each other and medical practice was revolutionized. Despite this, Professor Cowen lucidly narrates the way in which New Jersey reacted—and contributed—to the scientific and social changes.

As the author would agree, the history of American medicine is well served by a brief medical history of New Jersey. As one of the smallest states, New Jersey's size is a sound indication of its contribution to American medicine. Completely overshadowed by New York and Pennsylvania, or more specifically by New York City and Philadelphia, medical and public health developments in New Jersey generally followed the patterns set by the larger states. As late as 1863, as Professor Cowen points out, not a single hospital existed in the State, and as late as 1954 there was no medical school.

Individual physicians and scientists in New Jersey, however, did make notable contributions to medicine, and Professor Cowen has given them full credit. On the other hand, he has no illusions about the role of his State, and he has placed its history in the correct perspective. Rather interestingly, he ends his book with a mild exhortation to his New Jersey readers to live up to their health responsibilities.

Professor Cowen's book is a readable and welcome addition to the literature on the history of American medicine.

JOHN DUFFY

A History of Immunization, by H. J. PARISH, Edinburgh and London, E. and S. Livingstone, 1965, pp. xi, 356, 50*s*.

This history by the former Clinical Director of the Wellcome Research Laboratories, Beckenham begins with an introductory survey of the whole subject, and then considers in detail certain diseases which have responded to immunization.

Prophylactic inoculation against smallpox (variola) was practised in China, India, Persia and elsewhere for many centuries. In the seventeenth century it was even done by some lay persons in Wales and the Highlands. Introduced into England from Turkey it was recommended by the Royal College of Physicians in 1754. Yet by cross-infection it increased the incidence of smallpox and fatal cases occurred. Then came Jenner's cowpox vaccine which he proved by experiment could prevent smallpox. His work is still criticised. His observations were not new, but he brought them together, proved their validity and made communal vaccination practicable. Copeman's introduction of glycerinated calf-lymph in place of crude vaccinia was an important advance and other advances have been made in the present century in vaccination.

Louis Pasteur's work on the attenuation of viruses was a further advance, and he was inspired by Jenner's experiments to prevent other diseases than smallpox by preventive inoculation. He obtained attenuated viruses by passage through animals for the prevention of anthrax, fowl cholera, swine erysipelas and rabies. The Pasteur Institute was founded in 1888 in Paris. Salmon and Theobald Smith had shown in 1884 that dead virus can induce immunity against living virus as Haffkine, Wright and Pfeiffer afterwards demonstrated. Out of all this work and opposing views on humoral and cellular (phagocytic) immunity came the researches of Metchnikoff,

the discovery of antitoxins (von Behring and Kitasato), the standardization of toxins and anti-toxins, the distinction between active and passive immunization (Ehrlich), bacteriolysis (Pfeiffer), haemolysis, agglutination of blood corpuscles as a diagnostic test, the opsonic index, and prophylaxis and treatment of many diseases by vaccines. In certain diseases, for example, cerebro-spinal meningitis and tuberculosis, vaccines have been superseded by the triumphs of chemotherapy. In others immunization still reigns supreme, as in the prevention of diphtheria and epidemic poliomyelitis.

Such are some of the features of the history which Dr. Parish has to tell. The book is well documented, well produced, and its interest is enhanced by portraits of the great exponents of immunization, past and present.

ARTHUR S. MACNALTY

Claude Bernard, Cahier de Notes 1850–1860, Presenté et commenté par M. D. GRMEK, Preface de R. Courrier, Paris, Ed. Gallimard, 1965, pp. 315, Fr. 18.

The 'cahier rouge' by Claude Bernard has been finally published in its complete text, drawings included. The paleography, headings to the notes, and the introduction have been the conscientious work of Dr. Grmek. The self-questioning of Bernard while proceeding with his experimental work is of permanent interest to the scholar and the student of biological sciences, because it indicates a pattern of scientific thinking. A selection of a scientist's work is unfair both to him and to the reader, because the editor always tends to select the accomplishments and to hide the failures of his idol. We are grateful to Dr. Grmek for offering us a Claude Bernard of flesh and blood, not only with his theoretical working hypothesis, his experimental tests and practical achievements, but also for his philosophical disquisitions. There are in the notes many ideas to be followed, some fancies to be avoided, and a whole book of interesting and stimulating reading.

F. GUERRA

Epidemic Disease in Ghana 1901–1960, by DAVID SCOTT, London, Oxford University Press, 1965, pp. 208, 18 fig., 3 pl., 35s.

During the first half of the twentieth century much of West Africa came into contact with western medicine for the first time. From the simplest beginnings the transition to established medical services has therefore been rapid. This epidemiological study covers the history of seven epidemic diseases in Ghana over the last sixty years. It is based on all the available local information and provides a fascinating commentary on this rapid transition, especially in the realm of rural health. During the period much original research was going on in tropical medicine and the influence of this on the evolution of control methods is well brought out, particularly in measures against yellow fever, cerebrospinal meningitis, and trypanosomiasis. Ghana, too, will always be remembered as the country from which the Rockefeller Yellow Fever Commission isolated the original Asibi strain, from which 17D was later developed and used for making a safe and effective vaccine.