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Honorable W. Sterling Cole
Chairman, Joint Committee
on Atomic Energy
Congress of the United States

Dear Mr. Cole:

As indicated in my letter to you of October 14, 1953, we have been attempting to obtain the information requested in your letter of October 2, 1953, dealing with annual expenditures on the thermonuclear program. As you suspected it is extremely difficult to identify these expenditures, particularly during the war years and even up through 1949. Briefly, the problems encountered are the impossibility of properly reflecting the use of military personnel, and the fact that the Manhattan Engineer District fiscal accounts did not segregate procurement or expenses in a manner whereby the thermonuclear effort can be identified. However, all during the war years and thereafter theoretical and experimental research had been performed in the thermonuclear field. Examples are:

1. During the war years a group of 15 senior people and some computers headed by Dr. Teller concentrated on a so-called "run-away super".
2. A cryogenic research laboratory was established at the Los Alamos Scientific Laboratory in 1944.
3. Extensive research on light element cross sections at low energies was conducted at the Los Alamos Scientific Laboratory.
4. Cryogenic research on hydrogen and deuterium was supported at Ohio State University.
5. A thermonuclear conference was held in 1946.
6. The first alarm clock ideas were conceived in 1947, although a feasible system was not available at that time.

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Honorable W. Sterling Cole - 2 -

We have roughly estimated the total of such expenditures through 1949 at \$2,000,000. For subsequent years our estimates include an appropriate share of the operating costs of the Los Alamos Scientific Laboratory and, starting with 1953, the thermonuclear work at the University of California Radiation Laboratory; estimates as to full scale tests and active material costs; estimated costs of other contractors in the program such as the American Car and Foundry Company, the Cambridge Corporation, the National Bureau of Standards, etc. A summary of these costs, exclusive of investment in plant and equipment, is shown below and compared with total AEC operating expenditures, as you requested:

Operating Expenditures
(In Millions of Dollars)

	Direct Thermonuclear Research	Total AEC Expenditures	% of Direct Thermonuclear Research
1943-1949	2.0	1,551.4	.1
1950	8.0	292.6	2.7
1951	31.0	414.2	7.5
1952	41.0	565.0	7.3
1953	61.0	716.0	8.5

I must emphasize that these figures are extremely rough approximations but they are the best that can be developed without considerable detailed research. I have limited the above estimates to operating costs and have not attempted to assign capital costs to thermonuclear research. I am furnishing you estimates of the capital costs for thermonuclear weapon production by separate correspondence in answer to your letter of July 31, 1953.

If I can be of further assistance in this matter please let me know.

Sincerely yours,

SIGNED AND
DISPATCHED

Lewis L. Strauss
Chairman

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