cuits, as well as integrating circuits and pulse amplifiers. Frequent references are made to the literature, and the final contribution is a generous bibliography on counter construction and practice.

The clarity and inclusiveness of all these discussions will be welcomed by the large body of scientific and technical workers who constantly or even occasionally employ this increasingly valuable tool.

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The effect of smallpox on the destiny of the Amerindian. **E. Wagner Stearn and Allen E. Stearn. Boston, Mass.: Bruce Humphries, 1945. Pp. 153. $2.50.**

Introduced to the New World shortly after Columbus' discovery, smallpox decimated the native population for four centuries, constituting one of the most important factors in the displacement of the American Indian by the Whites. It has been estimated that between the years 1500 and 1850 at least 3,000,000 Indians died from smallpox in the West Indies and in Central and South America. The authors of the present volume give an account of its ravages north of Mexico, where the disease claimed approximately an additional 500,000 lives of an aboriginal population of 1,150,000. The role disease plays in the history of populations cannot be overemphasized and constitutes an approach that has not received the attention it merits. The effect of smallpox was devastating on the American Indian not only in the often complete extermination of whole villages and tribes but also in the spreading of terror, the breaking of morale, and the disintegration of native cultures.

In a well-documented account the spread of smallpox is traced from tribe to tribe. It is shown that epidemics appeared in cycles and that the death rate varied, depending on the virulence of the virus, the type of smallpox, and how much care the sick received. Recurrence of high death rates depends on the growing up of nonimmune populations. With the exception of a statement in which the American Indians are referred to as a "highly susceptible, non-immune race" (p. 8), the authors make it clear throughout the book that, strictly speaking, there is no such thing as "racial immunity." Early attempts to prevent infection were generally unavailing and in many instances met with strong resistance. Control came about gradually at first (1721) through variolation, after 1797 through vaccination, until in 1905 smallpox ceased to be a menace to the Indian.

Necessary corrections are few and of only a minor nature. The population figures for the American Indian are based on the estimates of Mooney, which are the most reliable in existence. A revision of these figures is available only for California.

The authors are to be commended on having made a valuable contribution both to the history of medicine and to anthropological demography in this well-documented and readable reference work.

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Theory and practice of filtration. **George D. Dickey and Charles L. Bryden. New York: Reinhold, 1946. Pp. v + 346. (Illustrated.) $6.00.**

In this new book the co-authors of the older volume, *A textbook of filtration*, have greatly expanded the scope of the work with the introduction of much new subject matter. A brief history of filtration is followed by a comprehensive discussion of the objectives, the media, the apparatus and machinery, and many of the applications of filtration as a unit operation. In its description of filters and filter presses of all kinds and the mechanics of their operation the book is undoubtedly all that could be desired, except perhaps that, in spite of a prefatory promise, operating data on which to base plant equipment design are somewhat meager.

It is rather in the matter of filtration theory that the work falls short of meeting the implications of its title. The mathematics of the subject, such as it is, is touched lightly indeed, and the chemistry and physics of colloidal suspensions are ignored. Surely the plant engineer bedeviled with the problem of filtering a gelatinous slime would find little in this volume to comfort his misery. By the same token a history of filtration should at least mention the blood, sweat, and tears shed in developing the art of activated sludge filtration in Milwaukee in the early 1920's.

Lest the reviewer's stand be misconstrued, it should be said that filtration practice ranges on the one hand from the dewatering of granular suspensions that present no difficulty to the pretreatment and dehydration of complex slimes on the other; only the science of colloids can give much help to the solution of problems in this latter and more important phase of the subject. If the reviewer were allowed to compromise on a title such as *The practice of filtration*, he would in all sincerity call this a fine book.

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Human embryology. **Bradley M. Patten. Philadelphia-Toronto: Blakiston, 1946. Pp. xv + 776. (Illustrated.) $7.00.**

Teachers of embryology in medical schools will welcome this volume on the development of the human embryo as an addition to the literature of this special field. The emphasis on the incompleteness of our knowledge, which necessitates a changing viewpoint as more information is acquired, holds before the student the too easily forgotten idea that science cannot be learned "once for all time."

The excellent illustrations of progressive stages of histogenesis in different organs help to bridge the gap between the thin line of cells representing the organ in the embryo and the adult tissues as studied in histology. The inclusion of some gross dissections of the adult body is an excellent idea, since the steps taken by the fetus in development are better understood when the goal to be attained is clearly defined. The three stages in the descent of the testis and the schematic