

Part II:

as it suggested the possibility of producing large amounts of the fissionable plutonium in a uranium pile using plentiful uranium-238 and then separating it chemically. Surely this would be less expensive and simpler than building isotope-separation plants.

Lawrence, demonstrating his characteristic energy and impatience, launched a campaign to speed up uranium research. He began by proposing to convert his smaller cyclotron into a spectrograph to produce uranium-235. Since both the cyclotron and the spectrograph used a vacuum chamber and electromagnet, this conversion would be relatively uncomplicated. Lawrence then took his case to Karl T. Compton and Alfred L. Loomis at Harvard University, both doing radar work for the National Defense Research Committee and benefiting from Lawrence's advice in staffing their laboratories. Infected by Lawrence's enthusiasm, Compton forwarded Lawrence's optimistic assessment on uranium research to Bush, warning that Germany was undoubtedly making progress and that Briggs and the Uranium Committee were moving too slowly. Compton also noted that the British were ahead of their American colleagues, even though, in his opinion, they were inferior in both numbers and ability.

Program Review: Summer 1941

Bush and Lawrence met in New York City. Though he continued to support the Uranium Committee, Bush recognized that Lawrence's assessment was not far off the mark. Bush shrewdly decided to appoint Lawrence as an advisor to Briggs—a move that quickly resulted in funding for plutonium work at Berkeley and for Nier's mass spectrograph at Minnesota—and also asked the National Academy of Sciences to review the uranium research program. Headed by Arthur Compton of the University of Chicago and including Lawrence, this committee submitted its unanimous report on May 17. Compton's committee, however, failed to provide the practical-minded Bush with the evidence he needed that uranium research would pay off in the event the United States went to war in the near future. Compton's group thought that increased uranium funding could produce radioactive material that could be dropped on an enemy by 1943, a pile that could power naval vessels in three or four years, and a bomb of enormous power at an indeterminate point, but certainly not before 1945. Compton's report discussed bomb production only in connection with slow neutrons, a clear indication that much more scientific work remained to be done



Ernest Lawrence, Arthur Compton, Vannevar Bush, James Conant, Karl Loomis, and Alfred Loomis. Reprinted from Richard G. Hewlett and Oscar E. Anderson, Jr., *The New World, 1939-1946*, Volume I of *A History of the United States Atomic Energy Commission* (University Park: Pennsylvania State University Press, 1962).