

**THE COLLECTED PAPERS
OF
EDWARD ROBINSON SQUIBB, M.D.**

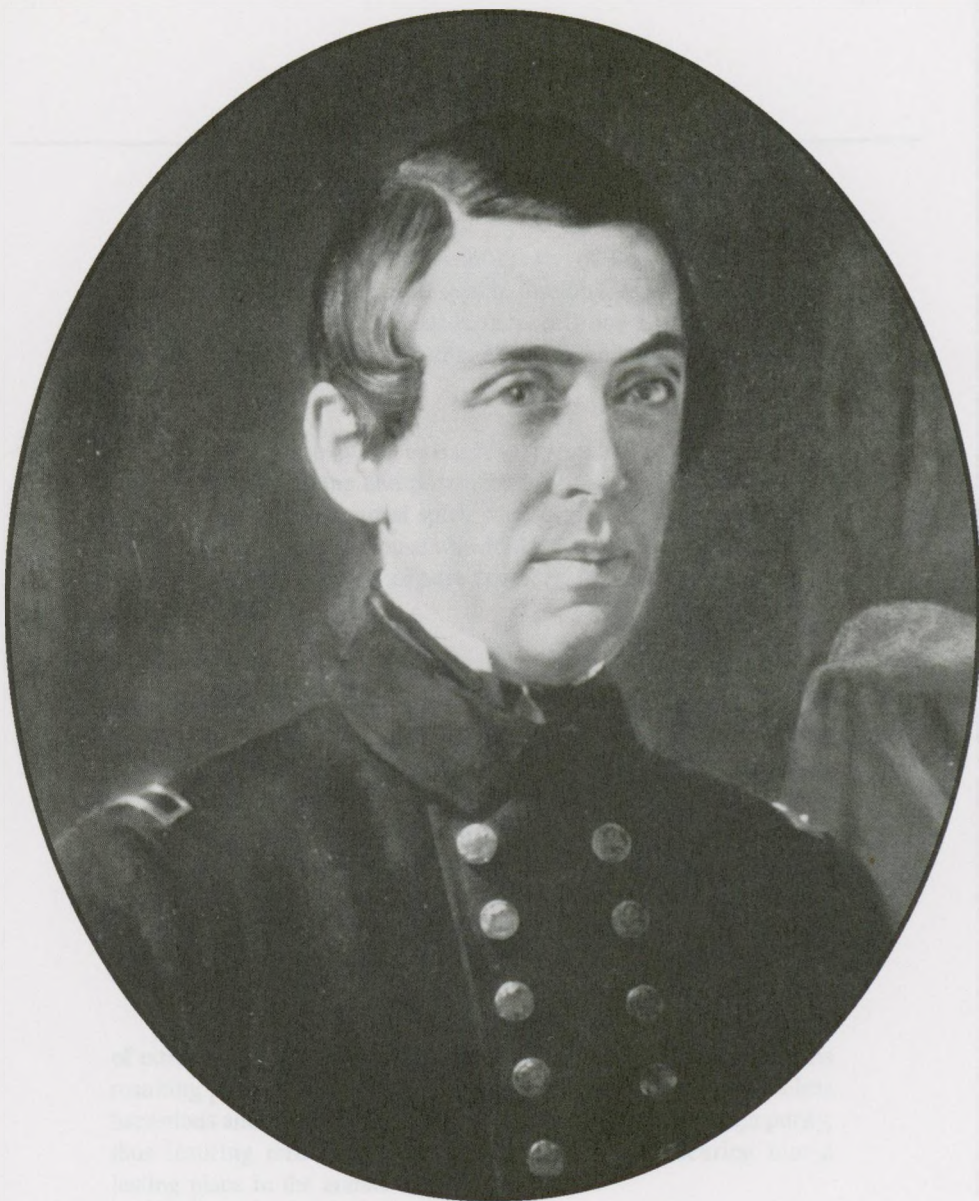
(1819–1900)

(In Two Volumes)

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1988**



Edward Robinson Squibb, M.D. as Assistant Surgeon, U.S. Navy.
This oil portrait painted by Arthur Hirschel Lidov was based on an
1848 photograph by Matthew Brady. It was commissioned in 1958
for an exhibition on naval medical history. The original painting is
on loan to the Naval Medical Command, Washington, D.C.

Foreword

On the occasion of the 50th Anniversary of the founding of The Squibb Institute for Medical Research, Squibb Corporation reaffirms its commitment to the standards of excellence established by its founder, Edward Robinson Squibb, M.D.—standards which his writings clearly reflect.

Dr. Squibb made extraordinary contributions to the advancement of medicine and pharmacy in the second half of the 19th century. The entrepreneurial spirit which led him to the founding of his own pharmaceutical house was driven by a consuming interest in the preparation and supply of pure drugs, an interest which continued throughout his life.

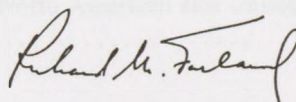
Today we take for granted that our medicines are of the highest purity and quality. In the 19th century, poor quality or adulterated drugs were more the “rule” than the exception. Dr. Squibb gave generously of his time to examine and improve drug standards for the United States Pharmacopeia and strove for laws which would provide the American public with medicines of the highest quality. Six years after his death, Dr. Squibb’s work led to landmark legislation, the Pure Food and Drug Act of 1906, and his is one of nine portraits which hang in the foyer of USP headquarters, recognizing his profound impact on the affairs of the Pharmacopeia.

As an inventor, Dr. Squibb devised a still for the preparation of ether. Up to this time, ether manufacture was dangerous, and the resulting product varied widely in purity. His process provided a less hazardous and more efficient way to manufacture ether of high purity, thus insuring reliable and predictable results and securing him a lasting place in the annals of anesthesiology.

Dr. Squibb was also a prolific writer. His life’s work is well represented in this collection of his papers, which presents a remarkable view of the state of medicine and pharmacy during his lifetime.

Tribute should be paid to Mr. Julian Aurelius, a long time Squibb employee, now retired, who devoted himself to keeping alive the memory of Dr. Squibb. Mr. Aurelius organized the Squibb archives, started a systematic collection of the writings of Dr. Squibb, and worked toward their publication.

This now has been accomplished in the hope that the collection will provide present and future generations with a measure of the breadth of interest and the magnitude of scientific and civic accomplishments of this remarkable man.



Richard M. Furlaud
Chairman and Chief Executive Officer
Squibb Corporation

October, 1988

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Introduction

The Collected Papers of Edward Robinson Squibb, M.D. (1819–1900) comprises all publications of Dr. Squibb, which were published primarily in the *American Journal of Pharmacy* and the *Proceedings of the American Pharmaceutical Association*; as well as transcripts of his reports and participation at meetings of the American Pharmaceutical Association and other societies. In addition, there are several obituaries honoring Dr. Squibb. Since not all contemporaries saw him in a totally favorable light, a few critical editorials from trade journals have also been included.

It is not necessary to provide a biography of Dr. Squibb in this introduction. I can refer the reader to the extensive obituary-biography (paper no. 147) by none other than Joseph P. Remington, Ph.D., a giant of American pharmacy. He worked in Dr. Squibb's laboratory for three years after graduation from the Philadelphia College of Pharmacy in 1867. After his apprenticeship with Dr. Squibb, Dr. Remington returned to Philadelphia and a career in teaching, but maintained close contact with Dr. Squibb.

The life of Dr. Squibb is also the subject of a book, *Dr. Squibb: The Life and Times of a Rugged Idealist*, by Lawrence G. Blochman, published by Simon and Schuster, New York 1958, on the occasion of the centennial of the "House of Squibb." This very readable, well-researched book is largely based on the extensive diaries of Dr. Squibb.

Commencing in 1882, Dr. Squibb published a private journal which he called *An Ephemeris* and distributed free of charge to members of the profession. To quote the book by Blochman, "*An Ephemeris* was like a one-man consumer-research report. . . . It discussed new remedies, gave practical instructions for laboratory tests and assays, and attacked medical politicians and quack preparations." The title page and foreword of volume I (no. 149) and the cumulative index (no. 150) to all six volumes are reproduced in volume II of this work. Although Dr. Squibb made his two sons co-editors of *An Ephemeris*, the bulk of the papers, approximately 2,300 pages in six volumes, were in fact written by Dr. Squibb right up to the time of his death in 1900. Beginning with 1882, all papers published by Dr. Squibb elsewhere were also presented in *An Ephemeris*, which survived Dr. Squibb by only two years.

Although *An Ephemeris* is highly recommended to students of Dr. Squibb and his times, it has not been reproduced here except for two notable articles which effectively illustrate the character and convictions of Dr. Squibb. The first, *Popular Medication* (no. 104), heaps scorn on a patent medicine called St. Joseph's Oil and the gullible public that falls for it. This almost violent disdain for such patent medicines explains his adamant opposition to patents and trademarks for medicines as expressed

in the second paper from *An Ephemeris* (no. 105). Dr. Squibb felt strongly that advances in medicines should be available to all. Therefore, he did not take out a patent on his apparatus for the preparation of ether. He felt no such compunction, however, in other fields and was awarded a patent on the manufacture of acetic acid (no. 89). This patented process was the basis of a commercially successful venture, the National Chemical Wood Treatment Co., to produce acetic acid.

Dr. Squibb was a trained physician, but he did not practice medicine except during his naval tours of duty to South America and the Mediterranean. The Mediterranean tour is entertainingly described in paper no. 2, which gives a vivid view of the sanitary conditions of a U.S. Navy ship in the 1850s. His disapproval of Naval discipline led him to publish a letter on the subject (no. 1), quite a daring step for a junior Navy surgeon.

Only one of his publications deals strictly with a medical problem, namely cholera (no. 40). He did, however, comment on the uses of drugs in the practice of medicine, as seen in his papers on anesthesia (nos. 24 and 63), opium (no. 25), and general therapeutics (no. 48). He devoted other papers to his inventions; to issues and policies concerning the professions of medicine and pharmacy; and to the supply, preparation, and analysis of drugs, including extensive commentary on the revisions of the United States Pharmacopeia (USP).

Dr. Squibb's greatest accomplishment as an inventor was the construction of an apparatus for the distillation of ether utilizing steam (no. 7). In Dr. Squibb's time, most drugs were of plant origin. The active ingredient was often extracted from the plant by percolation. Dr. Squibb worked on the improvement of percolators (no. 72) and percolation (nos. 16 and 91-93). He also constructed a device for the estimation of urea in urine (nos. 96 and 106). Complementing the percolators was his elongated glass separatory funnel (no. 121), which still can be found as "Squibb Separatory Funnel" in laboratory supply catalogues.

Dr. Squibb wrote the greatest number of papers about the preparation and analysis of drugs—his lifelong, consuming interest. They ranged from his paper on the preparation of citrate of iron and quinia (no. 3), to his last paper, penned during his final year, on the use of acetic acid as a substitute for ethanol as an extractant (no. 143). These writings shed light on why he became a manufacturer of drugs, rather than a practicing physician. There was hardly a drug in the *Materia Medica* on which he had not commented, be it mercury (no. 13), the cinchonas (nos. 32 and 47), rhubarb (nos. 54, 57, 62, 67, 74 and 81), or cocaine (items 116, 118-120 and 122), to name only a few. Of note should be his interest in the oldest synthetic narcotic, chloral hydrate (nos. 60 and 71), which is still in the Squibb Trade List under the name *Noctec*.

Dr. Squibb, a very skilled chemical analyst, wrote much, not only on the preparation, but also on the analysis of drugs, offering an excellent account of phar-

maceutical analysis in the second half of the 19th century. This is well illustrated by his paper on the assay of opium (no. 102), which essentially remained the official USP assay for close to 100 years before it was replaced in 1975 with a more modern method.

Of all the many compounds that preoccupied Dr. Squibb, none had greater significance for him than ether, the alleviator of pain during surgery. His method (no. 7) to produce ether of high purity, suitable for anesthesia, was perhaps his greatest accomplishment and source of satisfaction and pride. Through a disastrous fire in 1858 (see no. 18), ether also brought him suffering and disfigurement which he had to bear for the rest of his life. No wonder, then, that he had a lifelong interest in ether and as late as 1884 (no. 114), published a paper on the properties of this liquid.

Dr. Squibb also made important contributions to the revision and improvement of the United States Pharmacopeia (USP) on whose Committee of Revision he served for the 1860 and 1880 editions. The esteem in which he was held is recognized in the foyer of the USP headquarters, where his portrait is displayed among eight other notables, including Joseph P. Remington, Ph.D., and Harvey Wiley, M.D., the noted government scientist.

Today the United States Pharmacopeia is a book of standards pertaining to the identity, quality, strength and purity of drugs, together with methods to assess these properties. In Dr. Squibb's time, the USP was much closer to its original intent of describing standardized preparation of drugs as a guide to the pharmacist, but increasingly it also contained analytical methods to assure proper standardization. Then, as now, the revision of the USP was carried out with the help of expert volunteers. It's not surprising that Dr. Squibb, with his lifelong devotion to drug purity, was drawn to it. Starting in 1858 (no. 17), he commented extensively on the periodic revisions of the USP (see particularly nos. 23, 31, 56, 83, 97 and 132-134).

In the 1870s Dr. Squibb, for a variety of reasons, became disenchanted with the work of the USP leadership. In 1876 he attempted to wrest the revision of the United States Pharmacopeia away from the Pharmacopeial Convention, then dominated by pharmacists, and transfer it to the American Medical Association (nos. 86 and 88). He was unsuccessful in this quest and withdrew from participation in the affairs of the USP. His fight was not altogether in vain, however, because it precipitated a change in leadership of the USP, and he again participated in revising it in 1880 (no. 97).

In 1876 Dr. Squibb discussed the desirability of having only one universal, worldwide pharmacopeia (no. 87). While he acknowledged the great appeal of such a scheme, he also pointed out lucidly that the great disparity of medical training and practice as well as of approaches to drug treatment in different countries would make the writing, let alone the enforcing, of such a pharmacopeia an impossible task. These reflections are as valid today as they were one hundred years ago.

Dr. Squibb participated actively in the affairs of a number of scientific and professional organizations, particularly the American Medical Association (AMA), the American Pharmaceutical Association (APhA), and the Medical Society of New York. He gave generously of his time, serving on a variety of committees, frequently as chairman. In 1863 he headed an APhA committee which issued a report on the drug market (no. 33) describing fluctuations of 25 to 500 percent in the wholesale price of drugs such as alcohol, belladonna and opium. The report also deplores the general poor quality of imported botanicals and urges more government supervision. The scathing description of the poor quality of Castile soap is noteworthy.

The APhA committee report (no. 35) on the 1848 U.S. law "to prevent importation of adulterated and spurious drugs and medicines" states that the provisions of the law were not being followed. It contains a petition to President Abraham Lincoln to enforce the law. The report (no. 43) of another APhA committee which Dr. Squibb chaired comments on a proposed new internal revenue law. Among other things, it argues for the exemption of alcohol used for medicinal preparations from the excise tax. It also points out that the dispensing pharmacist should not be considered a manufacturer. Demonstrating the fairness of Dr. Squibb, the report also contains dissenting opinions and is fascinating reading for students of tax law.

In 1887 Dr. Squibb, in a vein similar to an earlier publication (no. 99), presented a paper (no. 123) to the Medical Society of New York about the relations of physicians and their suppliers. It provides interesting glimpses into the economics of the drug trade and the role of sales representatives. It discusses drug costs and profits to manufacturers, distributors and retailers and accuses wholesalers of promoting unjustifiable fixed drug combinations instead of single drugs only because they can earn more money—an attack that did not sit well with large segments of the drug trade. It was followed in the same year by a rather innocuous paper on the cathartic *Cascara sagrada* (no. 124), in which Dr. Squibb gives his reasons for preferring a different buckthorn species. This was the last straw. It resulted in editorial comments in the trade press (nos. 125 and 126) highly uncomplimentary to Dr. Squibb. But, of course, he also had very strong defenders (no. 127), and weathered the storm without changing his opinions.

Progressive even in his old age, in 1893, at the age of 74, Dr. Squibb became the first manufacturing pharmacist to use the metric system (no. 135) and to publish weight conversion tables for his products.

In 1879, as a testimony to his convictions, he offered a "rough draft of a proposed law to prevent the adulteration of food and medicine and to create a state board of health" (no. 94). This law was enacted in New York and New Jersey with only minor changes. Unfortunately, the time was not yet ripe for a similar federal law. The Pure Food and Drug Act of 1906 was passed six years after his death. In large measure,

it came about through the efforts of Dr. Harvey Wiley, but Dr. Squibb is sometimes justly referred to as the grandfather of this landmark legislation.

A word should be said about the clarity and appearance of the text. It has to be realized that most of these papers are over one hundred years old and had to be reproduced from journals brittle with age. We, therefore, ask the reader's forbearance when the quality of reproduction of some of the papers is less than perfect.

This collection, then, is "must" reading for those interested in the accomplishments, ideas and concerns of Dr. E. R. Squibb. It also provides fascinating glimpses into the state and progress of medicine and pharmacy—as well as the economics and problems of the incipient pharmaceutical industry—in the second half of the last century.

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