SCIENTIFIC AMERICAN

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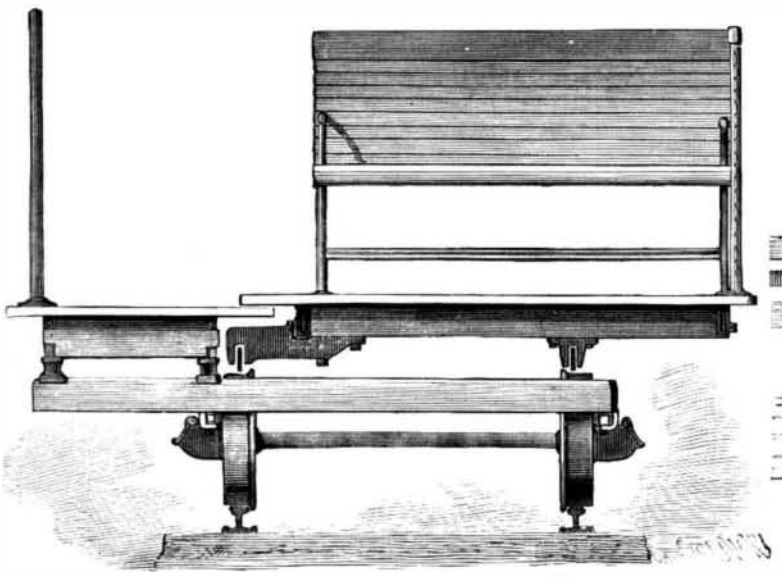
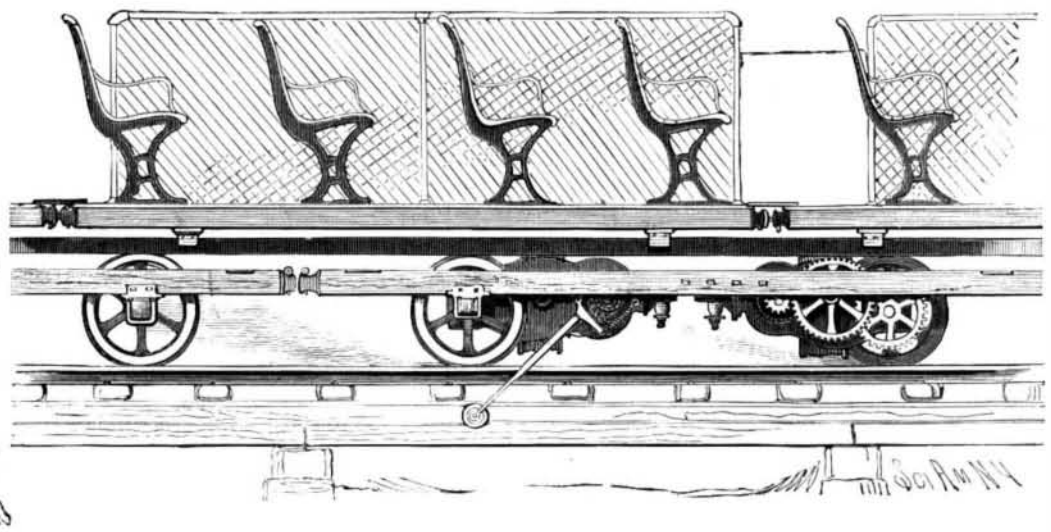
THE TRAVELING SIDEWALK.

On a section of the World's Fair grounds at Chicago there is now being operated, on an endless elevated railway track, elliptical in shape and 900 feet long, a traveling sidewalk, a portion of which moves at the rate of six miles an hour, while another portion by its side moves three miles an hour. The whole structure is under cover, as shown in the principal view below, and the system, which is a patented one, has been put in operation as a test of its practicability by a company of which Arnold P. Gilmore is president and O. Chanute vice-president. The slower-moving platform, as shown in the end view, is carried at one side on a frame of 2¼ inch by 6¾ inch pine sills, from the cross beams of which depend boxes in which are journaled the wheel axles, the wheels being 18 inches in diameter with 3 inch tread, and running on an ordinary T rail track of 3 foot gauge, while the faster-moving platform, extending slightly over the edge of the first one, is carried by two flexible steel rails resting directly upon the peripheries of the wheels. The rail is held



END VIEW OF MOVABLE PLATFORMS.



SIDE VIEW OF ELECTRIC MOTORS.

THE WORLD'S COLUMBIAN EXPOSITION—THE TRAVELING SIDEWALK NOW IN OPERATION.

loosely in a shoe or socket in each cross beam, and the weight of the platform, whether loaded or empty, presses upon the rail sufficiently to give the necessary friction to move the load. The rails are of rolled steel, 4 inches high and half an inch thick, and are made in lengths of 30 feet, joined to make a continuous rail the entire length of the road.

The shoes are made of casehardened steel, and the rail slot has an opening of five-eighths of an inch, allowing an eighth of an inch play to the rail for lateral motion in rounding curves. The difference of speed of the two platforms arises from the fact that the top of the moving wheels, on which the flexible rail travels, has a forward motion twice as fast as that of the axles, from which the slower-moving platform is supported, and this ratio of one-half difference in speed of the two platforms would be maintained with wheels of any size. The platform moving at the rate of three miles an hour adjoins a stationary platform, from which one can step on to the movable platform without jar or inconvenience, as almost any one readily walks at this speed, while no greater change is felt in stepping from the slow to the faster moving platform, on which are stationary cross seats. There are gas pipe posts at intervals of 12 feet on the slower-moving platform, for the convenience of any one desiring such assistance in stepping from the stationary platform.

In this construction it will be noticed that the moving sidewalk and the sidewalk car do not stop at all, the differential speed allowing the passenger to readily and conveniently get off at any time, while the travel of the car is continuous, the passenger stopping himself instead of the car. With the six-mile continuous speed thus obtained it is claimed that this method offers great advantages for the moving of large crowds over short distances, where the traffic is constant, and this method has been proposed for transporting visitors about the Fair grounds during the Exposition period.

The motive power is electricity, furnished by a Thomson-Houston generator of 107 horse power. There are three trucks provided with two 15 horse power Thomson-Houston motors, each handling 25 platforms, the platforms being each 12 feet long, and each connected with its predecessor and trailer by an ordinary pin coupling. The current is conveyed by a trolley wheel and pole from the feed wire beneath the platform, the return current being through the rails. The greatest speed which has been attained on this test structure is eighteen miles an hour. The cost of constructing a sidewalk railroad of this kind is evidently far less than that of the usual elevated railroad, and, as there are no stops, the power required to operate it would probably be much less than half of that of the present system for the same volume of traffic. The section now running is said to be practically noiseless.

Improvements in the Manufacture of Aluminum.

The Thowless Aluminum Works, Newark, N. J., have lately begun operations in the production of aluminum under the process of Mr. Orlando M. Thowless. The success of the trials of the new method gives rise to the expectation that a new industry has been permanently established, which will rapidly assume great and important proportions.

By the new process the inventor makes metallic sodium from caustic soda, and makes it so cheap that it can be sold for 7 cents per pound, while it has so far sold for $1 per pound. In making the aluminum, the new process takes a quantity of caustic soda, and while it is in a heated state it is passed into a retort made of iron, and which has been previously charged with carbon, either in the form of gas retort carbon or commercial charcoal. An immediate disassociation takes place, forming a sodium vapor, which is allowed to pass off through a conducting pipe, and this vapor as it condenses forms the metallic sodium. In the next state in the process the aluminum material, which is cryolite or bauxite, and preferably the latter, is melted in clay crucibles until it is a bright red, when the metallic sodium is placed at the end of a long iron hook and dipped and stirred in the hot molten material until it has been melted too, and made part of the heated mass.

A rapid chemical action is the result, in which the aluminum is formed in the crucible, and after it is decanted into cold iron pots, the light metal rises to the top, and when cool it is separated and then recast into any desired shape or form.

Removal of Eugene Blackford from the New York State Fish Commission.

It is with much regret that we have to note the retirement of Mr. Eugene Blackford from the New York State Fish Commission. For twelve years Mr. Blackford has held this position without compensation of any kind and rendered inestimable services to the State in the matter of the preservation of its fish, care of the State hatcheries and similar work that fell to his charge. His practical knowledge of the subject and devotion to the objects of the commission it will not be easy to replace. His services have received the fullest acknowledgment from sportsmen and others interested in the preservation of game and food fish.

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(Illustrated articles are marked with an asterisk.)

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For the Week Ending January 16, 1892.

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THE AMERICAN CHEMICAL SOCIETY.

In the columns of the SCIENTIFIC AMERICAN have appeared notices of the three preceding general meetings of the American Chemical Society, that have been held respectively in Newport, Philadelphia, and Washington. It is therefore especially desirable that space should be given to the latest and the largest as well as the most representative gathering of chemists that has as yet been held in this country.

At the Washington meeting held in August last, immediately prior to the gathering of the American Association for the Advancement of Science, it was decided to convene a fourth general meeting in New York, on December 29 and 30. A committee of arrangements was appointed, of which Professor William McMuthrie was made chairman, and under his direction circulars and announcements were freely sent to chemists throughout the country.

On Tuesday morning, December 29, some fifty or more men gathered in the chapel of the University of the City of New York, and the meeting was formally called to order by the president of the society, Professor George F. Barker, of the University of Pennsylvania. The society was then made welcome to the University by its chancellor, Professor Henry M. McCracken, who referred to the fact that among the honored representatives of science who filled places in the faculty of the University were Leonard D. Gale, who was acting professor of chemistry at the time when Professor Morse, likewise a member of the faculty, was carrying on his experiment that led to the establishment of the electric telegraph. At a later period, John William Draper, the first president of the American Chemical Society, was connected with the University, as were also his two sons, John Christopher and Henry, both of whom are now dead. Professor Barker replied to this address in fitting words, and said that they were indeed in sacred precincts.

The usual business then followed, of which the most important act was the organization of a committee on the revision of the constitution. This committee, of which Professor George C. Caldwell, of Cornell University, was made chairman, has for its duties the revision of the constitution so that the New York Society may be formed into a local section and so that similar action may be taken by the Washington, Philadelphia, and Rhode Island sections.

The reading of scientific papers then followed. Those presented included: "On the Composition of Baryto-Calcite," by Dr. Charles W. Volney; "The Post-mortem Diffusion of Arsenic as the Result of Embalming," by Dr. Charles A. Doremus; "On Disulphotetraphenylene," by C. E. Lineburger; and "Notes on Water Analysis," by Hugh Hamilton. The society then adjourned its formal session and visits were made to Columbia College School of Mines, where Professor Charles F. Chandler received the scientists and conducted them through his museum of economic chemistry. Subsequently a visit was made to George Ehret's brewery, where, after a thorough inspection of the plant, the chemists were entertained in the reception room of the brewery with a lunch and samples of the beer.

The second session began on Wednesday morning, with the reading of a very able paper entitled "Advances in the Fractional Analysis of Silicates," by Prof. Frank W. Clarke, and followed by papers on "An Alchemical Chart," by Professor William P. Mason, and "The Properties of Matter considered as Periodic Functions of the Atomic Weight," by Professor Albert R. Leeds. A recess was then taken in order to partake of a luncheon which was provided for the visiting chemists by the courtesy of the authorities of the University.

On reassembling, various matters of business were taken up, including a request from Dr. Alfred Springer for a charter to establish a local section of the American Chemical Society in Cincinnati, which was granted. He also asked the society to recommend a standard method for the analysis of milk, but, after considerable discussion, it was decided, on motion of Professor Caldwell, that "it was inexpedient to indorse any particular methods of analysis." A motion was presented by Professor McMuthrie that "a committee of five be appointed by the chair to arrange for a general meeting of this society, to be held in Chicago, in the summer of 1893, and to offer the co-operation of this society to the authorities of the Columbian Exposition in arranging for an international congress of chemists." This was carried, after some interesting discussion, in which the representatives from Chicago took part, and Professor McMuthrie was duly named chairman of the committee.

An election for officers had been in progress during the morning, and the tellers announced the following result: For president, Professor George C. Caldwell, of Cornell University. For vice-presidents, Professor Edward S. Wood, of Harvard University; Dr. Charles B. Dudley, chemist of the Pennsylvania Railroad; Professor Edward Hart, of Lafayette College; Professor A. A. Breneman, of New York City; Professor Albert R. Leeds, of Stevens Institute of Technology; and Professor Elwyn Waller, of Columbia College School of