THE ICE PLANE.

When severe cold comes on suddenly in calm weather the lakes and ponds rapidly freeze, and the surface, which is as smooth as that of a mirror, makes the hearts of the lovers of skating glad. But it sometimes happens that the wind intervenes during the period of cold necessary for the formation of ice, and the motions given the sheet of water produce an irregularly frozen surface that presents changes of level of several inches, which are very troublesome to the skater. Upon rivers, where the complete solidification of the mass of liquid scarcely occurs until after a drifting of some days, the irregularities are still greater. An apparatus—a sort of large plane—has been devised for removing such irregularities and smoothing the ice, so as to adapt it for the exercise of skating, whatever be the conditions, moreover, under which the congelation has taken place. This apparatus, called a "glaciplane," we have seen used upon the skating pond of the Bois de Boulogne, at Paris, and have thought that it might render service elsewhere if it were better known.

ICE PLANE USED UPON THE FROZEN LAKES OF THE BOIS DE BOULOGNE.

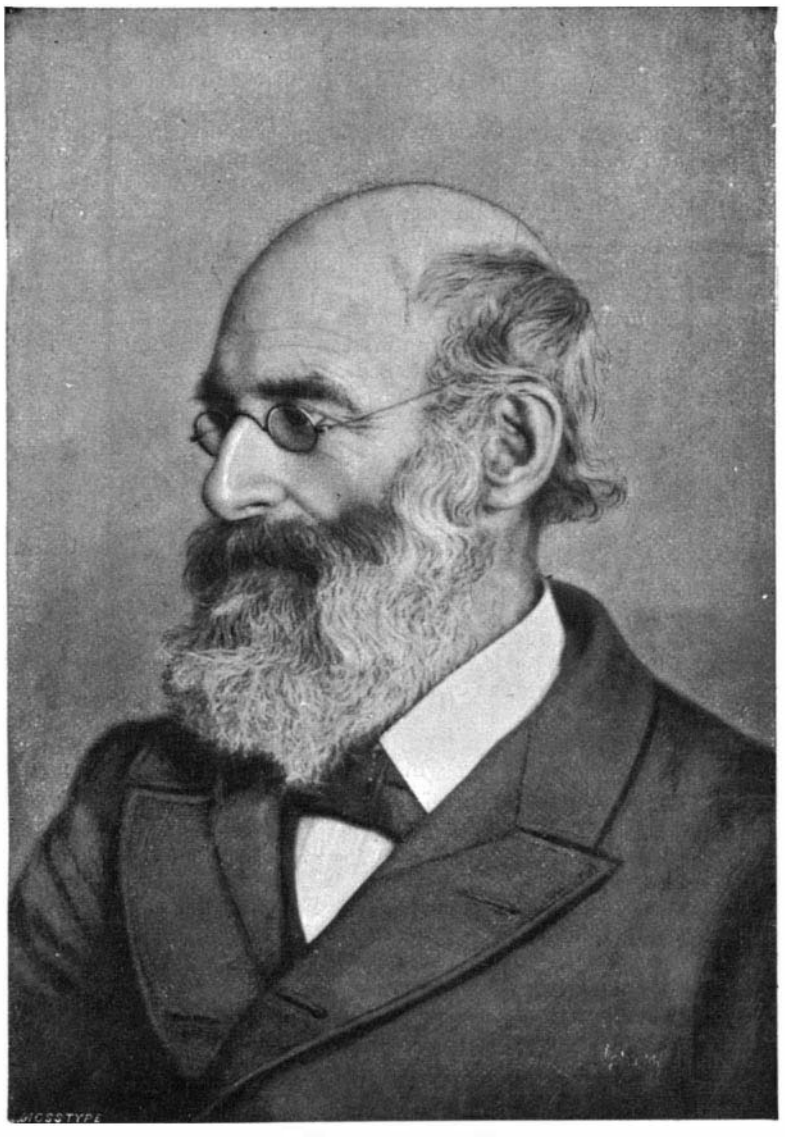
As shown in the accompanying engraving, the system consists in pushing forward a steel blade properly inclined to cut away everything that exceeds the desired level.

This blade is mounted in front of a wooden frame provided with crossbars that allow six men to push it, while at the same time bearing upon it slightly. The inclination of the blade is regulated by means of set screws that serve for mounting it, and afterward by causing the general position of the frame to vary with respect to the plane of the ice. To this effect, the rear rests upon the frozen surface through a single point only, a sort of wooden shoe, which, by means of a small winch, may be lifted to a varying degree. A man standing in the rear attends specially to this work, while another one, by means of a bar, does the steering. In order that an adequate thrust may be given, the men whose duty it is to maneuver this gigantic plane are provided with special calks, which are fixed against the sole of the shoes by straps. These calks consist of a piece of iron whose bottom is provided with blades toward the heel and toe, and which is jointed in such a way as to allow the foot to have a certain amount of flexibilty and to move without fatigue.

With a force of strong and well trained men it is possible in a few hours to render a very bad sheet of ice sufficiently level to allow skaters to perform their evolutions thereupon easily and without danger.—La Nature.

ROYAL E. HOUSE.

We republish from the SCIENTIFIC AMERICAN the portrait of the distinguished inventor, Royal E. House, whose decease, at the age of 81 years, we have already chronicled. The following interesting account of his achievements is by Mr. Franklin L. Pope, and is from a recent number of the Electrical Engineer: Royal Earl House, who died at his home in Bridgeport, Conn., on February 23, at the advanced age of 81, was, in many respects, one of the most remarkable of the galaxy of American inventors whose achievements have rendered the annals of the nineteenth century illustrious. In the limited space at disposal, it is impossible to give more than the briefest outline of his singularly interesting career. Born in Rockingham, Vermont, September 9, 1814, he removed, while yet young, with his parents to Choconut, a small hamlet in Susquehanna County, Pennsylvania, a point farther remote from civilization at that date than is Alaska to-day. His inventive talent first manifested itself in the construction of a submerged water wheel for a saw mill, which embodied a principle since used in many forms, and known as the "scroll wheel." Early in the forties, he went to Buffalo, N. Y., with the design of studying law with a relative of his family residing there, but having gained access to a limited number of scientific books, he became interested in electrical researches, and these soon became the absorbing passion of his life. Returning to his home, he conceived and worked out in his own mind, without the slightest knowledge of what had been done by others, the scheme of an electric telegraph. From the outset, his design was to produce a record in printed Roman characters, and all his efforts were devoted to that end. He possessed the unusual and remarkable mental capacity of originating and designing the most complicated mechanical structures, in all their parts, details, combinations and dimensions, without embodying them in models, drawings or other tangible form. In this way he thought out his first printing telegraph, which was adapted to work with two independent circuits, one of which was made to turn a type wheel step by step, while the other served to give the impression of each successive letter then presented, precisely as is done in many of the more recent "stock tickers." Having fully completed the design in his mind, House came to New York and had his machine constructed piecemeal at two or three different shops, afterward assembling the parts together with his own hands. This apparatus was exhibited in successful operation at the Fair of the Mechanics' Institute, of New York, in the basement of the City Hall, in the fall of 1844, only a short time after the establishment of Morse's first line between Baltimore and Washington, and long before this had been extended to New York. Mr. William Ballard became interested in the invention, and furnished House with the necessary means to perfect the invention. When completed, which was not until several years afterward, it proved to be a perfect marvel of mechanical skill and ingenuity, and was demonstrated to be capable, under favorable conditions, of printing messages in plain Roman characters at the rate of more than fifty words per minute. Capitalists ultimately became interested in the scheme, and between 1847 and 1855 an extensive range of telegraph lines was erected, extending from New York along the seaboard to Boston and Washington, and west as far as Cleveland and Cincinnati, on which the House instruments were employed with great commercial success. Many original details of the line construction were designed and carried out by Mr. House, and, viewed in the light of later knowledge, they stamp him as an electrician whose practical attainments were vastly in advance of his time. He preferred to employ stranded wires of great conducting capacity, insisting that a much higher speed of transmission by his system could be obtained in this way than by means of solid wires of equal resistance, a theory which was scouted by electricians for nearly half a century, but which is now universally admitted to be true. He designed and constructed the first successful long span river crossing at Fort Lee, in 1849, carrying two piano wires on masts 400 feet above the Hudson River, in a span of over 4,000 feet; thus for the first time establishing permanent telegraphic communication between New York and Philadelphia. He designed an insulator having a glass screw-socket to engage with a thread cut upon the top of the pole. When the glass manufacturers insisted that it was impossible to make it, he at once designed a machine for performing the operation, which, in its essential principle, is in use to this day. By his wonderful powers of observation and invention, he was able to overcome every difficulty as it came up, and no electrical or mechanical problem ever appeared to baffle him. Suits were brought in 1849 by the owners of the Morse inventions against companies using the House machine, alleging infringement of their patents, but the combined technical and legal skill of Counselor George Gifford, the forensic pyrotechnics of Rufus Choate, re-enforced by the consummate expert knowledge of House himself, were too formidable an opposition to be readily overcome, and in June, 1850, in the United States Circuit Court, in the District of Massachusetts, Judge Woodbury announced his famous decision, refusing an injunction; a most notable victory for the eminent inventor and his associates, especially relished by House in view of a remark which had once been made by Francis O. J. Smith, one of the principal owners of the Morse patents, that he could drive his old Durham bull from New York to Boston with a message tied to his horns quicker than it would ever be sent by House's printing telegraph.



ROYAL E. HOUSE.

After the general consolidation of competitive telegraphic interests, which took place about 1860, the House apparatus gradually went out of use, the simplicity and cheapness of the Morse system, and more especially the vast improvement in the skill, rapidity and accuracy of the operators over those of early days, rendering the use of the latter more profitable to the companies. Mr. House himself, in possession of a competency acquired from his invention, removed to Binghamton, N. Y., where he lived in comparative retirement for many years. In 1865 he appeared at the Patent Office with a most elaborate and ingenious system of automatic sound telegraphy, obviously the fruit of years of laborious study, and embodying features which have proved of extraordinary value in other systems of intercommunication, but which, as a whole, never met with the acceptance of the commercial telegraphic interests of the country. About ten years