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THE PROBLEM OF RADIOACTIVE LEAD[1]

WE meet to-day with happiness which six months ago would have seemed beyond the bounds of reasonable hope. After anxious months, the confidently awaited victory, which last spring still seemed far away, has crowned the cause of justice, truth and liberty. We in America rejoice that this cause is our cause, and that at the most critical time we were able to render effective help to the staunch and brave allied forces which had fought so long and so nobly.

The object of this address is not, however, to appraise the military issues of the great war so fortunately ending, nor to deal with the weighty international problems now faced by the world, but rather to bring before you other considerations, having to do with the advancement of science.

The particular subject chosen, namely, the problem of radioactive lead, is one of peculiar and extraordinary interest, because it involves a readjustment and enlargement of many rather firmly fixed ideas concerning the chemical elements and their mutual relations, as well as the nature of atoms.

Within the last twenty years the definition of these two words, "elements" and "atoms," has been rendered somewhat uncertain, and bids fair to suffer even further change. Both of them are ancient words, and both even a century since had acquired meanings different from those of long ago. Thales thought of but one element, and Aristotle's elements—earth, air, fire, water and the quintessence, derived perhaps from yet more ancient philosophy—were not plentiful enough to account for all the manifold phenomena of nature. Democritus's old idea of the atom was asso-

[1] Address of the President of the American Association for the Advancement of Science, Baltimore, December, 1918.