in Japan, and we find mention of a great many subsequent Japanese physicians who elaborated in practice and theory upon the earliest Dutch translation. Genpaku Sugita's narrative takes us from 1765 to 1815, and thus the period it covers coincides with the heyday of Western medical influence in Japan.

Both books here reviewed are attractively bound in red and well illustrated. Together they furnish a thorough insight into the longest and most important period of Japanese medicine, when East and West first came to know each other and to exchange ideas and established a contact which was to persist to the present day.

ILZA VEITH
Department of the History of Health Sciences, University of California Medical Center, San Francisco

Curative Practices

American Indian Medicine. VIRGIL J. VOGEL. University of Oklahoma Press, Norman, 1970. xx + 588 pp. + plates. $12.50. Civilization of the American Indian Series, vol. 95.

The value of Vogel's large volume on American Indian medicine lies more in its compilation than in its interpretation. A historian, the author has extracted from travelers' accounts, reports of botanists, researches of ethnologists and physicians, and various other sources a vast amount of information on Indian therapeutic methods and agents and has organized these data helpfully. Most useful is an alphabetical appendix by common plant name giving information about some 170 botanicals used as drugs by Indians dwelling north of Mexico, botanicals which at one time or another were official in the *Pharmacopeia of the United States* or the *National Formulary*. Briefer information is provided on some four dozen other drugs that became official that were introduced into medical use by Latin American Indians. An index of both common and botanical names permits easy access to desired data.

Vogel disavows the task of evaluating the efficacy of Indian medicine, yet this is obviously the theme that engrosses him. Influenced perhaps by a cultural climate that regards contributions by "dark-skinned peoples" with less "ethnic arrogance" than formerly, Vogel observes that it is "a cause for wonder" how many botanicals the Indians learned to use correctly. While recognizing the healing power of nature, the placebo effect, and wrong diagnosis as possibilities underlying alleged cures reported by lay observers, Vogel recites so many cure stories that the weight of his emphasis seems to overglorify Indian healing prowess. Nor is admission to earlier editions of the *USP* and *NF* quite the achievement that the tone of Vogel's writing implies. What this does reveal, of course, is the tremendous influence of Indian practice on white practice, a theme that Vogel develops well. Without Latin America, however, he is hard pressed to make the case his enthusiasm would wish for Indian contributions that today's scientific medicine would credit as valuable.

Nor have "folk and native medicines . . . lost their old halo." Indian healers still dispense many of the crude drugs that Vogel discusses, sometimes from stores in the very shadow of metropolitan hospitals.

JAMES HARVEY YOUNG
Department of History, Emory University, Atlanta, Georgia

Statistics in a New Land

Demography in Early America. Beginnings of the Statistical Mind, 1600–1800. JAMES H. CASSEDY. Harvard University Press, Cambridge, Mass., 1969. xvi + 358 pp. $8.50

Although modestly describing his book as "an inquiry into early America," in reality Cassedy has carefully examined the sources of American history and come up with an astonishing amount of information. From the beginning, colonial leaders recognized the need to collect vital statistics, to know the size of their population, and to use this information in determining policy. Familiar with the London bills of mortality and the system of parish registers, they understandably sought to duplicate them in the colonies.

The most striking colonial innovation was a Massachusetts law in 1693 providing for the civil registration of births, deaths, and marriages, a notable improvement over the English system in which religious authorities recorded baptisms, marriages, and burials. By the second half of the 17th century, the founders of new colonies had learned the value of statistical data, but their efforts to collect them were often frustrated. A scattered population, illiterate town clerks, and religious objections all reduced the effectiveness of colonial registration systems. In addition, many colonists equated census taking with taxation and military duty. The perennial warfare had the incidental result of promoting the collection of statistical data, since military service was a fact of life and muster rolls of the county militia were kept as a matter of course.

The recurrent outbreaks of smallpox, yellow fever, and other epidemic diseases were another major stimulus to the gathering of vital statistics. As Cassedy indicates, smallpox, more than any other disease, occupied the attention of 18th-century Englishmen and led them to collect and analyze mortality figures on both sides of the Atlantic. The ubiquitous Cotton Mather deplored the lack of mathematical knowledge among physicians, the one means, he thought, whereby they might discover the cause and cure of diseases. Mather was responsible for introducing, in 1721, the practice of inoculaton for smallpox into the colonies. Attempting to justify his innovation by statistical evidence, Mather compared the deaths from smallpox among the inoculated with deaths among those who caught the disease under normal conditions. In experimenting with inoculation, he aroused the opposition of William Douglass, the best-trained physician in Boston. Although Douglass eventually accepted the practice, he accused Mather of manipulating his figures. In glancing back over the controversy years later, Douglass recognized that the chief weakness of the early inoculation statistics lay in the inadequacy of the sampling. In doing so, he became one of the first to recognize the law of large numbers.

The American Revolution further stimulated an interest in demography. The rapidly growing population and wealth of the colonies inevitably invited comparisons with the home country, and for Englishmen who turned to demography it was clear that colonial claims to equality no longer could be ignored. The success of the Revolution gave the states a chance to revise their laws concerning vital statistics, but, Cassedy says, the opportunity was largely lost. The resulting hodgepodge of registration laws set back the cause of American demography for many years. The one redeeming result of Independence was the enactment of a national census law. The census in 1790

was far from accurate, but it did provide a valuable basis for demographic studies.

His own interests have, as he points out in the preface, led Cassedy to place a considerable emphasis upon the use of statistics in relation to public health and medicine, yet he does place his subject within its economic and political context. Within the limitations he set for himself, the author has done a fine job. The style is clear, and the book is surprisingly lively.

JOHN DUFFY
Department of the History of Medicine, Tulane University Medical School, New Orleans, Louisiana

Giving a Man His Due

The Shadow of the Telescope. A Biography of John Herschel. GÜNTHER BUTTMANN. Translated from the German edition (Stuttgart, 1965) by B. E. J. Pagel. David S. Evans, Ed. Scribner, New York, 1970. xvi + 224 pp., illus. $7.95.

This well-written and scholarly survey of John Herschel's life and work is of particular interest because of the great disparity between John's towering reputation in the mid-19th century and the widespread ignorance of his name after 1900. In my experience, three out of four people who have heard of "Herschel" at all will assume that you have confused the name of his father, William Herschel, and the fourth is himself not clear about the difference. To be sure, John occupies an honorable if minor place in the usual history of astronomy: not like Struve, say, or Bessel or Argelander, but honorable. Historians of photography give John a very satisfying place as the scientific friend of Fox Talbot. He figures prominently in accounts of two movements, the introduction of Lagrangian analysis into Cambridge (the well-known trio Babbage, Peacock, and Herschel), and the attempt of scientists to seize control of the Royal Society in 1830 (Herschel was the scientists' candidate for president).

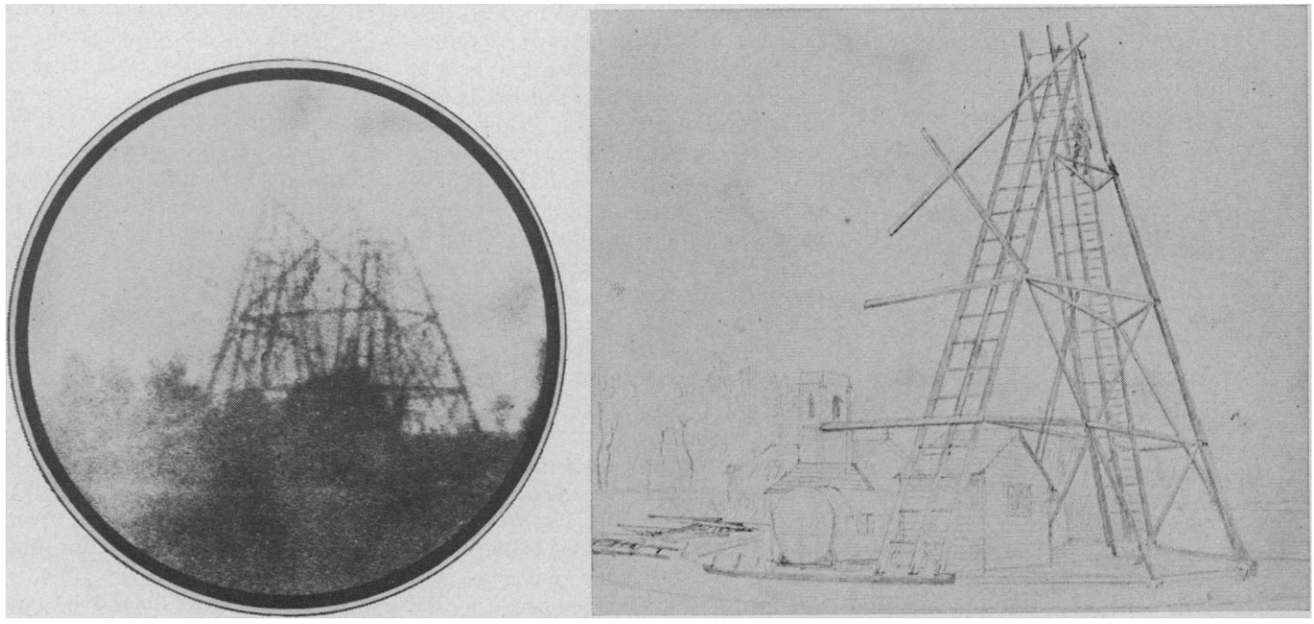
But these accounts are usually disconnected, and they do not help us understand why the name John Herschel may pop up rather mysteriously in a book on infrared spectroscopy, or one on solar physics, or on the British Mint, or on Louis Pasteur. My own insistence that John was actually the founder, in general and in detail, of the modern international network of meteorological observatories was at first met with blank disbelief, for in most histories of meteorology he ranks not at all.

Buttmann's book is therefore most welcome in beginning to bring all of the parts together, so that we can consider an interesting problem: Where did John Herschel go wrong? What does a scientist have to do for his memory to live after him?

One possible answer jumps into view. It is possible to be too good in too many fields. One may then get careless about getting each discovery into the proper channels for prize-winning in each category. One can only sympathize with Bunsen when, after he invented a new ice calorimeter, Thomas Grahame pointed out that John had done the same thing over a decade before. Bunsen complained: How could a chemist be expected to know of the contents of a book entitled *Results of Astronomical Observations Made at the Cape of Good Hope*, even if it was the prize-winning outcome of the most highly publicized individual scientific venture of the last 40 years?

Another answer might be that scientists are too much interested (where credit is at stake) in definite, labelable things, either ideas or instruments, and not so much interested in new uses or new approaches. John's astronomical surveys seem, and in part were, a completion of his father's work. But his real importance is that he, like Struve, was interested in applying precision micrometer standards to stellar astronomy, not merely in collecting and classifying double stars and nebulae. That the same kind of telescope is directed toward the same kind of objects but for a new purpose is harder to see and make exciting than the news of a new kind of telescope or a new order of resolution of nebular structure.

A somewhat less noble answer might



Views of the 40-foot telescope in John Herschel's garden at Slough, England. (Left) A photograph taken by Herschel on 9 September 1839, the first photograph ever taken on a glass plate. (Right) A camera lucida drawing by Herschel of the dismantling of the telescope, 1840. [From *The Shadow of the Telescope* (left, courtesy Science Museum, London)]