightseer, this exhibit has a special value to the historian. Whoever may have occasion to write upon the too much neglected subject of locomotive history will find a rich treasure house of authentic relics in this collection. We are gratified to note that there is evidence of a widespread and growing interest in the general question of railway and, especially, locomotive history, and we think that the present time will be opportune to put before our readers a series of articles by Mr. H. T. Walker, on the history of the American locomotive. The first of these articles will appear in the next issue of the SCIENTIFIC AMERICAN, and they will be continued in the two succeeding issues. They will be profusely illustrated with line drawings and photographic reproductions of the most famous engines in the Field Columbian Museum exhibit, the photographs being taken in the halls of the museum by the courtesy of the director, Mr. F. J. V. Skiff, to whom we are indebted for much detailed information regarding the history and present standing of the museum.

The Birthplace of Buddha.

All students of ancient Indian history, says the Pioneer, and all followers of Buddha are indebted to the present enlightened government of Nepal for the discovery of the actual spot of the long-lost birthplace of Buddha Sakya-Muni. On representations made by the government of India, the Nepalese Prime Minister granted permission to the Archaeological Surveyor of the Northwest Provinces to visit the Nepal Terai this winter in order to explore the country for a distance ten miles to the northwest of Mauza Nigliva, where now stands Konagamna, Buddha's Nirvanastupa, and Asoka's monolith recording that fact. General Khadga Shamsher, Governor of Palpa, was instructed to meet Dr. Fahrer at Nigliva and to receive suggestions from him regarding the contemplated excavations among the ruins at this spot.

By a lucky chance, the meeting could not take place at Nigliva, but came about instead about fifteen miles to the northeast at Mauza Paderiya, near the tahsil of Bhagwanpur in the zillah of Butaul, close to the general's camp. Here, near the debris of several ruined stupas, stood one of Asoka's monoliths, rising about ten feet above the level of the surrounding ruins and covered with several pilgrims' records, of which one belongs to about the ninth century. The archaeologist's attention was at once caught by this, and the pillar was unearthed to the depth of another fourteen feet, when a well-preserved inscription of the great Emperor Peyadassi or Asoka was found about three feet below the former level of the ruins. In this inscription Asoka states that, after having been anointed twenty years (about B. C. 239), he came himself to the garden of Lumbini, worshiped, and erected several stupas and this column on the very spot where Lord Buddha was born, in order to commemorate this happy event for future generations.

About eighteen miles northwest of this column lie vast ruins of stupas, monasteries, and palaces covered with forest and stretching in a straight line of about five miles from the village of Amouli to Tilaura Kot on the Banganga River, the circumference being about seven miles. This is the ancient site of Kapilavastu, the capital of Suddhodana, Buddha's father. The whole place is as dreary and desolate as when seen by Fa-Hian and Hiuen Tsiang in the fourth and sixth centuries A. D. The Nepalese durbar had permitted a thorough excavation of these vast ruins during this

winter, but as the famine is worse in the Nepal Terai than in the adjoining British districts, General Khadga Shamsher thought it wiser and safer not to collect a great number of workmen on one spot for several months, and has promised to have the excavations carried out by his sappers and miners next winter. We may confidently expect great results from this exploration, as undoubtedly pre-Asoka inscriptions will be turned up on the spot.

A VELOCIPEDE SHOWER BATH.

At the recent cycle show in Paris, a prominent English bicycle manufacturer presented a novelty called a "Vélo-Douche," which is an eminently practical device for combining exercise and the morning ablutions. Many wheelmen have doubtless often desired to obtain a shower bath after violent exercising on the wheel, so as to obtain the sedative effect of the brisk reaction.

Many bicycle and athletic clubs are provided with every facility for obtaining this end, but such means are not always at the disposal of the rider, especially in the country.

The device which we illustrate is really a combination of the home exerciser and shower bath, and it enables the rider to obtain any amount of exercise desired with or without the bath. The machine consists of a shallow tub to which is secured a framework carrying a bicycle saddle, a handle bar, pedals, sprocket wheels and chain. The resemblances to the bicycle go no further. The small sprocket wheel which is driven from the large sprocket on the main shaft by the medium of a chain is secured to a small rotary pump which is fastened at the rear of the frame. The suction pipe



A VELOCIPEDE SHOWER BATH.

of the pump ends near the bottom of the tub and the discharge pipe is curved as shown in the engraving and ends in the sprinkler arrangement common to all shower baths. A cock half way up the discharge pipe permits of the water being turned on to the sprinkler or through the hose and nozzle, depending on whether a bath is desired or not.

It is, of course, perfectly possible to obtain the exercise without getting wet, the pump furnishing the resistance necessary for the exercise and the water which is pumped being discharged by means of the rubber tube and nozzle. When the rider has exercised sufficiently, he can reach backward and turn the cock so as to let the water pass upward and out of the sprinkler. The harder he pedals, the larger the stream.

It is possible to direct a stream of water on any part of the body by means of the nozzle connected with the rubber tube. The tub can be divided into two compartments, one containing hot water and the other cold water, and the cold and hot douche may then be used at will. The device could be made to set in any ordinary bath tub. It would seem that the "Vélo-Douche" has a future for use in the cycle clubs, riding academies, sanitariums and in the army.

THE price of a regular full weight motor carriage in France is \$1,000. Bollée's light carriages sell for \$500 and the motor tricycles made by Dion & Bouton cost \$320 each. These prices are considered too high in France. Another obstacle to the development of the motor carriage industry is the threatened collection by some French towns of an "octroi" or local duty on the kerosene or the like carried by all motor carriages entering the city limits.—Revue Geographique Internationale.

Archæological News.

A mosaic map of Palestine thirty feet long by fifteen broad has been discovered at a village between Salt and Kerak, east of the Jordan. The pavement is believed to belong to the fifth century after Christ.

A bronze figure just discovered in the Amsterdam Museum is believed by the director to be by Michelangelo. It represents King David dancing naked before the ark. Such attributions in Michelangelo's case should be received with extreme caution.

From Greece comes the news of the discovery on the island of Salamis of stones inscribed with epitaphs composed by the celebrated poet Simonides for the tomb of the Corinthians who lost their lives in the great battle of Salamis. With the assistance of the indications contained in the epitaph, a diligent search is now being pursued for the discovery of the tombs of the Corinthians who played a leading part in that historic contest.

Excavations at Athens.—After long delay, owing to the difficulty of buying land in this thickly populated part of the city, Dr. Dörpfeld has resumed his excavations near the Theseion, says The Builder. Another house in the Poseidon Street has been bought and pulled down, and beneath it the south wall of the building he conjectures to be the Stoa Basileios has been laid bare. This building is now seen to consist of a hall nearly square in shape, nine meters in breadth. Its east side has a portico, and from the dowel marks in the stylobate of this portico it is clear that it had six columns. The plan is obviously such as we are accustomed to associate with a small temple, but against this view and in favor of the Stoa Basileios identification are two main arguments. First, the square-shaped hall has in its north wall a small door, a thing unprecedented so far in a Greek temple, and secondly, though this argument is, of course, less strong, topographical considerations are against it. Dr. Dörpfeld himself still clings to the view that the building is the Stoa. The masonry points to the end of the sixth or beginning of the fifth century, and for this date the size of the building is adequate for the official seat of the Archon Basileus. Further, there is a basis set against the back wall that would serve well as the foundation of the altar, which must have stood in the Stoa. South of the building a broad stairway leads up to the Theseion. We hope some more decisive evidence may come to light, as the identification is of great topographical importance.

How Tomatoes are Preserved in Italy.

In every house and cottage the preserving of tomatoes is carried on. Terraces, balconies, and even the flat roofs of the houses are half covered with plates containing the deep-red substance. After gathering, the tomatoes intended for preserving are spread out for some hours in the sun till the skin has somewhat shrunk. They are then passed through a sieve so that they may be freed both from seeds and skins. As they contain a large proportion of water, the substance which has been passed through the sieve must be hung in bags, from which the water exudes, and soon a pool of dirty-looking water is formed beneath each bag. Strange to say, it is in no way tinged with red. The mixture which remains in the bags has the consistency of a very thick paste. It is then salted, the proportion being a little less than an ounce of salt to a pound of preserve. The process now requires that it should be spread on flat plates, exposed to the sun, and stirred from time to time with a wooden spoon, so that the upper part may not form a crust, while underneath it remains soft. It is a picturesque sight when the women are to be seen flitting about on their roofs and terraces, attending to their deep-red preserve, their colored handkerchiefs flung on their heads to screen them from the rays of the burning sun when it is at its fiercest. In the evening the contents of the various plates are taken in and stirred up together, for if moistened by the night dew the whole would be spoiled. After being exposed to the sun for seven or eight days, the same process being repeated each day, the preserve is finished and placed in jars for winter use.

Though it is used by all classes of persons, it is more necessary to the poor than to the rich, for the latter can make use of the fresh tomatoes preserved in tins. Tomatoes may be tinned whole, as we know from those usually imported into England from America. But in Italy the fruit is usually passed through a sieve, the pulp being then placed in tins, which are immediately soldered down, and then put in boiling water for five minutes. The original flavor is thus retained. The cost of a small tin is half a franc. So it is, as a rule, beyond the means of the poor. The price of the preserve is seldom more than sixteen cents a pound, and a little of it goes very far; but those who are thrifty take care to make it for themselves, the cost then being absolutely insignificant. It is chiefly used by them for flavoring their macaroni in the winter; in fact, there are very few dishes which are not improved by a little tomato preserve, and it finds favor in all classes.—Chambers's Journal.