

Theories of Pathology

The Genesis of Cancer. A Study in the History of Ideas. L. J. RATHER. Johns Hopkins University Press, Baltimore, 1979. xiv, 262 pp. \$17.50.

The history of disease may be approached in a number of ways. There are the classic histories of disease conquests, epics if you will, typified in the works of Paul de Kruif and Greer Williams. There are the histories of the institutional and cultural consequences of disease, a growing genre exemplified by the writings of René Dubos and Alfred Crosby. There are the demographic histories that calculate the impact of disease on human populations, an old tradition that recently has been successfully popularized by the historian William McNeill. There is also the philosophical and intellectual approach, which depicts mankind's changing understanding of disease. This last genre tends to thrive in two overlapping subsets: histories of the popular definitions and explanations of disease, typified in Michel Foucault's study of madness, and examinations of the changing explanations of disease within the context of the history of scientific ideas. Few works, in fact, fit neatly into any of these pigeonholes; some of the most successful, such as Hans Zinsser's classic *Rats, Lice, and History* and Charles Rosenberg's *The Cholera Years*, strive to integrate several viewpoints.

The history of cancer would seem to be a logical candidate for only a few of the approaches listed above. As an epic, the story has just begun; and the demographic impact of what is now considered cancer is not pronounced. The cultural aspects, particularly now that epidemic diseases have receded in the public's mind, could well be worth extensive study. For the most part, however, the history of cancer would seem to be rewarding principally in terms of intellectual and scientific dimensions. It is this last approach that Leland J. Rather, who has in the past made many fine contributions to the history of disease theory, takes in *The Genesis of Cancer*.

At the outset Rather appropriately points out that the terms "cancer" and "tumor" have been used over the years in a variety of contexts and to denote not

only the morbid formations so designated today but also phenomena such as cysts, tubercles, eruptions, and inflammations. He then chooses a combined chronological and topical scaffold upon which to hang his history.

In the first chapter Rather presents a spectrum of medical ideas that extends from antiquity to the end of the 18th century. In addition to giving the details of specific theories—Galenic, spagyric, iatrochemical, and lymphatic—he argues that the theories themselves were fashioned within a humoral tradition. In this broader context body fluids were recognized as containing the principles for the growth, repair, and maintenance of the body's solid parts; lesions of all sorts were thus primarily viewed as physiological states.

The second chapter deals with theories of cancer that sought to explain structure in terms of solids, among them the Aristotelian doctrine of simple parts, the 18th-century fiber theories, and a range of tissue theories that received their inspiration from the teachings of Bichat. The most exciting possibilities of the solidist interpretation appeared in the early 19th century when tissue theories were joined with embryological ideas of germ-layer development. Such a confluence of biological ideas made it possible for pathologists to analogize embryological and cancerous growths.

The third and fourth chapters are the most closely argued and interesting of the book. Rather reviews how the cell theory was quickly adopted by Schwann's teacher, Johannes Müller, and was integrated into a general view of the spontaneous generation of neoplasms. The cell theory promoted debates over the mechanism of metastasis: did secondary lesions arise from some *seminium morbi*, as Müller argued, or from displaced cancer cells, as Henle believed, or by a transferred dyscrasia, as Rokitansky maintained? Such deliberations clearly weighed cancer theory in the same balance as the contemporary cytological and physiological theories of life.

By the 1850's the Schwannian blastema theory gave way to a belief in cell continuity. Reichert, Kölliker, and

above all Remak presaged in the normal domain Virchow's aphoristic generalization "omne cellule a cellule," derived from pathology. Rather points out that it was August Foerster who first applied direct cell division to tumor development, but it was Virchow who fashioned the cellular pathology that has dominated the field since then. An outcome of Virchow's studies of the genesis of tumors was his belief that tumor cells developed from "embryonic" cells, scattered throughout an omnipresent connective tissue. The argument was circular, as Rather recognizes, for it rested on the case of a rare tibial cancrroid studied by Virchow prior to his conversion to the universality of cell division. Since Virchow could not imagine how epithelial tissue might become associated with pathological bone tissue, he argued that connective tissue must have given rise to the epidermal cancrroid cells and must then be the source of all cancer cells. Virchow had thus put his best falsifying case, the tibial cancrroid, into the harness of his own theory's devising. The remainder of Rather's book, consisting of appraisals of alternative theories to Virchow's connective tissue doctrine, includes discussions of late-19th-century debates associated with Billroth, Cohnheim, and Waldeyer. Rather terminates his story at this point because he believes that thereafter "progress in the understanding of the histogenesis and cytogenesis of tumors . . . might be characterized as glacial" (p. 179).

One might disagree with this last generalization, but this would be a quibble. There are, however, faults in the conception and execution of the book that cannot be overlooked. The book is offered as "a study in the history of ideas," yet the ideas examined are too narrowly defined. The major portion of the book deals with 19th-century conceptions of cancer. But interest in cancer development was only one eddy of an intellectual current that dominated that century. All of biology, not simply the cell theory, was obsessed with the process of genesis: so, too, was the study of history, philosophy, politics, and other human affairs. Many of the major investigators of cancer—Müller, Henle, Virchow, and Billroth among them—possessed deep philosophical commitments that overflowed into these other areas. Thus I believe that a successful history of cancer must reach beyond the confines of a single medical subject. Rather makes a modest effort to associate ideas in pathology with normal cytology and physiology, yet he ventures no further.

Second, this book is written only with

the "insider" in mind. Rather does not give enough scientific detail to make a convincing portrait of the intellectual dilemmas of the day, and when he gives particulars he fails to do so in a way that would guarantee the understanding and attention of the nonspecialist. The history of pathology need not itself be bone dry.

Finally, the author takes no pains to place the investigators and their ideas in a social context. He draws some contrasts between English, French, and German work, but there the context abruptly ends. We learn nothing about the institutions that formed the settings for the scientists' work; in most cases we are not even informed where on the national scene an investigator lived. We are presented with names disembodied from careers, medical theories stripped of most of their factual and philosophical garments, and important debates shorn from the personalities, journals, and institutions that gave them life.

I believe that the history of ideas of cancer can and should be an exciting segment of the intellectual and cultural world; so it is with regret that I find this book deficient in these respects.

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A Messenian Site

Excavations at Nichoria in Southwest Greece. Vol. 1, Site, Environs, and Techniques. GEORGE RAPP, JR., and S. E. ASCHENBRENNER, Eds. University of Minnesota Press, Minneapolis, 1978. xxviii, 340 pp., illus. + maps. \$29.75.

Nichoria is located on a ridge in the southwestern Peloponnese, 2 kilometers from the modern seacoast in the northwestern corner of the Gulf of Messenia. The site was inhabited more or less continuously from the Final Neolithic about 6000 years ago until Byzantine times in the 13th century. Thus it spans the Helladic (Mycenean) and Dark Ages.

The Minnesota Messenia Expedition excavated at Nichoria from 1969 through 1975. The project was designed as a multidisciplinary one from the beginning, and this volume is the first of four reporting its findings. It is, as the subtitle suggests, primarily concerned with paleoenvironmental studies, and it attempts "to lay out the natural science/ecological base for the systematic and chronological volumes to follow" (p. 266).

The book contains 15 chapters. Some are almost entirely concerned with the methods employed for a specific aspect of the project; others are a mixture of methodology, data, and interpretations.

As a multidisciplinary project, the Expedition brought together a large number of individuals (75 over eight seasons) and, in addition, used a number of investigatory techniques that are more normally associated with projects in prehistoric archeology. Nichoria is not, strictly speaking, a prehistoric site. It is this aspect that interests me the most, and I shall touch briefly on several pertinent points. I do not intend a thorough discussion of the data or their interpretations, for these are far too diverse for one individual to evaluate.

Both the editors and the contributors have been scrupulous to present every scrap of information they consider pertinent to an evaluation of their procedures. Though it is therefore possible for anyone to check, recheck, and question these data and interpretations of them, some discrimination would have been welcome. At times the book is a hodgepodge of important data mixed with trivial information, and the latter frequently masks the former. Figure 15-1, a schematic diagram of how to lift a mineralized artifact, is only one example of unnecessary information.

But let me emphasize that there is a great deal in this volume that is both interesting and important. Chapter 2, on the Holocene environmental history of the region, is a good fine-grained study of changing paleogeography and paleoenvironments. In particular, it documents changes in both alluvial regimes and sea levels that affected both harbors and shipping and thus the economy of Nichoria.

Chapter 5, concerned with present vegetation and with paleobotanical remains, is a substantial contribution to our knowledge of both modern and prehistoric ecology in the Mediterranean region. It also provides interesting data on the use made of plants. The authors demonstrate that gathering of wood for fuel by the people of Nichoria did not have an extensive effect on the local vegetation. I find this both curious and interesting in view of the statements that are frequently made about other areas of the Mediterranean region.

In chapter 6 the excavated faunal remains are discussed. Though the samples from which trends were discerned were small, the data are certainly useful in suggesting changes in the proportion of species and age of death of these species at different periods during the occu-

pation of the site. This in turn allows the authors to suggest changes in the economic pattern, at least as far as animals are concerned. I would have liked to see tables of measurements included, especially as some of the samples of identifiable bone are small. And I question the usefulness of including here 15 photographic plates that are of poor quality, have poor (in some cases inaccurate) captions, and contain no scale.

Chapter 7, on settlements and circulation in the Nichoria area, attempts to place Nichoria in the context of other known sites and physiographic features. It is a good example of both the advantages and the pitfalls of such regional analysis. I find it both useful and stimulating, but it lacks the clarity and sophistication of similar studies that have been done elsewhere—especially those of Flannery and his associates in Oaxaca.

The remainder of the book is either beyond my competence to review (for example, the two chapters on metallurgy) or is not, in my opinion, particularly useful. Many of these chapters would have been better included in later volumes or as appendixes. It will, for example, be difficult to recall the description of the various excavation areas in chapter 8 when one is reading later volumes. And while I am sympathetic to the inclusion of chapters on lithology and archeological geology, the latter, especially, seems poorly integrated with information in other chapters.

In their "retrospect," Rapp and Aschenbrenner quote from Butzer's sometimes pessimistic assessment of the success of the ecological approach to archeology. One of Butzer's main points concerned the difficulty of integrating, in a truly *interdisciplinary* manner, the myriad specialists and techniques that are now a common (and I hope welcome) part of any archeological project. Rapp and Aschenbrenner are quite specific that this was a *multidisciplinary* investigation, and I think the difference shows. For one thing, I am far from convinced that the excavation methods warranted the use of some of the sophisticated analytical methods employed. Lack of uniformity in sampling is critical here. The authors recognize the problem in their retrospect, but I would have preferred them to do so initially.

Perhaps I ask too much, but all through this book I kept looking for something that would tie it all together. I hope that will come later; it certainly should. For the moment, this report remains a rather undigested (and undigestible) mass of facts, some of use, some not.