

DOCUMENT SOURCE	University of California at Berkeley The Bancroft Library/The University Archives, Berkeley CA	
RECORDS SERIES TITLE	John H. Lawrence Corresp.	
BANCROFT/JARC ID NO.	BANC MSS 87/82c	COPY
CARTON NO.	4	
FOLDER NAME	D-E Corresp. PALE	
NOTES		
FOUND BY/DATE FOUND	P. Hall 1-18-95	

720395

## MEMBERS OF THE COMMITTEE

ROBLEY D. EVANS, Chairman  
Massachusetts Institute of  
Technology

L. P. CURTIS, Vice-Chairman  
National Bureau of Standards

CLARK GOODMAN, Secretary  
Massachusetts Institute of  
Technology

ALON F. KOVARIK  
Yale University

S. C. LIWO  
University of Minnesota

CHARLES S. PICOBY  
Geophysical Laboratory  
Carnegie Institution of  
Washington

## NATIONAL RESEARCH COUNCIL

2101 CONSTITUTION AVENUE, WASHINGTON, D. C.

Established in 1916 by the National Academy of Sciences under its Congressional  
Charter and organized with the cooperation of the National Scientific  
and Technical Societies of the United States

DIVISION OF PHYSICAL SCIENCES

COMMITTEE ON STANDARDS OF RADIOACTIVITY

Address correspondence to:  
ROBLEY D. EVANS  
Massachusetts Institute of  
Technology  
Cambridge, Massachusetts

*W. J. ...*  
*West.*  
*PALE*

April 9, 1948

Dr. John H. Lawrence  
Donner Laboratory of Medical Physics  
University of California  
Berkeley, California

Dear John:

Many thanks for your letters of March 22nd and 23rd. I am delighted that we shall be able to work together toward straightening out the millicurie. Certainly, as you point out, when agreement is reached all laboratories would want to take up the new standard. It would also be desirable to provide a table showing the relative strengths of the local millicuries used in older work. Such a table would permit anyone to correlate and reinterpret previously published work.

A very elaborate and detailed program on beta-ray standards is now under way again with a view to providing a variety of beta-ray standards of various maximum beta-ray energies. As a result of its meeting in Oak Ridge two weeks ago the Committee now has under way the preparation of beta-ray standards using Na<sup>22</sup>, Co<sup>60</sup>, RaDEF, and UX, in equilibrium with UI. These will all be compared by all possible analytical methods at the National Bureau of Standards and at M. I. T. It is hoped that a number of other laboratories will also use several methods of comparison, and we expect that this will be done at Clinton and at Yale. It would be particularly fine if some of your people could also participate in this detailed laboratory work. Could you let me know whether this is a possibility?

Along with the preparation of the beta-ray standards there is a complete program of development of standard instruments together with a description of the standard method of performing comparisons. Also gamma-ray standards and gamma-ray instruments are being developed. Several companies are building beta-ray counters, and standard gamma-ray apparatus is under development at Victoreen and Beckman.

The phosphorus sample which Dr. Tobias sent has arrived and is about to be measured. Within a few days Dr. Peacock will send to you some phosphorus prepared here, for intercomparison. Aliquots of the same batch are being sent to St. Louis, Ohio State, Clinton, and possibly elsewhere. Somewhere I have gathered the impression that Berkeley, St. Louis, and some other laboratories may be using the value of  $3.47 \times 10^{10}$  disintegrations per second for the curie unit.

1152252

Copied from ... in The Bancroft Library ... reference ...

T. F. ...

DOCUMENT SOURCE	University of California at Berkeley The Bancroft Library/The University Archives, Berkeley CA	
RECORDS SERIES TITLE	John H. Lawrence Corresp.	
BANCROFT/UAARC ID NO.	BANC MSS 87/82 C	
CARTON NO.	A.	COPY
FOLDER NAME	D-E Corresp. 1944	
NOTES		
FOUND BY/DATE FOUND	P. Hall 1-18-95	

Copied from originals in the Bancroft Library for  
 reference purposes. Copy should be deposited in  
 other library.

Dr. John H. Lawrence

-2-

April 9, 1946

I was responsible for recommending this number on Page 248 of the 1938 edition of my course notes. This value comes from the measurements of the rate of growth of radium from ionium, which is certainly the most accurate method for doing the physical measurements on the curie. However, the radiochemistry of element 90 is involved in this method and it now seems probable that a repetition of the work might give a different result. Just as the war began the Committee had underway in various laboratories a re-measurement of the curie unit by three independent methods, but this work had to be discontinued. The Committee recommends the use tentatively of the arbitrary figure  $3.7 \times 10^{10}$  for substantially the same reasons which caused the International Radium Standards Commission to recommend  $3.7 \times 10^{10}$  as an arbitrary value in 1930. Actually I doubt that a great deal of future work will be done on the curie unit because, although its use is widespread, it has never been officially adopted except for radon and an extension to other members of the uranium series only by vote of the International Radium Standards Commission in 1930. New methods for determining absolute disintegration rates were developed and widely tried out in a number of laboratories in this country during the war, so there is now no longer any need for using an arbitrary reference unit like the curie. At the meetings two weeks ago at Oak Ridge the Committee and the Manhattan District representatives present unanimously voted to recommend the national adoption of the new "rutherford" unit of activity, where one rutherford equals one million disintegrating atoms per second.

The Committee on Standards has been asked to broaden the scope of its work, although its fundamental objectives will continue to be to establish standard sources, instruments, and techniques and to make them available for distribution through the National Bureau of Standards. At the next Committee meeting we hope to appoint some new members to the Committee. We should like very much to have one or two Berkeley people join in this work. Could you let me know about the extent of the laboratory's interest in these problems and its possible participation in the program; as well as suggesting names for active membership in the Committee. The meetings will probably continue to be held in the East, but the expenses of attending the meetings are all defrayed by the National Research Council. I am looking forward to the pleasure of seeing you again in June.

Cordially yours,

*Bob*

Robley D. Evans

1162253