

starcher, shirt ironer, body ironer, collar-and-cuff ironer, band ironer, sleeve ironer and an underwear ironer. Motors varying in size from one-eighth to one horsepower drive individually and by direct connection all these machines. A number of the small ironing machines are electrically heated.

In the entire building the output of electric motors, ranging in size from one-eighth to forty horsepower, aggregates 450 horsepower. In addition to the motor applications already mentioned there are motors used to operate two revolving doors at the street entrances.

The revolving wings for both entrances are constructed of bronze and are of the collapsible, panic-proof type. They are furnished with a motor outfit placed over the tops of the doors in such a manner that the revolving wings may be folded and removed to one side of the opening. The electrical outfit can be arranged in such a manner that an attendant at the door can, at will, by the pressure of a push-button, start or stop the door. The motor used is a one-fourth-horsepower, shunt-wound Roth motor. It drives through a five-eighths round twisted endless belt running from the grooved motor pulley over two idler pulleys, which change the horizontal-shaft drive to a vertical drive. The driven pulley is geared to a spur gear on the door to revolve it at a maximum of seven revolutions per minute. A speed regulator is provided for reducing the speed if required. By lifting the center gear out of mesh with its driver, the door is allowed to operate perfectly free.

The silent system for calling carriages and automobiles is another feature of the electrical equipment of the Blackstone. The calling is done by electric signals installed by the Chase Electric Company, Chicago.

On each end of the porte cochere at the Hubbard Court entrance there is a nest of specially arranged receptacles, concealed by a leaded-glass face. Controlling wires run into the lobby of the hotel to a typewriter-like switchboard having three banks of keys. To operate the call, the keys on the keyboard are pressed and corresponding numerals flash on both signs. By pressing a key to the left of the keyboard, the contacts are released and the numerals disappear.

All of the motors installed in the hotel were furnished by the Allis-Chalmers Company, Milwaukee, Wis., and

the Ward Leonard Electric Company, Bronxville, N. Y., supplied the controlling apparatus for the motors. Marshall & Fox were the architects and L. L. Summers & Company their consulting electrical and mechanical engineers. The hotel is owned by the Drake Hotel Company and Tracy C. Drake and John B. Drake are president and vice-president respectively.

#### George Westinghouse.

E. J. Edwards, a journalist who is known for the authority and accuracy with which he writes, presented a study of George Westinghouse in the *New York Times* of Sunday, August 7, 1910. Among other interesting things, Mr. Edwards said:

George Westinghouse is surely to take rank with a little group, not more than seven in all, whose inventive genius, whose stupendous gifts of imagination, have made the material development of the United States in 100 years possible. This thought was voiced in a statement made to the present writer by the late Abram S. Hewitt, himself a masterly judge of the relations of great events, each to the other, and all to the material prosperity of this country.

Mr. Hewitt said: "The discoveries and inventions of Sir Henry Bessemer and the apparatus invented by George Westinghouse made possible the opening up of the Greater West to exploitation and development. We could not have furnished the railroad facilities adequate for the agricultural commerce possible in the Greater West had it not been for the steel rail and the air-brake."

The ablest of the students of our material development, from the beginning until at last we have become a true world power, are inclined to the opinion that Eli Whitney, Robert Fulton, Dr. Morse, George Westinghouse, Thomas A. Edison, Cyrus McCormack and Prof. Bell, together, represent the wonderful intellectual power which, having mastered science, each in his particular field, led it captive, so that it served the welfare of the world.

Mr. Westinghouse, undoubtedly, is in the public mind chiefly associated with the invention of the air-brake. And this is possibly due to the fact that something of romance and much of surprise were associated with the first announcement that a young man, only twenty-one years of age, just out of the Union Army, had brought to the authorities of the Pennsylvania Railroad at Pittsburg an apparatus which, he said, would enable a locomotive engineer completely to control a train.

The invention was regarded as completely original, as was the apparatus of Morse of utilizing the electric current so that it could instantaneously convey intelligible messages for a distance of many miles. And it is probably correct to say that, in the first inspiration and in the working out of the nascent idea, as well as in the methods that were adopted to bring the apparatus into general use, Mr. Westinghouse revealed the full power of his genius.

But, although the public will probably always associate Mr. Westinghouse especially with the apparatus by which railway trains are controlled, it is probable that from the intellectual point of view and also the temperamental, his achievements in the field of electricity are to be regarded as

the greatest of all his works. For, in addition to the conception of apparatus for the utilizing of a certain form of electric energy, which had always been regarded as of relatively small commercial value, Mr. Westinghouse was compelled to spend many years in overcoming both commercial and scientific objections to the utilization of the electric energy of alternating currents of high voltage through the static transformer, so that this energy becomes equivalent energy at a lower voltage.

He, working in co-operation with others, discovered how it would be possible to make an inert mass of metal capable of transforming alternating currents of 100,000 volts into currents of any required lower voltage, doing this with the loss of only a trifle of the energy. To have done this was to discover one of the greatest agents of modern civilization, provided the apparatus could be devised by which the discovery could be utilized.

This is what Mr. Westinghouse, in association with some others, did; and it is one of the answers those who know of his achievements and know the man make to the accusation that he lacks high ability as a man of finance, that he was able to promote—using that word in its best meaning—this discovery, so that at last it represents probably an actual capitalization, directly and indirectly, of nearly \$100,000,000.

The air-brake and the Westinghouse apparatus for utilizing the alternating current of electric energy represent together a capitalization of nearly \$130,000,000, if we include in this estimate the various subsidiary and allied industries which sprang from the original invention.

Of course, it is impossible to trace accurately the increase of material wealth to its sources, but there can be no doubt that Mr. Westinghouse's achievements, first through his inventive genius and afterward through his ability to secure capital, establish plants, and develop business, must have been of benefit to the American people by an amount estimated in money value as many hundred millions of dollars.

In intellect and temperament Mr. Westinghouse may be easily classed with what is called the romantic type as distinguished from the phlegmatic. Were he of the latter type he unquestionably would have been numbered with the great intellects like Faraday, Mayer, and Helmholtz, as well as Joseph Henry, who were exclusively occupied with the business of research, the fascinating attempt to penetrate the mysteries of Nature, compelling her to yield up some of her secrets, and having done this, then to venture still further excursions in this mystic field.

To the romantic type belong in our day men like Kelvin, Edison, Bell; and, in the past, Davy, Liebig, Fulton, Eli Whitney, and James Watt. The phlegmatic temperament produces the cold-blooded, absolutely abstract intellectual processes in which imagination has no part. The romantic type is especially distinguished for enthusiasm and for imaging and imaginative power, such as in more primitive days, and in the ages before science was greatly utilized, produced the great works of imaginative literature, of art, and, to some extent, of music.

The Tech Wireless Club of Massachusetts Institute of Technology and that of the University of Pennsylvania have formed an intercollegiate association, and Cornell and Princeton will probably join it next year. These clubs have already done much to prevent the interference of amateurs with government messages.