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THE SCIENTIFIC RETROSPECT¹

IN selecting a title for this address at rather short notice, I took the precaution to provide the bow I was drawing (somewhat at a venture) with more than one string. I propose to avail myself of two such strings: first a few remarks on scientific history and secondly a glance at the remarkable way in which our available scientific retrospect has recently been expanding.

We scientific workers are perhaps too neglectful of our past history for the obvious reason that our present is so engrossing. It is a necessity of the game to concentrate attention on the present, and even deliberately to clear the past from our minds; just as in playing cards we must remember the particular hand we are playing and forget those which preceded it. But even in playing cards certain exceptional hands, illustrating a novel situation or calling attention to possible new developments, live in the memory, are described by writers on "bridge," and eagerly read by their readers; and similarly in scientific work there are incidents and epochs which we should do well to recall, and even to keep before our minds, as stimuli to our work or guides in conducting it. May I give a few instances, chiefly from my own department of astronomy?

The name of Kepler is widely and justly known in connection with his three great laws, but he may also be remembered as a man who faced heroically as great a disappointment as a scientific worker can well meet. He thought he had discovered the secret of the structure of the universe and his hopes were completely dashed. His universe was practically limited to the solar system, as Copernicus had explained it, of six planets circulating round the sun each on the surface of its own sphere. The six spheres were a legacy from older conceptions, which Kepler himself was presently to destroy, but in the five spaces intervening between these six spheres, as Copernicus had pictured them, Kepler found that he could fit the five regular solids. Some of you may hear for the first time that there are five regular solids and no more; the number of regular plane figures (triangles, squares, penta-

¹ An address to "scientific workers" delivered during the New York meeting of the American Association for the Advancement of Science, on the afternoon of Friday, December 28, 1928.

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