REGARDING FSH AND LH

IN the January 17, 1941, issue of SCIENCE, Coffin and VanDyke propose the names thylakentrin and metakentrin for the anterior pituitary follicle stimulating and luteinizing hormones. It would seem preferable that the preparation of a purer product not be made the occasion for renaming these hormones, but that they be renamed by their chemical structure if it is ever known or only after the fundamental action of each is known. When that time comes the terminations "trophic" or "kinin," with usage already established, may well be found to be appropriate.

The follicle stimulating hormone might then appear under some such new name as gametokinin, or gametotrophic hormone, the luteinizing under some short name signifying sex-hormone-generator.

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SCIENTIFIC BOOKS

TUBERCULOSIS

Studies on Tuberculosis. The Spread of Tuberculosis in Negro Families of Jamaica, B. W. I. By E. JOYCE SAWARD, PERSIS PUTNAM and EUGENE L. OPIE. *The Fate of Negro Persons of a Tropical Country, Jamaica, B. W. I., after Contact with Tuberculosis.* By EUGENE L. OPIE, PERSIS PUTNAM and E. JOYCE SAWARD. *A Survey of Tuberculous Infection in a Rural Area of East Alabama.* By A. H. GRAHAM, P. W. AUSTON and PERSIS PUTNAM. *The Fate of Persons Exposed to Tuberculosis in White and Negro Families in a Rural Area of East Alabama.* By A. H. GRAHAM, P. W. AUSTON and PERSIS PUTNAM. Pp. 198. Baltimore: The Johns Hopkins Press, 1941.

AS the magnitude of the total tuberculosis problem declines, with the lessening general death rate from this disease, certain concentrations of mortality become increasingly conspicuous. Most prominent in this perspective is the severity of tuberculosis in Negroes. The excessive Negro mortality has been repeatedly investigated. The two causes on which greatest stress has been laid are a genetic inferiority in resistance to tuberculosis as compared with the white race and the Negro's relatively unfavorable social and economic environment.

The authors of the monograph here reviewed have approached the problem from the latter point of view. The facts and figures recorded are impressive in their own significance, but doubly so in view of the basis established by a long series of studies by the same and associated authors, in past years.

The investigations on which the monograph is based were aided by grants from the International Health Division of the Rockefeller Foundation, made over a period of approximately fifteen years to Opie and his associates for studies in Philadelphia, Jamaica and Alabama in communities suitable in environment and existing facilities for comparison of the course of tuberculosis in whites and Negroes.

The spread of tuberculosis through intimate association of the sick and the well is the core of the tuberculosis public health problem. Previous studies by Opie and McPhedran in the same general series of papers as the one here under consideration led to the conclusion that "the spread of tuberculosis occurs in large part by long drawn-out family or household epidemics in which the disease is slowly transmitted from one generation to the next." All those conditions favoring household spread of tuberculosis to which Opie and his colleagues have drawn attention in previous papers, are exaggerated in the Negro race, and especially so in Negroes in the environments selected for special study. Poverty and crowding, with abundant opportunity for spread of disease, were maximal in the poor quarters of Kingston, Jamaica, where members of 1,100 families were under observation in a tuberculosis clinic. As a whole, the environment from which the patients came was characterized by "unhygienic housing conditions, uncleanly habits and lack of facilities for segregation of those who suffer with the disease." Under the conditions rapid spread of the disease within households was the rule.

Two features of Negro tuberculosis brought out in this and in previous studies are the great number of tubercle bacilli in the sputum in Negro patients and the rapidity of progression of serious disease. The latter is of important epidemiological significance, for it means a much smaller number of living cases in proportion to annual deaths in the Negro than the white race. Apparently maximal spread of the disease coincided with its latest stages. The Alabama papers speak of an "explosive" attack rate in families after a death from tuberculosis.

The attack rate in this series of studies has shown a constant relation to the age at which exposure commenced. Analysis by groups on the basis of age at the time of first exposure in the home showed that a prompt rise in the number of cases of tuberculosis occurs in all age groups following contact with tuberculosis. The chief purpose of the analysis was to determine if exposure of adults leads to immediate evidence of infection, just as it does in children. The

affirmative answer constitutes a strong argument for the view that the tuberculosis of adults is exogenous.

The study thus throws new light on two of the most debated problems in the whole field of tuberculosis investigation, *viz.*, the cause of the Negro's high mortality and the relative importance of endogenous and exogenous infection in adults. The close relation between intensity of exposure and frequency of onset of tuberculosis emphasized the rôle of environment as the chief factor responsible for the Negro's excessive rate. The prompt rise in incidence following exposure in adult years furnishes an almost incontrovertible argument for exogenous rather than endogenous infection as the basis for the bulk of the tuberculosis of adult life in the population studied.

The reader is left with certain questions still in mind on the character of Negro tuberculosis. The excessive number of bacilli in the sputum, the unusual intensity of the tuberculin reaction as compared with that observed in white patients and the high proportion of lesions of the "childhood type" in Negroes of adult years in a population almost universally infected by the age of ten years, can hardly be explained on the basis of environment alone. In the present series of papers the authors have not attempted an explanation of these phenomena. The record in the respects indicated is limited to the objective presentation of facts.

The papers will be of lasting value for the science of epidemiology. In addition they indicate a practical basis of operation in programs of tuberculosis control in Negroes. The statistical methods employed and the family graphs presented make perfectly clear the gravity of exposure and the results likely to follow under a given set of circumstances. The book should be studied by every public health officer dealing with the problem of Negro tuberculosis.

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ELECTRICAL ENGINEERING

Principles of Electrical Engineering. By WILLIAM H. TIMBIE, professor of electrical engineering and industrial practice, Massachusetts Institute of Technology, and VANNEVAR BUSH, president of the Carnegie Institution of Washington. Third edition. 540 pages, 388 figures. New York. John Wiley and Sons, Inc. 1940. (There is a supplementary paper-bound booklet containing the answers to the 649 problems which are distributed throughout the textbook.)

THIS book describes clearly and simply the fundamental experimental and theoretical bases of electrical engineering. Following an elementary qualitative discussion of the Rutherford-Bohr-Summerfeld theory of atoms: the principles of direct-current circuits, the magnetic circuit, induced electromotive forces, forces on conductors, electric fields, electronics, conduction in solids and liquids, and electrodynamics are discussed briefly with particular emphasis upon their implications in electrical engineering. The authors presume that students who use their book will have studied courses in elementary algebra, trigonometry and differential and integral calculus, and a general introductory course in physics. Although the material of the text is necessarily developed from mathematical physics, the emphasis is everywhere, and particularly in the problems, upon those aspects of mathematical physics that are relevant to electrical engineering.

The authors have chosen their material and the methods of presenting it with the guiding criterion that the book shall be practically useful from the student's point of view. Thus the mathematical derivations are detailed but simple; the qualifications and limitations of the elementary theories are briefly stated and the student is referred to other books for a detailed account of them. The book is therefore comprehensive without being complicated. The authors have included references to the original classic works of such men as Ampere, Faraday and Maxwell.

The Theorem of Superposition, Thevinin's Theorem and equivalent circuits are introduced in an elementary manner in the chapter (IV) on "The Simplification of Electric Networks." The extension of these ideas to alternating-current networks is not discussed, nor is there any discussion of the conventional tricks, such as the use of complex numbers, for solving steady-state alternating-current problems.

In the chapters on electric and magnetic fields the authors have not used vector notation. In many cases it would appear that the introduction of elementary vector concepts with their symbols would have made these discussions more simple and more clear.

The perspicacity of the authors of this excellent text-book is epitomized by two sentences which they wrote nearly twenty years ago in the preface to the first edition—"The subjects of thermionic emission, conduction through gases, electrolytic conduction, and certain high-frequency phenomena have been included. A knowledge of these matters is becoming more and more essential to the electrical engineer in any field." The progressive attitude symbolized by these statements has guided the authors in their preparation of this, the completely revised third edition of "Principles of Electrical Engineering."

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