

Introduction

The Medical Student Thesis at Yale

JOHN N. FORREST, JR., M.D.

*Director, Office of Student Research, Yale University School of Medicine,
New Haven, Connecticut*

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For one hundred and fifty years, students of the Yale University School of Medicine have been required to submit a thesis to receive the M.D. degree. In celebration of this long and unique tradition, *The Yale Journal of Biology and Medicine* has decided to publish, for the first time, the thesis abstracts which have been submitted by graduating students and their faculty advisors. The creativity and diversity of these scholarly contributions to the biological and clinical sciences, carried out by our students with the support of the faculty, explains why this custom has continued over a century and a half and why it is a hallmark of the Yale system of medical education. The long tradition of required medical student research was first documented in the 1839 catalogue, which states: "The candidates for the M.D. degree must present a dissertation on some subject connected with medical sciences."

Initially, the theses were concerned with clinical observations on complaints such as syphilis, dyspepsia, blindness, intermittent fever, and the injurious effects of a stimulating diet. Recently, as biomedical science has become more specific and quantitative, students have tended to study basic biological problems, but the tradition of studying psychosocial and ethical questions continues as a minor but important strain.

From the beginning, the thesis requirement was intended to encourage the habit of scholarly thought and to promote the interest of physicians in studying disease and contributing to the formal body of medical knowledge incorporated in the medical literature. This objective was achieved by the first thesis, concerned with bladder stones, which was submitted in 1837 by Edwin A. Anderson of Wilmington, North Carolina, two years before the requirement was formally established. It consists of 155 handwritten pages in 40 chapters, including two pages of references. Dr. Anderson practiced as a surgeon for over fifty years, and continued his research interests. He published papers in the medical literature on such subjects as lead poisoning and rattlesnake bites and on the diuretic properties of snake venom. His most important contribution was a brilliant 32-page paper, "a carefully reasoned, comprehensive and well documented analysis of the 1862 yellow fever epidemic that erupted in Wilmington, North Carolina. This article criticizes a paper written by another physician, a Dr. Thomas, who believed yellow fever to be contagious, erupting for the first time following the arrival into Wilmington of the steamship 'The Kate.' Anderson is convinced that the disease is not contagious and he writes to share his observations, so

that others may calmly and dispassionately arrive at their own conclusions.”¹ Although his conclusions were incorrect, by his careful observation, close reasoning, and courteous participation in scientific debate Dr. Anderson set the stage for the contributions of future generations of Yale graduates, who have submitted more than 6,000 theses over the years, and who have continued to make important contributions to medical science after graduation. Records of the Alumni Office indicate that approximately 70 percent of Yale medical school alumni continue to carry out research after graduation, and 30 percent are full-time faculty members at medical schools.

But the preeminent value of the thesis is to teach that all physicians are scientists. Experience in science as a medical student is not just a pathway into a research career. It is an important preparation for physicians regardless of specialty and of the nature of their practice. How a physician uses a concept, a therapy, or a procedure to benefit (or harm?) his patients is closely linked to what questions he asks of himself when he reads the medical literature, whether he is a future chairman of an academic department or a surgeon operating in Wilmington, North Carolina, before the Civil War. The M.D. thesis at this University is celebrated in its one hundred and fiftieth year because it teaches a student how to understand the scientific method from the inside, how to collect and evaluate data, how to communicate knowledge to others, and how to think scientifically and critically for the rest of his or her professional life.

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