DEPARTURE OF THE BALTIMORE FOR SWEDEN.

The imposing ceremonials which took place in this city August 23 last, in homage to the memory of the late Captain John Ericsson, were brought to a close by the final act of transferring the casket containing the precious remains to the decks of the war ship Baltimore. The scene is depicted in the illustration upon our first page. A procession of citizens, some six thousand in number, followed the hearse from the cemetery down Broadway to the Battery. It was a solemn and impressive spectacle. Among those in the line were the members of the American Society of Swedish Engineers, the American Society of Civil Engineers, the American Society of Mechanical Engineers, the Marine Society of New York, the workmen of the Delamater Iron Works, the Farragut Naval Veterans Association, lodges of Odd Fellows, marines, and officers, naval and military, of the United States.

The scene from the Battery, when the procession reached that point, was striking and animating. A fleet of national war vessels lay extended over the bay in a long line, the Baltimore at the head, while the adjacent waters were covered with steamers and vessels of every description, all crowded with spectators.

From the landing at the Battery the casket was conveyed on a small government steamer to the side of the Baltimore, and then reverently raised by tackle from the yard arm to the deck of the ship, the booming of minute guns on board the Ericsson monitor Nantucket being maintained throughout this solemn proceeding. The flag signals for sailing were soon after this displayed, the anchors were raised, and the stately Baltimore began her ocean voyage to Sweden. As she steamed slowly past the line of war vessels each one delivered its salute of twenty-one guns, and the same tokens of honor came from the embrasures of the various fortifications as the ship proceeded down the bay and went out to sea. John Ericsson was born in Sweden, July 31, 1803, and died in New York, March, 1889, at the age of nearly 86 years, of which about half a century was spent in this his adopted country. He was a man of wonderful intellect and remarkable achievements. His name is indissolubly connected with the early history of the locomotive and with the practical application of the propeller to ocean steamers. His great services to the people of this country in designing and realizing at a critical moment the turreted war vessel can never be forgotten.

THE NEW STATE HOUSE AT INDIANAPOLIS, IND.

INDIANAPOLIS MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

BY H. C. HOVEY.

Nineteen years ago the A. A. A. S. met in the city of Indianapolis. Since then its meetings have been scattered annually from Montreal to Minneapolis, and as far south as Nashville. Meanwhile great changes have taken place in all parts of the country, and nowhere have these been more marked than in the Hoosier State. One of the most agreeable and noticeable improvements is the State House itself, where the daily meetings of the Association have been held, from Aug. 19 to Sept. 1. Any one who ever saw the dingy old capitol, in whose halls we convened two decades ago, would appreciate the transformation that has been effected by a happy combination of money, brains, and integrity in using the finest building materials obtainable in constructing the capitol, magnificent in its dimensions and unsurpassed in the thoroughness and perfection of its construction. As this edifice is a model in its way, it may be well here to give some of the principal facts as they were stated to me by Prof. John Collett, to whom, together with Gen. T. A. Morris, Gen. John Love, Messrs. Nelson, Seward, and others associated with them as State House commissioners, are chiefly due the admirable results embodied in this form.

In the center of a park of nine acres, bounded by four broad avenues and located in the heart of a city of 125,000 inhabitants, rises a lofty and stately structure whose crowning glory it is that from its massive foundation to its gilded dome every foot of it is honest work, all paid for within the original appropriation made by a vote of the legislature. The length of the building is 500 ft., its width 283 ft., its height 235 ft., and the portico 100 ft. high. The style is Neo-Grac, with interludes of Victorian plainness. The foundation and solid walls laid in hydraulic cement are claimed to have strength enough to resist cyclonic or seismic action, and the building in every part is so absolutely fire proof as to dispense with the need of insurance.

The main material used is Indiana oolitic limestone, which contains 98 per cent carbonate of lime, and resists heat or cold from plus 100° to minus 30° F. Glacial tracks down to the finest hair lines remain upon its exposed surfaces unchanged during the centuries untold that have passed since they were made. It was all selected from the quarries of Monroe and Lawrence counties, Ind. The workable beds are from 10 to 100 feet thick and are easily cut by steam channeling machines. The stone is homogeneous, grayish white, with a density of 150 pounds per cu. ft. and a crushing weight from 10,000 to 26,000 pounds to the inch. Since its introduction into the State House the demand for it has increased a thousand fold, and the railroad facilities are insufficient to carry the burden. Specimens of this stone may be seen in some of the finest buildings on Wall Street, New York, in the Vanderbilt palace on Fifth Avenue, in some of the best buildings on Chestnut Street, Philadelphia, in the new State House at Atlanta, Ga., and the Cotton Exchange at New Orleans, whose outside statuary groups remain perfect where neither marble nor granite would endure. It is estimated that during the four years since the State House was completed it has paid for itself ten times over as an advertisement of the resources of the State, especially in the items of stone, lime, cement, and hard woods. The rooms are finished with white oak, quartered, no other kind being used in the building. The stone work throughout is dressed to faced edges, from ¼ to ½ inch joints, so there is no possibility of cracking, as occurred in the dome of the Connecticut capitol, which had to be filled with type metal to keep it from falling. Here the dome is as solid as the natural rock, and the commissioners defy any visitor to find the slightest crack or sign of settling in any portion of the immense structure. The granite foundation stones and numerous polished granite shafts were brought from Maine, the white marble for tablets and statuary from Vermont; the clouded and variegated marble for the columns for the magnificent colonnade, visible at one glance through three stories, are from Tennessee. Every block of stone in the building passed under the inspection of Prof. John Collett, who inexorably rejected whatever was suspicious or in any way objectionable. There is not a block of stone in the whole building taken from a quarry where either powder or dynamite had been used.

Begun in October, 1878, it was finished October, 1888, and has now been in constant use for four years, during which time not one dollar has been spent for alteration or repairs. The original appropriation was two million dollars. Costly substitutions were made as the work progressed, granite for brick, marble for limestone, solid oak for cheaper woods, and yet the total cost was but $1,980,969, thus coming considerably within the limit set. This unusual and honorable result is due to the integrity, skill, and fidelity of the commissioners.

Among the merits especially appreciated by the scientific visitors to the capitol may be mentioned its perfect water supply, perfect ventilation—enabling members to keep awake during the dullest discussions. The royal commissioner of Austria, in visiting this State House, remarked that in all his travels he had never seen a large public building, temple, or cathedral, that did not have many dark, dirty recesses; but he found here that the corridors were so lighted from immense skylights that every nook and corner was flooded with light: while every business room was, at some hour of the day, visited by sunshine. If undue space seems to have been given to the description of this spacious and commodious building, my excuse is that the Association was so delighted with it as to spend all their spare time either in admiration or praise; and much of the success of this meeting has been due to the fact that it was held in an edifice where there was room for all the sections within easy reach of each other and with every facility for carrying on their special sessions to advantage. The citizens of Indianapolis, moreover, were justly proud of their guests, and did everything in their power to make the meeting the most brilliant and enjoyable the body has ever held. When Lieut.-Governor Chase, in his hearty address of welcome, declared that for the occasion he put the 36,000 square miles of the commonwealth of Indiana at the disposal of the A. A. A. S., every citizen who heard him said amen. The meeting for organization and welcome was held in the Hall of Representatives, with several hundred members of the A. A. A. S. present, besides a sufficient number of citizens to occupy every seat and overflow into the lobby. The opening prayer was offered by Dr. Van Anda, after which the retiring president, Prof. T. C. Mendenhall, resigned the chair to Prof. G. L. Goodale of Harvard. Dr. G. W. Sloan, in behalf of the local reception committee, made brief remarks, and introduced Lieut.-Gov. Chase and Mayor Sullivan, who welcomed the Association in behalf of the State and city.

After the general session, addresses were made by the vice-presidents before their several sections. In section "A" Prof. S. S. Chandler made an address in regard to the community of nature between the variable stars and the other stars of our sidereal system; their number, size, color, and fluctuations of brightness. In section "B" Prof. Abbe urged a broader study of terrestrial physics, as distinguished from the line of molecular physics, to develop which many laboratories and professorships have been established. Under the general head of geo-physics he would include vulcanology (the study of interior depths), geogomy (the study of the earth's crust), magnetism, the aurora borealis, gravitation, attraction, oceanic waves, currents and tides, seismology, and meteorology. In section "C" Prof. R. B. Warder spoke on recent theories of "Geometrical Isomerism," illustrating his paper by models and diagrams to explain the campaign that is being carried on against the stronghold of atomic mysteries. In section "D" Prof. J. C. Denton, of Hoboken, N. J., gave a very interesting history of "Attempts to Determine the Relative Value of Lubricants by Mechanical Tests." He illustrated, in a unique manner, by means of the stereopticon, experiments with crude and refined oils in their effect upon the rubbing of wearing surfaces; and in explanation of the paradox that overheated journals may be relieved by applying sand or emery to the bearings. In section "E" Prof. J. C. Branner spoke at great length on the "Relations of State and National Geological Surveys;" which as he claimed should stimulate each other and encourage private enterprise and investigation. With a splendid equipment of men and means, the respective work of the various surveys ought to be more sharply defined to prevent a waste of effort. As it now is, much geological literature is practically worthless, being an incumbrance rather than a help. Many errors and annoyances might be prevented by skillful and cordial co-operation. He made a special plea for utilizing local talent, even of a non-professional sort, under the direction of competent conductors. In section "F" Prof. Minot treated a subject of special interest to biologists, "The Phenomena of Old Age." He entered on a large field of statistical inquiry, with hints as to how it might be worked, and its materials made to yield valuable results. He made the singular statement that there is, scientifically speaking, no period of vital development, but only a steady decline from birth onward. There is much to be done in the domain of biology to solve the problems of reproduction, heredity, sex, growth, variation, death, and the general economy of nature, in order to explain the phenomena under consideration.

In the section of economic science and statistics, Hon. J. R. Dodge delivered a very careful and original address on the American standard of living and the advantages enjoyed by the producing classes of the

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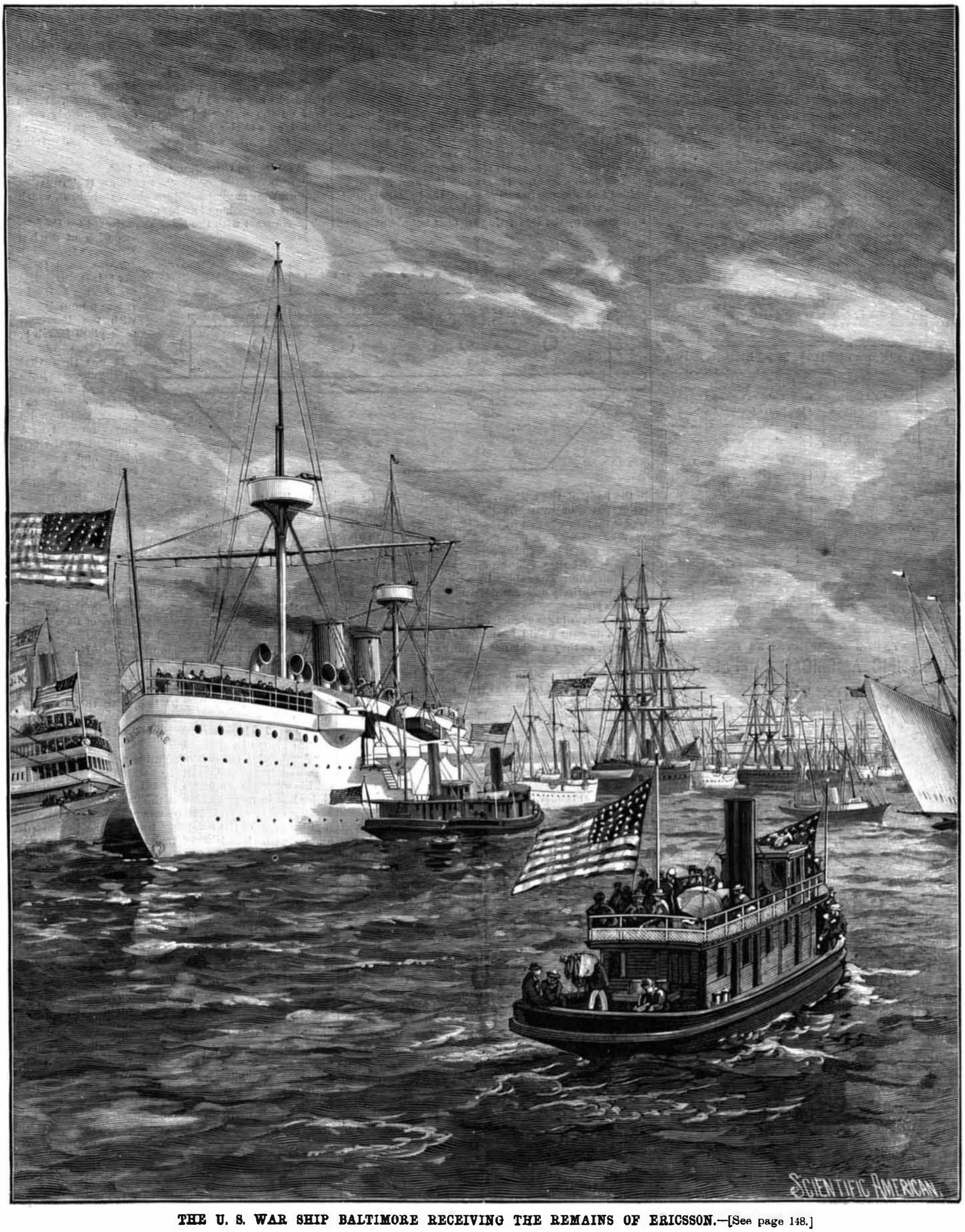

THE U. S. WAR SHIP BALTIMORE RECEIVING THE REMAINS OF ERICSSON.—[See page 148.]