

OUTLOOK FOR YOUNG MEN IN PHYSICS

HENRY CREW.

Mr. Chairman and Gentlemen: Sudden and unexpected as this call is, I feel bound by the courteous manner in which the invitation is extended, to respond.

The opportunities offered by the science of physics may for convenience, at least, be grouped under the four following heads:

(1) *Research.*—To him who finds his “manifest destiny” in investigation, the recent discoveries of physical science have vastly multiplied the opportunities for new discoveries. To illustrate: when Hertz in the autumn of 1888 showed us how to produce electric waves, a tremendous field was opened to research. The various properties of waves of different lengths, under different conditions all had to be studied. Every year some new domain of this kind is made ready for occupation by the earnest and serious student.

(2) *Applied Physics.*—For him who has that practical turn of mind which characterized Franklin and has yet preserved an interest in pure science (which also characterized Franklin) there is always a rare opportunity. In the autumn of 1831 Faraday not only discovered the induction of electric currents, but also actually made an electric motor and an electric generator about the same time. But it was not until the late sixties that the dynamo became a commercial success. This delay is typical of the mental hysteresis which generally separates discoveries in physical science from their industrial applications.

It was seven years after Hertz's discovery of electric waves that Marconi showed them to have commercial value; and it has taken practically twenty years to employ them for transatlantic messages. In these intervening periods lie great opportunities for the alert "practical mind."

(3) *Engineering*.—Nearly all the great engineering concerns of America are looking for more men than they can now find of the broadly trained type—men who are acquainted, *at first hand*, with the general principles of physical science. A man may know every machine in the shop of an engineering firm and yet not know how to design a new mechanism to meet a new want or a new circumstance. What is demanded today is, therefore, not so much an acquaintance with present-day practise as a thorough mastery of the fundamental principles of engineering—and these are mainly the principles of physics.

4) *Teaching*.—The high salaries which engineering concerns are offering to men well trained in physical science and to men of executive ability have had the effect to leave vacant many excellent teaching positions in physics. The door is wide open for him who enjoys this line of work and who is willing to leave behind all hope of opulence.