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THE TONER LECTURES

INSTITUTED TO ENCOURAGE THE DISCOVERY OF NEW TRUTHS
FOR THE ADVANCEMENT OF MEDICINE.

LECTURE I.

ON THE STRUCTURE OF CANCEROUS TUMORS AND THE
MODE IN WHICH ADJACENT PARTS ARE INVADDED.

BY
J. J. WOODWARD, ASSISTANT SURGEON, U. S. A.

DELIVERED MARCH 26, 1878.



WASHINGTON:
SMITHSONIAN INSTITUTION.
NOVEMBER 1872.



COVER LEGEND

Joseph Janvier Woodward (1833-1881) was a pioneer American pathologist and photomicrographer, curator of the American Medical Museum, and author of astute descriptions of tumor histology.

Woodward (*upper left*) was born in Philadelphia and educated at the University of Pennsylvania. He practiced medicine and surgery in his native city and taught microscopy at the University. With the outbreak of the Civil War, Woodward volunteered his services to the United States Army.

When Abraham Lincoln was shot at Ford's Theater (*upper right*) on April 15, 1865, Woodward was among the attending physicians; he performed the autopsy and filed an official report. In 1881, he was also one of the attending physicians of the assassinated President Garfield. Ford's Theater was converted into the Army Medical Museum in 1865. Woodward, as assistant curator and later curator, here produced his photomicrographs on self-designed equipment and developed his staining techniques. He prepared the medical section of the *Medical and Surgical History of the War of the Rebellion*, an encyclopedic work that appeared in six volumes between 1870 and 1888. He also renewed his research on cancer.

In 1873, Woodward delivered the first lecture of the series established by Dr. J. M. Toner. Entitled "On the Structure of Cancerous Tumors and the Manner in Which Adjacent Parts are Invaded" (Toner Lectures, No. 1, Washington, D. C.: Smithsonian Institute, 1873), it summarized 15 years of research on the histopathology of neoplastic growth.

Woodward used 74 of his own photomicrographs to illustrate his presentation. One of his photomicrographs is of an epithelial cancer of the leg ($\times 70$; *lower left*). Of particular interest to Woodward were

the narrow "cancer cylinders" which he thought were characteristic of all carcinomas. With higher magnification, he consistently observed small, round cells adjacent to these "cancer cylinders." Woodward suggested that leukocytes gave rise to these small, round cells, which in turn underwent neoplastic transformation to form extensions of the cancer. He also believed that the mode of metastasis was by way of the lymphatics. Woodward defined a cancer on anatomic grounds as any growth "at the margins of which we find the nucleated or cell cylinders I have described, associated with the infiltration of small cells in the intervening connective tissues." He warned that preparation of the specimen and subsequent diagnosis require considerable experience; this misdiagnosis enabled charlatans "to report cures of cancer in almost every instance in which a nonmalignant growth is removed by their caustic pastes and plasters." The lecture represented an authoritative American view of cancer histopathology a century ago during the period of Virchow's major work on neoplastic growths.

Woodward concluded that the notions of dyscrasias and heterologous new formations should be abandoned and that even the most aberrant phenomenon of such a disease as cancer may be explained by ordinary laws of development and growth.

We are indebted to the National Library of Medicine for Woodward's portrait and the frontispiece (courtesy of the NIH Library) of his published lecture, to the Air Force Institute of Pathology for the photomicrographs and the photograph of Ford's Theater and to Dr. Bruce Schoenberg of Johns Hopkins University, for the materials and information. His article on Woodward, entitled "Joseph Janvier Woodward and an Early American View of Cancer," appears in *Surgery, Gynecology and Obstetrics*, 136: 456-462, 1973.