tionships, it is perhaps of interest to note that Mr. Mumford first went to America with one of the Commonwealth Fund Fellowships, designed for the promotion of "mutual amity and understanding between Great Britain and the United States," after which he was invited to accept the directorship of the Pacific Entomological Survey (*Nature*, 141, 196, 1938). This position he held until he came up to Oxford, at the invitation of my predecessor, Sir Edward Poulton, as a Leverhulme research fellow.

It is to be hoped that this project now being carried on in association with Oxford and Stanford Universities will not only serve the advancement of science as such, but also aid the promotion of cordial relationships between English and American scientists interested in the basic problems of evolution.

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SCIENCE TWENTY-FIVE YEARS AGO

THE RELATIONS BETWEEN ENGINEERING AND SCIENCE[1]

As engineering adopts the knowledge which science has correlated it simultaneously unearths new uncorrelated knowledge. Science indeed correlates this in turn, but not instantaneously, so that engineering has always at its hand both that which science has correlated and its own empirical discoveries which science has not yet had time to arrange. As optimists we may well expect that this uncorrelated knowledge will form a gradually decreasing fraction of the whole, but can we expect it ever to vanish completely? Must not science's approach to exclusive leadership be asymptotic?

We begin to get a glimmering of the vastness of the scheme of creation when we remember that every lengthening of man's artificial vision by means of telescope and camera, every new strengthening of telescope, sensitizing of plate, and lengthening of exposure brings a proportional increase in the number of visible suns, telling us that even at that inconceivable distance we have not begun to approach the limit of the discoverable universe. When we turn from telescope to microscope and thence to the inferred constitution of matter, we find with every new refinement of observation and inference a proportional addition of new wonders, a proportional increment in the complexity of natural phenomena. Hence while we may speculate that, as there must be a place where the stars end, so there must be a degree beyond which the subdivision of matter can not go, and a limit to the number of nature's laws, we may well ask whether either that limit or the limit of stellar space will be reached in that little throb in the pulse of the universe which we call the habitable period of this earth. Will man survive long enough to complete the discovery of all laws, so that no uncorrelated phenomena will remain for the engineer to unearth?

The second of the two considerations which tend to postpone the completion of science's leadership is that the beautiful as distinguished from the useful and the good will increase without limit its demands upon the work of the engineer. Though the beautiful itself should in time be capable of complete mathematical analysis, who shall say that that time, now seemingly so inconceivably remote, can arrive during man's earthly stay?

Henry M. Howe

OUR PSYCHOLOGICAL ASSOCIATION AND RESEARCH[1]

It is our business as individuals and especially as united in this American Psychological Association to use all possible efforts at all times, in all places and in all ways to improve the conditions under which research work is done. Science has doubled the length of human life and quadrupled the productivity of labor. A single advance in applied science, such as the Bessemer steel process or the electromagnet, discovered by Faraday in the only research laboratory then existing, may add annually some two billion dollars to the wealth of the world. The psychological and social sciences have already done their share in freeing us from superstition and unreason, in leading us to tell the truth as we see it and in some measure to see the truth as it is. They have repaid many fold their cost in economic applications. An improvement of ten per cent. in the educational work of this country saves us a hundred million dollars a year. But it is to the future that we look to obtain a control over human conduct corresponding to that of physical science over the material world, and more vital. We must eliminate the incalculable waste of preventable idleness, misfit employment, disease, vice, crime and war; we must divide wealth more fairly and use it more wisely, we must alter fundamentally all our institutions, the family, the church, the school, the

[1] Concluding part of the introductory address of the chairman of the Section of Engineering of the American Association for the Advancement of Science, New York, December 29, 1916, printed in the issue of Science for March 23, 1917.

[1] Concluding paragraph of the address given on the occasion of the twenty-fifth anniversary of the American Psychological Association, New York, December 29, 1916, printed in the issue of Science for March 23, 1917.