duction of controlled photo-chemical changes. For example, the ultra-violet lamp is commonly used for accelerating fading and ageing processes: to determine the resistance of dyed fabrics, paints and inks to sunlight, and to examine the conditions governing the ageing of rubber, bitumen and similar substances. The exhibits drawn from the automobile industry included a section designed to illustrate ageing and fading tests on safety glass, paint finish and upholstery materials. To illustrate the testing of paints and bitumen finishes photographs were exhibited showing the extensive installations of ultra-violet lamps at the Building Research Station and at the Paints Division of Imperial Chemical Industries, Ltd. Among these exhibits were samples of magnesium alloy showing the effect of six cycles of weathering test and also showing the protection afforded by temporary corrosion preventatives after twelve similar weathering cycles.

Finally, photo-chemical changes induced by ultra-violet radiation can be used productively in a recently developed process whereby acrylic sheets are cemented in such a way that the joint does not impair the excellent optical properties of the material. In this process cement is applied to the pieces to be jointed; irradiation by ultra-violet light then converts the joint into a solid homogeneous whole.

SEX HORMONES*

PROGRESS in sex hormones has been very rapid, but books reporting it are few. The second edition of the book, *Biological Action of Sex Hormone*, will therefore receive a warm welcome by all those who wish to gain insight into the fundamental aspects of sex hormones. In this volume, the author has included recent rapid developments in the field and has succeeded in presenting a co-ordinated summary of contributions in the field and their practical application.

According to the author the purpose of the book is to survey the present knowledge of sex hormones and to acquaint the readers with the methods employed by the scientists in their research. The book is divided in six parts. The first part which includes Chapters I to IV concerns gonadotrophins of the pituitary and placenta. Discussing the nature and functions of gonadotrophins, the author remarks that its chemical nature has not been exactly determined, but it has been established that the pituitary and placental gonadotrophins are not identical Evidence of a difference between the gonadotrophins derived from pituitary and placenta is afforded in this chapter. In subsequent chapters the author deals with factors which influence the gonadotrophic activity of the pituitary, factors which influence the reaction of gonads to gonadotrophins and the factors which affect the cytological structure and weight of the anterior lobe of pituitary.

Part II deals with a general view of the gonadal hormones. After a general preview the author discusses the experimental inquiry into the nature and action of sex hormones. The chemical structure of the three main types of gonadal hormones—œstradiol, testosterone and progesterone—has the same basis and the divergence from the common pattern which account for the diverse actions of these hormones in the body are seemingly slight.

Part III which includes Chapters VI to X relates to androgen, its action on reproductive organs before and after their complete differentiation, the action of androgen on accessory generative organs and on tissue and organs other than these The first experimental demonstration of hormonal action by testes was made by John Hunter (1794) and later on Brown Séquard (1889) tried testicular extract on himself. The effects were not very striking. Subsequently various other workers carried on investigations on the effects of testicular hormone on different organs and noted the results. With the results obtained by these pioneers to give encouragement, a rapidly growing volume of research has been done and the author has referred to some of these.

Part IV, Chapters XI to XX, is concerned *with œstrogens. It gives a brief consideration* of the source, metabolism and excretion of œstrogens, gradient of responsiveness, and reversibility of the effects. The action of œstrogens on embryonic gonads and Mullerian and Wolffian system, on the anterior lobe of pituitary and on the gonads after their differentiation, on the accessory genital organs, has been very elaborately discussed. Discussing the factors in the causation of mammary cancer the author quotes that long before the identification of œstrone, the ovary was thought to be an agent

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* *Biological Action of Sex Hormones.* By Harold Burrows. Second Edition (Cambridge: At the University Press) 1949. Pp. xiii+615 Price 42 *s.*

in the development of cancer of the breast. Numerous observations have been made regarding the role of œstrogen in mammary cancer and there is evidence that in women œstrogens are concerned in the etiology of breast cancer. Not only does the clinical evidence point to such conclusion, but now cases are being reported in which cancer of the breast has followed prolonged treatment with œstrogen. The effects of œstrogen on connective tissue, skin, liver, pancreas, blood vessels, thymus and adrenals have also been dealt with in two chapters.

The fifth part surveys the sources, and metabolism of progestins—the active principles of the corpora lutea of the ovary, and their biological action. The main action is on pituitary, on embryonal development, on testes and ovary and accessory genital organs. The progestins play an important part on the œstrous cycle and menstruation. The action of progesterone on the uterus are intimately concerned with reproduction, nidation of ova, pregnancy and parturition. References have also been made to the co-operative and antagonistic effects of œstrogen and progestin and of action common to progestin and adrenal cortical hormone.

The sixth and the concluding section describes the sex hormones of adrenal cortex, pituitary-adrenal relationship, adrenal-gonad relationship and the inactivation of deoxycorticosterone by the liver. Probably the fate of adrenal steroids resembles that of gonadal hormone, but much has yet to be learned about this metabolism.

The international units of sex hormone activity are given in the appendix and are very useful. At the end of the book there is a bibliography which helps the readers to refer to other literature on the subject for additional information.

The author has attempted to cover the entire subject and the treatment is fairly comprehensive and to the point. Emphasis has been laid upon experimental aspects and upon the evidence which these give in support of various theories The volume is well printed in clear type and is admirably produced. It is educative and commends itself to students of biology and medicine and to all who have academical or professional interest in the subject of sex hormones.

N. N. De.

INDIAN DAIRY SCIENCE ASSOCIATION

THE Third Annual General Body Meeting of the Indian Dairy Science Association was held on 1st March 1950, at the Indian Dairy Research Institute, Bangalore, Dr. K. C. Sen, Director of Dairy Research, presiding,

This Association, founded in 1947, with the object of furthering the advancement of dairy science, has made noteworthy progress in all directions. One of its most important tasks is the publication of the *Indian Journal of Dairy Science*. A non-technical monthly, *The Indian Dairyman*, is also being published under the joint auspices of this Association and the Bangalore Dairy Cattle Society for disseminating knowledge to the layman.

In their Report, the Secretaries of the Association described the various activities of the Association and appealed to the dairy scientists industrialists and other persons interested in the progress of dairy industry in India to strengthen the Association by enrolling as members and giving liberal donations. Sir Datar Singh was re-elected as President of the Association.

In his Presidential Address (read by the Chairman) Sir Datar Singh pointed out the need for re-orienting our cattle and dairy development policy keeping in view our present resources, the conditions of milk production and the purchasing power of our people. For increasing milk production we have more and more to depend on the co-operation of the people both in the productive sphere as well as in the marketing side and must organise producers' and consumers' co-operative societies. Considerable advance in this direction has been made in Madras, Bombay, Uttar Pradesh and elsewhere. The Indian Council of Agricultural Research had sponsored the Key Village Scheme for providing approved breeding bulls, giving technical and veterinary aid to the producers, supply of cattle feeds at reasonable rates and castration of all scrub bulls. Reference was also made to the useful role played by Gaushalas and Pinjrapoles in the development of cattle wealth and to the potentialities of the well-organised Military Dairy Farms all over the country. Sir Datar drew particular attention to the practice of adulteration of milk and milk products which must be eliminated quickly if the marketing of milk and milk products is to be organised successfully.
