Introduction

This autobiography shares my life and the astrophysics that gave it lifelong meaning. I have three motives for undertaking this large effort.

Firstly, I hope to contribute to the genre of scientific biography. I love writing as a craft. My goal for my prose is to present not only my scientific life as accurately as possible but also insight into human aspects of its struggles. I see my story as a classical American story, having emerged from the melting pot of European immigration to the Midwest at the middle of the 19th century.

Secondly, I wish the reader to have an engrossing introduction to the origin of the atoms of the chemical elements. Discovering many aspects of that quest has been my life work. The atoms are the building blocks of our natural world. It has been my lifelong goal to convey interesting knowledge about our universe. My writing has always emphasized that goal. By sharing my scientific discoveries with the reader I hope to share the essence of that sublime science. The creation of our material world holds fascination for mankind.

Thirdly, I hope to contribute meaningfully to the history of science. I have striven to contribute primary material for its study. The possibility of achieving this goal derives from my intimate relationships with other pioneers of the science of nucleosynthesis in stars and observable consequences for astronomy. I have donated much of my photo collection to the APS Center for the History of Physics precisely because of my intent to contribute research materials for the history of science.

Having these three goals has made the writing of uniform prose difficult. For that reason, some lay readers may find the detailed scientific issues to be heavy going, and simply scan through them. Other readers interested in the scientific history of the origin of the chemical elements may find details of my personal life less compelling. I am content if each reader finds a meaningful experience in sharing my life quest, but I am unconcerned if I have provided more than some readers may want to know.

Psychologists have learned that we rewrite our own history continuously in the light of our self image. I accept that limitation; but I also try to diminish its force by heavy reliance on my diaries and on my mother's diaries, as well as on photo albums. These not only accurately reveal when and where events occurred but also place them in the context of my feelings at the time. I have researched my material carefully.

I report only occasional dialogue because I do not want to create it long after the fact. I strive throughout for historical truth. Some dialogue that I include is half a century old, allowing one to wonder about its accuracy. For that reason I limit dialogue to those especially meaningful times that I can never forget. Although the exact words may not be right, the truth of its occurrence and its meaning is certain.

Selected photographs are printed in the text. I call attention to a separate contribution to the history of science made available in my photo archive for the history of nuclear astrophysics. If the reader chooses to open this web site

http://www.astro.clemson.edu/NucleoArchive/PhotoList/index.html

he will find a lively accompaniment to my text. Click the *Photo List*. The photos are listed by year and include a carefully researched caption. They are referred to within this autobiography in the format <1962 Clayton Caltech PhD>. Higher resolution versions of my photographs can be obtained from the Emilio Segre Archive at the APS Center for the History of Physics.

Many of these photo citations are placed in end notes. The main purpose of these notes is presentation of more technical and bibliographic material. These are primarily for scholars, and are not essential to the reading of the autobiography.

My professional web page is
http://www.astro.clemson.edu/People/Clayton/index.html

I dedicate this book to every reader who places high value on understanding the history of our universe and its matter. May my words and my story touch your mind and your heart. And I dedicate it also to the great influence of four who are gone. I pay tribute in memoriam to William A. Fowler and to Fred Hoyle. Each was a deep personal friend and a very great scientist. They introduced me to the scientific path from which I have never strayed. Frank McDonald at SMU gave me the opportunity to become a physicist and to enter Caltech. My life as lived would have been unthinkable save for those three. My mother, Avis Kembery Clayton, daughter of German and English immigrants to Iowa, is never far removed from what I attempt in this work, and her historical contributions are large. I thank my wife, Nancy McBride Clayton, for her encouraging criticism of my text and for bringing happiness.

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