

produce the unstable mesons, many of which reach the bottom of the atmosphere and even penetrate deep down into the earth. Another fraction of the energy goes into electrons and photons and eventually appears as ionization in the atmosphere. Another fraction is in the nucleonic component, some of the energy being used to break up atmospheric nuclei. Finally, in many of these interactions, energy escapes in the form of neutrinos and is never recovered. Almost one-fourth of the energy goes into neutrinos, about 60 percent into ionization in the atmosphere, about 10 percent into breaking up nuclei, and the remainder penetrates into the earth.

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Recent Progress in Hormone Research.

vol. XII. Proceedings of the Laurentian Hormone Conference, 1955. Gregory Pincus, Ed. Academic Press, New York, 1956. 453 pp. Illus. \$10.

Vitamins and Hormones. vol. XIV.

Advances in research and applications. Robert S. Harris, G. F. Marrian, and Kenneth V. Thimann. Academic Press, New York, 1956. 486 pp. Illus. \$10.

Both of these books attempt to present the recent advances in endocrinologic and vitamin research. Endocrinology is moving so rapidly that it is essential to have the means whereby new advances can be quickly disseminated. In this aim these two volumes will aid the busy investigator to a large measure but not completely.

Recent Progress in Hormone Research is divided into four parts: "Hormone biosynthesis and metabolism," "Hormones and metabolism," "Pituitary hormones," and "Sex hormones." The following chapters add new life to this series: "The adrenal medulla and the biosynthesis of pressor amines" (Paul Hagen and A. D. Welch); "Influence of steroids on cerebral metabolism in man" (Gilbert S. Gordon); "Human urinary gonadotropin" (A. Albert); "Pituitary syndromes in man" (Roberto F. Escamilla); "Male sex hormone and its role in reproduction" (Thaddeus Mann); and "Clinical studies of testicular hormone production" (R. B. Leach, W. O. Maddock, I. Tokuyama, C. A. Paulsen, W. O. Nelson). As a matter of fact, these contributions make this volume a *must* for the reading list and permanent scientific library of the busy endocrinologic investigator.

The current issue of *Vitamins and Hormones*, volume XIV, presents a truly remarkable synthesis of current and new research developments by eight contributors from Great Britain, Germany, and

the United States. This volume is by far the most scholarly ever produced in this series, and all eight chapters will provide enough stimulation for at least the next 5 years. This volume includes: (i) "Intestinal synthesis of vitamins in the ruminant" (Olaf Mickelsen); (ii) "Some aspects of vitamin-A metabolism" (J. S. Lowe and R. A. Morton); (iii) "Regulation of carbohydrate metabolism in isolated tissues" (A. E. Renold, J. Ashmore, A. Baird Hastings); (iv) "Experimental hyperglycemic states not primarily due to a lack of insulin" (K. H. Shull and Jean Mayer); (v) "Biochemical studies on insect hormones" (Peter Karlson); (vi) "Glucuronide metabolism, with special reference to the steroid hormones" (G. A. Levvy); (vii) "Bioassay of pituitary and placental gonadotropins in relation to clinical problems in man" (J. A. Loraine); and (viii) "Microbiological transformations of steroids and their applications to the synthesis of hormones" (S. H. Eppstein, P. D. Meister, H. C. Murray, D. H. Peterson).

It is encouraging to have our foreign colleagues contribute so unselfishly to these two volumes. The endocrinology of the male receives a comprehensive evaluation and elucidation in the scholarly approach of Mann. His personal researches in a world-famous laboratory and his critical appraisal of hitherto embalmed "facts" provide not only a clear statement of male endocrinology but a sterling example of the scientific method. The pioneering researches of Mann and his associates at Cambridge University have illuminated an area of endocrinology that has been befogged with numerous misconceptions. Following the comments on the role of the male sex hormone in reproduction by Mann, in *Recent Progress in Hormone Research*, the observations on the clinical studies of testicular hormone production, in the chapter by R. B. Leach and his colleagues, prove of great scientific interest. This chapter indicates that (i) the Leydig cells, rather than Sertoli or germinal cells, are the source of estrogen secreted by the human testis; (ii) adult functioning Leydig cells respond to stimulation with human chorionic gonadotropin by secreting increased amounts of both androgens and estrogens; (iii) the increased titers of androgen and estrogen act on the pituitary, thereby inhibiting the secretion of the gametogenic hormone (F. S. H. in the male) and thus producing seminiferous tubule damage; and (iv) estrogen secretion is a more reliable and sensitive indication of Leydig cell function than is the excretion of the numerous 17-ketosteroids. (The authors conclude that "the most probable explanation for this is that 80 percent or more of estrogens normally arise from the testes, whereas less than half of the

17-ketosteroids originate from Leydig cell secretion, the majority being of adrenal cortical origin.") These two chapters on the male sex hormone are enlightening both from a research point of view and as an important contribution to the medical profession.

Levy's chapter on glucuronide metabolism, with special reference to the steroid hormones, in *Vitamins and Hormones*, represents a careful appraisal of what is known concerning glucuronide metabolism. This chapter, which is heavily laden with significant references, indicates that (i) "quantitative changes in the β -glucuronidase activity of animal tissues do not necessarily provide qualitative evidence on the function of the enzyme"; (ii) "so far as the possible function of β -glucuronidase is concerned, there is nothing on which to base an opinion except its hydrolytic action on steroid and other glucuronides"; (iii) "the β -glucuronidase activity of all body tissues appears to be under endocrine control. It does not follow that an alteration in enzyme activity produced by a hormone is an essential feature of the metabolism of that hormone, nor that it is in any sense an adaptive response"; (iv) "in healthy individuals, deviations from the mean in the β -glucuronidase activity of an organ or body fluid may reflect variations in endocrine constitution, and in the extreme case peculiar susceptibility to degenerative disease"; and finally, (v), "the activity of the enzyme in sex and nonsex organs is under endocrine control and is also governed by hereditary factors." Biochemists working in this active area of research will find Levy's analysis of present-day knowledge on the β -glucuronidase enzyme extremely worth while.

In the final analysis, both volumes are factual and are truly an asset to the scientific literature. The editors of both volumes are to be congratulated for their continued service in these ever-expanding areas of knowledge concerned with the hormones and vitamins.

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Principles of Color Television. Hazeltine Laboratories Staff. Knox McIlwain and Charles E. Dean, Eds. Wiley, New York; Chapman & Hall, London, 1956. 595 pp. Illus. \$13.

When, on 17 December 1953, the Federal Communications Commission gave its approval to the transmission standards for compatible color television broadcasting which had been proposed by the National Television System Committee, new and unfamiliar problems were posed for the rank and file of engi-