Vignettes: Remembered Revelries

At the holiday season, the Guggenheim lab [at Caltech] always hosted a lively Christmas party. Santa Claus never failed to grace these happy affairs, and [1942] passed true to form. At the designated moment, to the delight of adults as well as children, out stepped a marvelous St. Nicholas—stocky, round-faced, animated, and genial. Every year Santa gave away his identity when he spoke. Out came the soft, deep Hungarian sentences and accented "Ho-Ho-Ho"'s. A Jack Daniel's, a cigar, and a wayward hand on an attractive female partygoer removed any doubt about the man beneath the white beard and red suit.

—*Michael H. Gorn*, in *The Universal Man: Theodore von Kármán's Life in Aeronautics* (Smithsonian Institution Press)

By consensus, the social event that best personified [the] Anglo-American spirit of cooperation at Los Alamos came on Saturday, September 22, 1945. That night the British Mission members put on a party to celebrate "the birth of the Atomic Era." . . . Invitations were engraved. Guests arrived in "formal" attire, many of the women in white gloves. A "footman" announced the arrival of each guest . . . . The Mission wives had worked for weeks at their "most secret" (British "top secret") preparation. . . . Winifred Moon's dessert of trifle became an object of considerable interest to the Americans, most of whom had never seen it before. Several hid theirs in the long table drawers, to be discovered much later.

—*Ferenc Morton Szasz*, in *British Scientists and the Manhattan Project: The Los Alamos Years* (St. Martin's Press)

(already partially mutilated), then returns, mates a second time, and is inevitably eaten. What he gains for his compliance is unknown.

In addition to summarizing a burgeoning literature on the taxonomic diversity and evolutionary significance of intraspecific predation, the collected reviews also address such topics as the proximate cues underlying cannibalistic acts (in rodents; reviewed by R. Elwood), the genetic basis for cannibalism (in flour bugs; L. Stevens), and how population and community structure are likely to be affected by such dynamics (Q. Dong and G. Polis).

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Complexities of Stress

Perturbing the Organism. The Biology of Stressful Experience. HERBERT WEINER. University of Chicago Press, Chicago, IL, 1992. xvi, 357 pp., illus. $35. John D. and Catherine T. MacArthur Foundation Series on Mental Health and Development.

What is stress? In this examination of the subject Weiner rejects the constructs of Hans Selye, Walter B. Cannon, and other students of the responses to either physical or psychological hard knocks as unrealistic. With eclectic views and logic, he proposes, instead, a new Darwinian taxonomy that develops the notion of stressful experiences —categorized according to cause as due to external (natural or man-made) events such as earthquakes or wars or to personal events (affecting mainly an individual) such as bereavement—as "potential or actual threat[s] or challenge[s] to the integrity, survival, and reproduction of the organism." Most people have sufficient resources and coping skills to deal with these life experiences through anticipation, prevention, avoidance, or mastery of the stress-producing events. Others, less fit, may sink into "ill health" or even overt disease. Unfortunately, as Weiner points out, it is usually only the latter category of people whose responses to stressful experiences are studied in detail. Similarly, studies of animals usually have been designed in a way that does not allow behavioral responses to the administered threats and challenges. Weiner believes that these limitations in the way stress has been studied have led to the conclusion, particularly espoused by Selye, that stressful experiences induce nonspecific responses. He doubts the existence of general, nonspecific responses to specific stimuli. Nonetheless, he seems to agree with Selye that there is a general syndrome of ill health, manifested by disturbances in food intake, sexual desire, digestion, elimination, sleep, respiration, and thermoregulation, that may be exhibited by individuals with many different acute and chronic diseases or with no demonstrable disease.

After presentation of this new taxonomy and a historical account of the development of the notion of stress from the point of view of the physician, physiologist, and behaviorist, the midsection (and heart) of the book pleads for the compleat examination of stressful experiences and total (behavioral and physiological) responses of the individual to them. Weiner concludes that there is only weak evidence that poor individual responses to stressful experiences result directly in ill health or disease. Nonetheless, there are syndromes of ill health (posttraumatic stress disorders, hyperventilation, functional bowel, and musculoskeletal syndromes, sleep disorders) that may occur as a consequence of a multifactorial mix of risk factors, involving genetic make-up and past experience as well as the specific stressful experience. Moreover, results of animal studies (primarily of rats) show clearly that genetic make-up, neonatal stress, social rank, and degree of control clearly affect responses of animals to new experiences and may affect the development of disease.

The final, and least successful, portion of the book leaps, with occasional misconceptions, through the recent understanding of parallel processing in the nervous system, signaling at the genetic, cellular, organ, and organismal levels as revealing great complexity as well as specificity in the responses to stimuli, and signaling molecules that are common across communications systems—nervous, neuroendocrine, endocrine, and immune systems—of the organism and may direct a variety of responses. As a promising development, Weiner hints that the nonlinear mathematics of chaos theory may be applicable to the understanding of breakdowns that occur in maintenance of the stable, or unstable, rhythmic oscillations of the many controlled variables in the body. Each of these recent scientific developments is given superfical treatment that serves only to suggest further reading on the part of the serious student of the topic.

Overall, Weiner's book presents a philosophical examination of life and mechanisms of adaptation rather than a new framework in which to view stress. His efforts to provide a new taxonomy of stressful experience are not obviously useful. If adopted by basic scientists, his insistence that the response of each individual to stressful experience is unique would eliminate several fields of study that have been productively based on the idea that generalizations can be drawn from responses of groups of animals subjected to specified stressors. Nonetheless, the book

overall reminds us that ill health, and disease, can occur in response to a stressful experience. Studies are cited, for example, that document significant increases in morbidity and mortality among the unemployed, with considerable accompanying social and financial cost. The book is definitely worthwhile reading for its breadth of detailed examples and a fine bibliography that has been drawn from multiple disciplines that are infrequently juxtaposed by a single author.

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Contact Geometry and Linear Differential Equations. Vladimir E. Nazaikinskii, Victor E. Shatalov, and Boris Yu. Sternin. De Gruyter, Hawthorne, NY, 1992. x, 216 pp., illus. $69. De Gruyter Expositions in Mathematics, 6.

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Enzyme Nomenclature 1992. Recommendations of the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology on the Nomenclature and Classification of Enzymes. Edwin C. Webb. Published for the International Union of Biochemistry and Molecular Biology by Academic Press, San Diego, CA, 1992. xiv, 862 pp. $95; paper, $55.

From Vital Force to Structural Formulas. O. Theodor Benfey. Beckman Center for the History of Chemistry, Philadelphia, 1992. xii, 115 pp., illus. Paper, $15. Beckman Center for the History of Chemistry Publication no. 10. Reprint, 1964 ed.

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