



## BOOK REVIEWS

**A Dancing Matrix—Voyages Along the Viral Frontier**, by ROBIN MARANTZ HENIG. Alfred A. Knopf, New York, 1993. U.S.\$23.00 cloth.

"Politicians must take into account competing interests of which citizens' health is only one; others include economic development, national security, balance of trade, tourism. Planting corn might well create a new habitat for virus-bearing rodents; building a dam might well allow for increased hatching of virus-carrying mosquitoes. But how many new cases of disease is it worth to enable a country to mount the agricultural and industrial growth that the corn planting or the dam building allows" (p. 190).

In her book, *A Dancing Matrix—Voyages Along the Viral Frontier*, Robin Marantz Henig investigates the role of human behavior in the emergence of viruses and unusual diseases in humans and other animals. Human beings have used their ingenuity to radically change their environment in the past and continue to do so. Diseases arise and are conquered, or have mysteriously disappeared without bold intervention. Virologists and public health officials, such as Stephen Morse (virologist, Rockefeller University); Joshua Lederberg (Nobel laureate and president emeritus, Rockefeller University); and Richard Krause (senior scientist, Fogarty International Center-NIH) have been called upon to explain viral illness as less a matter of wily, mutating viruses than of the (often creative) actions of man. For scientists to track emerging viruses many components must be considered, "not only science and health factors but shifts in the political, economic, and social climates as well."

Henig stresses the role of human activities in creating conditions in which viruses already existing in some other environment are transported across geographic and species boundaries. This is what Stephen Morse, has labeled "viral traffic." That is, most emerging viruses are not human viruses; but because humans put themselves in proximity to the natural host, humans can become infected. Henig cites, as one example, the expansion of the Brazilian Amazon cacao fields which led to more than 200,000 cases of Oropouche fever from 1961 to 1981. Apparently, the insect vector for this disease, a biting midge, bred easily in the discarded cacao shells.

In spite of the human animal's ability to invade any spot on the globe, human dominion is not an absolute. Henig reminds the reader again and again, as far as the natural order of things stand, humans are quite tangential. We are capable of rearranging the world in amazing ways and harnessing or domesticating other animals and plants to better serve our needs, but human beings will never totally control their environment.

*A Dancing Matrix* looks at the various relationships between man and microbe—and the microbe is neither necessarily good nor bad. A virus, which can trick a cell into letting it inside, can replicate and provoke disease, replicate and do nothing noticeable to the host, or be domesticated by humans in order to insert a health-generating element into animals and plants, as geneticists are doing now. If humans bump up against a virus that interrupts healthy cells and induces sickness, it is because humans have put themselves in the path of the virus.

Henig does not lead her reader through a story of emerging viruses without first providing a short primer in the biology of viruses (she calls chapter three, "A Virus

Primer"). The reader is introduced to the physiology of DNA viruses, RNA viruses and retroviruses. (At the conclusion of the book Henig introduces adenoviruses.) Henig describes how viruses transfuse a vector, reproduce and then, when deposited in a host reservoir, colonize that host's cells in order to replicate themselves. A virus is loose DNA or RNA. It can replicate only by invading a cell's own DNA and then usurping that cell's resources for making needed proteins. Not really dead and not quite live, the virus has taught molecular biologists about life processes, more specifically about the variety of methods by which proteins are produced. Francis Crick, co-discoverer of the structure of DNA, called the conversion of DNA into RNA to protein the "central dogma" of genetics. Many viruses invert that activity by converting RNA into DNA. So much for central dogmas. So, before the end of the first part of *A Dancing Matrix*, Henig provides the (non-scientist) reader with enough information about the science of viruses to follow the real story.

The remainder of *A Dancing Matrix* is an investigation of the bad and the good of viruses. Among the possible topics, Henig looks at chronic diseases and the possible role of viruses. She discusses the threat of viral infections for the growing community of humans with suppressed immune systems due to AIDS or organ transplantation. Among her examples, she cites the findings of a possible relationship between cytomegalovirus (CMV) and atherosclerosis. Heart transplant patients with CMV infection are twice as likely to be dead five years after their transplant as are heart transplant patients who are not infected with CMV. Can a virus instigate hardening of the arteries? Another interesting discussion recorded by Henig is the possible relationship between a specific rodent-borne virus and hypertension.

A chapter is devoted to the role of arboviruses, which are those viruses that spread to animals through such arthropods as mosquitoes, mites or ticks. How they spread deadly viral diseases, e.g. yellow fever, is discussed as well as virologists' endeavors to genetically alter some of these arthropod vectors to render them "incompetent." Among the arboviruses is the one some scientists are predicting will produce the next viral disease to emerge in the United States: dengue fever. A vector of dengue fever, the aggressive Asian tiger mosquito, has been spotted as far north as Illinois.

The appearance of HIV is the most notorious example of an emerging virus. In *A Dancing Matrix*, the author presents a fair discussion of the origins of the virus that causes AIDS in humans. With enough objectivity, she explains why scientists have placed the origin of AIDS in Africa and acknowledges the role of sensationalism in the spread of such rumors as (1) the virus was passed from monkey to man during an act of sexual intercourse, or (2) HIV arose after a laboratory manipulation, and perhaps was then deliberately released into the environment. My only criticism would be that she fails to catch herself succumbing to this same sensationalist gossip when she recounts from other sources the story of Gaetan Dugas, who "some American epidemiologists have called 'Patient Zero'." She could have spared the reader the frivolous details of Dugas' appearance and sociability as well as the allegations that Dugas vindictively had deliberate, unprotected sex with others.

Although the emergence of AIDS is responsible for the public's greater awareness of infectious diseases, aware-

ness of the possible devastation of an influenza epidemic is dangerously low. On the opening page of a chapter called *The Emergence of a New Flu*, the reader learns that "[I]n October 1918, influenza killed 196,000 people in the United States—almost twice as many in a single month as died of AIDS during the first ten years of that epidemic." (By the time the winter of 1918–1919 was over, two billion people worldwide had come down with influenza.) Taking the advice of scientists she contacted for this book, Henig warns that "[P]andemic influenza will be, almost without doubt, a major plague when it emerges, probably in the next several years." She traces the Asian origins of influenza epidemics, pointing out that the number of ducks in China (reportedly a higher population than humans) adds to the likelihood of an influenza epidemic, especially as the ducks live near humans and other animals that are also influenza virus reservoirs. "Pigs, ducks, and chickens live side by side on many Asian farms, especially those engaged in the increasingly popular fish farming. Widely promoted as an energy-efficient way to generate high yields of protein foods, fish farming involves feeding hen feces to pigs and fertilizing fishponds—where ducks also swim and drink—with fresh pig manure." Virologists are worried about the prime opportunities for genetic reassortment of influenza viruses that this agricultural method provides.

Near the end of *A Dancing Matrix*, Henig describes creative and sensible ideas offered by public health officials and virologists concerning the institution of early warning systems to attempt to head off future viral plagues. At a May 1989 conference in New York on emerging viruses, Donald Henderson, associate director for life sciences at the White House Office of Science and Technology Policy, suggested that the United States install listening posts at the

edges of rain forests and at other locations where "sentinel" animals could be monitored in order to allow epidemiologists to identify viruses as they emerge. (Of course, not all viruses show up in nonhuman animals before striking humans.) Jonathan Mann, head of the World Health Organization's Global AIDS Program from 1986 to 1990 and now on the faculty of the Harvard School of Public Health, has posited the idea of a "global pathogen watch," which would fortify traditional public health approaches by implementing more innovative measures such as calling upon those in the community who are most likely to notice unusual illnesses, e.g. mothers, grandmothers and local historians.

Finally, Henig concludes *A Dancing Matrix* with a look at viral domestication. She recounts how geneticists are using viruses' abilities to get inside a cell by weakening the virus's ability to replicate and sending it into the body with a needed material. By rearranging the structure of a virus, Henig writes, scientists are "turning it into a microscopic Trojan Horse that gets genes or other substances right into the core of the cell." It is a hopeful ending for a book that began by warning humans of their limited power to control their environment—a warning that is never abandoned by Henig, even in the midst of praising science's great feats. She writes, a mere three pages before the beginning of her closing chapter on viral domestication, "As [Joshua] Lederberg is fond of saying, in the battle over dominance of life forms on the planet earth, the final struggle will be between man and microbe. And there is no assurance that human beings will emerge the winner."

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**Intercultural Therapy: Themes, Interpretations and Practice.** edited by JAFAR KAREEM and ROLAND LITTLEWOOD. Blackwell Scientific Publications, London, 1992. 256 pp., £17.99.

This book contains twelve chapters that discuss a variety of topics pertaining to therapy with "ethnic" minorities. The chapters draw rather heavily from experiences with members of minority populations in London. In fact, many of the authors are consultants to or workers of the Nafsiyat Intercultural Therapy Center which is located in North London and was set up in 1983. The book grew out of discussions at the conference on *Assessment and Treatment Across Cultures* which was sponsored by the Nafsiyat several years ago.

The chapters that comprise the book are divided into three sections. Part I is entitled Themes and contains three chapters, two of a purely theoretical nature and one which describes the workings and philosophy of the Nafsiyat Centre. Part II is entitled Interpretations and contains three chapters which discuss general issues pertaining to intercultural therapy. These include a formal analysis of inter-professional consultation with emphasis given to work with ethnic minorities, problems posed by the clash between a strictly medical/psychiatric approach and a psychosocial/cultural approach which come to bear on diagnosis and general approach to therapy with ethnic minorities, and a review of methodologic issues involving research in intercultural therapy. Part III is entitled Practice and contains six chapters which review aspects of clinical work with persons of different cultural background and belonging to different ethnic groups. This is perhaps the most heterogeneous section of the book. It covers: (1) the work conducted in the transcultural unit of Lynfield Mount Hospital in Bradford; (2) a theoretical analysis with practical case examples of types of family structure which, while geared to

ethnically diverse groups, seems more academic and formal and can stand alone as a contribution aimed at integrating the complex set of issues involving persons from different cultures; (3) the problem of racism in therapy, particularly when the ethnicity and color of skin of therapist and client/patient bring in to play direct or indirect clashes and themes of oppression; (4) problems involving children and adolescents which result from identity conflicts fueled by differences in ethnic and racial background as these are played in a society in which racism is prominent; (5) problems experienced by social workers as a result of intercultural work; and finally (6) problems and approaches associated with clients that have been victims of torture.

The book contains a very useful Appendix which consists of practical issues surrounding the assessment and management of four difficult but prototypical cases which highlight intercultural problems. Possible questions and themes for discussion that the Nafsiyat workers have found useful are included. The appendix material can serve to structure a workshop or program of practical instruction and guidance for workers whose clients are from ethnic minorities.

This book encompasses most if not all of the issues that come into focus in the event of cultural, ethnic and linguistic differences between therapists and clients. The book does not strictly presuppose an informed understanding of the field, although I wonder whether the complex theoretical issues it masters will be fully appreciated by all who read it in a directly continuous way. Certainly, by reading many of the more practical chapters first, a beginner can "warm up" to tackling some of the more strictly theoretical ones.

The book has many strengths. One is the way it links theoretical and practical issues. Another is the tact, sensitivity and general clinical wisdom that its contributors reflect. They do not flinch from tackling head on and in