

*final draft*

Suggested body of a letter to Dr. Frederick Seitz, President of the National Academy of Science for Dr. Henry Eyring's use in nominating H. Tracy Hall for academy membership.

After Lavoisier discovered graphite and diamond to be carbon allotropes in the year 1792, men began to attempt the conversion of graphite to diamond. One hundred seventy-two years passed before this was accomplished although many notables including Moisson, Parsons, and Bridgman had worked on the problem. The first demonstrable conversion was achieved in 1954 by Dr. H. Tracy Hall, a member of a loosely-organized General Electric Research Laboratory group. The other scientists in this group were Drs. Francis P. Bundy, Herbert M. Strong, and Robert H. Wentorf, Jr. Following this accomplishment Hall, Bundy, Strong, and Wentorf, together with management and other personnel, received wide company publicity as the "team" that made the world's first laboratory diamonds. 117

In addition to discovering the first method by which diamonds could be made, Hall also invented the first equipment capable of generating the necessary pressures and temperatures. He called this apparatus the "Belt." This 100,000 atmosphere, 2500° C. device is still used today in the commercial production of diamond. 48

On leaving General Electric in 1955 to become Director of Research for Brigham Young University, company secrecy and later government secrecy prevented Hall from using the Belt for further research. (Secrecy on details of the "Belt" was maintained for seven years and on diamond synthesis for five years after discovery.) To circumvent these problems, Hall invented a second device, the "Tetrahedral Press," which could also reach pressures of 100,000 atmospheres simultaneously with 2500° C temperatures. He published the details of this apparatus early in 1958 and within the next few years hundreds of scientists journeyed to Provo, Utah to see his equipment and to learn of his methods. 107

From these beginnings, about five hundred high-pressure, high-temperature facilities have now been established all over the world. Ten years ago publication in the field was almost nil. Today, nearly one thousand papers appear each year. Dr. Tracy Hall is the fountain-head from which these developments have sprung. 50

Three key papers concerning Hall's early pressure-temperature work are enclosed; viz, a paper on the Tetrahedral Press, the "Belt" apparatus, and the synthesis of diamonds. He continues to contribute substantially to the field as can be ascertained from the enclosed list of publications. A biographical sketch is also enclosed. 50

In view of the foregoing, I wish to nominate Dr. H. Tracy Hall as a candidate for membership in the Academy. 2

Pres send copy to Tracy  
H.E.

NATIONAL ACADEMY OF SCIENCES

OFFICE OF THE PRESIDENT  
2101 CONSTITUTION AVENUE  
WASHINGTON, D. C. 20418

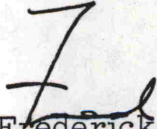
June 7, 1968

Dr. Henry Eyring  
Department of Chemistry  
The University of Utah  
Salt Lake City, Utah 84112

Dear Henry:

Thank you for the material concerning Tracy Hall.  
I will make sure it gets in the hands of Clarence Zener,  
who is Chairman of the Section on Applied Physical and  
Mathematical Sciences.

Best regards,

  
Frederick Seitz  
President

Please send copy to Tracy.

NATIONAL ACADEMY OF SCIENCES

CLARENCE ZENER  
COLLEGE OF SCIENCE  
TEXAS A & M UNIVERSITY  
COLLEGE STATION, TEXAS 77843

SECTION OF  
APPLIED PHYSICAL AND MATHEMATICAL SCIENCES

June 12, 1968

Dr. Henry Eyring  
Department of Chemistry  
The University of Utah  
Salt Lake City, Utah 84112

Dear Henry:

Fred Seitz has forwarded to me your data in support of Tracy Hall for membership in the Academy.

I certainly agree with Fred that the Section of Applied Physical and Mathematical Sciences is most appropriate for Tracy Hall, and I shall see that he is put on the Informal Ballot voted upon by this Section in October.

Best wishes,



Clarence Zener  
Chairman

cc: Dr. Frederick Seitz

Carnegie-Mellon University

5000 Forbes Avenue  
Pittsburgh, Pennsylvania 15213  
[412] 621-2600


August 19, 1968

Dr. Henry Eyring  
Department of Chemistry  
The University of Utah  
Salt Lake City, Utah 84112

Dear Henry:

I am asking that you prepare a formal nomination for Tracy Hall and return it to me at the above address. I shall then circulate his nomination, together with all other nominations, to the entire section for balloting. A nomination form is enclosed.

Best wishes,

  
Clarence Zener  
Chairman, Section 16

CZ/fg  
Enclosure

Dear Tracy: Write out an appropriate 250 words & return it to me. I will have it typed in and dispatched it to Zener.

Sincerely,  
Henry.