of the reactionary hyperactivity in the remaining ovary after unilateral ovariectomy and the factors involved in its genesis. S. Zuckerman summarizes the recent researches in his department on the question of oogenesis in adult animals and concludes that this does not occur in the rat, rabbit or monkey, though it may in the lemur, armadillo and guinea pig. Another paper with some bearing on this subject, though with far wider significance also, is that by A. S. Parkes on the conservation of gonadal tissue by deep freezing after glycerol treatment. Such tissues, after apparently indefinite storage, may behave much like fresh material on grafting.

There are a number of papers dealing with cancer research. F. Bielschowsky, discussing the influence of the ovaries on the production of chemically induced cancers, states that mammary cancers were obtained in nearly as high an incidence in rats bearing ovarian grafts as in intact animals, and that such tumours developed whether the graft formed corpora lutea or not. B. A. and A. B. Houssay, A. F. Cardeza, V. G. Foglia and R. M. Pinto describe the adrenocortical tumours which develop slowly in white rats after gonadectomy. Many of these tumours eventually elaborate œstrogens, under the influence of the pituitary gonadotrophins. A. Lacassagne, L. Hurst, F. Zajdela and R. Royer, writing on the experimental production of cancer of the liver, conclude that there is no sex difference in susceptibility, and that œstrogens decrease the susceptibility, while castration of the male, the administration of testosterone to castrates of both sexes, or of progesterone to castrate males, increases it. A brief paper by Peyton Rous reviews cancer research over the years.

Problems relating to the action of reproductive hormones are considered in another group of papers. John Hammond writes on the effect of the plane of nutrition on hormone action, and on the curious way in which uterine infections in cattle occur much more readily under the influence of progesterone than of œstrogens. F. J. A. Paesi, E. M. van Soest and S. E. de Jongh conclude that androgens take no significant share in the development of the secondary sexual characters of the female rat. C. D. de Pasqualini describes the effects of adrenal grafts in adrenalectomized rats ; in such animals there is luteinization of the ovaries or hyperplasia of the Leydig cells of the testes. Some abnormality of function of the adrenal graft appears to lead to the secretion of excessive amounts of pituitary luteinizing (or interstitial-cell-stimulating) hormone. The relations between the gonads and the adrenal cortex are also discussed by A. D. da Costa. Gregory Pincus and M. C. Chang confirm the effectiveness of progesterone as an inhibitor of ovulation in the rabbit, and they also discuss the effectiveness of other related steroids.

Among the papers on steroid chemistry, R. Courrier writes on the allenolic series of artificial œstrogens, E. C. Dodds on the relation of stilbœstrol to naturally occurring œstrogens, and Christian Hamburger on the ultra-violet absorption spectra of œstrogens. K. Miescher, A. Wettstein and F. W. Kahnt demonstrate the conversion by adrenal homogenate of 9 : 11-dehydro compound-S acetate into its 11-β-hydroxylated derivatives (17-hydroxycorticosterone and its acetate), and this finding, they conclude, strengthens the supposition that 9 : 11-dehydro-steroids may represent important intermediates in the metabolism of the adrenal cortical hormones.

Other essays in this interesting collection deal with aspects of diabetes (V. G. Foglia ; O. Koref, L. Vargas and A. Vukusic) ; cardiac activity (B. Gunther ; F. Hoffmann, S. Middleton, A. Molina and J. Talesnik ; O. Orías) ; hormonal factors in the development of inflammation (H. Selye) ; the discovery of uterine smooth muscle (G. W. Corner) ; histochemical reactions of mast cells (W. Buño) ; and a variety of other topics including renin, the cytology of urinary sediment as an indicator of œstrogenic stimulation, respiratory control, motor nerve section, the neurovegetative system, and certain factors influencing the voluntary intake of alcohol by rats.

G. I. M. Swyer

FORESTRY IN THE SUDAN

THE annual report for July 1951–June 1952 of the Forest Department of the Sudan* is a very full and discursive document of sixty-nine pages and deals with many sides of what should be wholly the work of the forest officer alone. As an introduction, the report states "the brief description of the distribution and main uses of the forests which has been included in previous reports is repeated here". The statement of the forest policy in force, laid down in 1932, which is given in full in chapter 2 of the report, defines the division of responsibility between the Chief Conservator and governors of Provinces. The latter are responsible "for ensuring that the permanent supply of forest produce is sufficient to meet the internal requirements of their Provinces". Governors are, moreover, "empowered to declare as Provincial Reserves such areas as they consider necessary" ; they are "to prepare programmes in accordance with their estimated future provincial requirements and engage staff to carry them into effect". It might be logically asked—What is the Forest Department for ? The statement adds that "expenditure in this connexion will be borne by province budgets and that Governors may refer to the Chief Conservator for advice".

The Chief Conservator writes in this annual report that "twenty years have now elapsed since this policy was laid down and it is timely to review results. They are not wholly satisfactory." The provincial forests made by Governors during the period only amount to one thirty-seventh of the area of the reserved forests owing to the very natural preoccupation of provincial administration staffs with other duties and a lack of appreciation of the fact that forestry is essentially a long-term business. A revealing comment from the report is that "forestry is so dwarfed by State Agriculture in the Sudan that it is not often realized that the scale of all-round forestry here is now greater than in other African territories of comparable resources", and, it might have been added, though the forestry staff is much smaller.

The wonderful success of the Gezira undertaking placed the Agricultural Department in its present position in the administration of the Sudan. Had the gum arabic, a purely forest product, been placed under the management of the Forest Department as it logically should have been, the annual revenue received, a considerable portion of the Sudan's

* Sudan Government. Forest Department of the Ministry of Agriculture : Report for the Period July 1951 to June 1952. Pp. iv+70. (Khartoum : Ministry of Agriculture, Forest Department, 1953.)

annual budget, instead of being credited to the district revenues would have come to the Department. The latter would have had long ago sufficient strength to put in force the urgent variety of work which, the report shows, is now being attempted. If it is necessary to train the forester for his duties, it follows that they cannot be carried out, nor even fully understood, by other elements of the administration. The striking example is the collection of the valuable gum arabic by the people under the ægis of the civil administration to which, as has been said, is credited this valuable revenue. It brings to mind the old days, during two-thirds of the last century in Madras, when the revenue authorities considered that the forest officer could only exercise his duties in the heavy timber forests, chiefly situated in the western half, and that he had no jurisdiction in the scrub forests in the eastern half of the Presidency, the produce of which was credited to the district revenue with no supervision over its collection. The points of view of the Governor-General and the Secretary of State for India in this matter were at length accepted by Madras, and all forests and their products, including timber-producing or scrub valuable for firewood and grazing and some other minor products, were placed under the Forest Department and all revenues therefrom credited to that Department. It is not too much to believe that, had the gum arabic product been placed under the Forest Department in the Sudan even as late as 1932, the methods of collection and regulation of the so-called 'gardens' would have long ago been under a working plan and a larger annual revenue could be now realized (see para. 179 of the report).

With the comparatively recent expansion of the work during 1951–52, 496,469 feddans of new reserves were gazetted, bringing the total of reserved forest up to 722,553 feddans (1,173 square miles), which seems very little to show for fifty years of work. But taking areas under reservation, the area totals 3,051 square miles, representing 0·314 per cent of the total area of the Sudan. It is noted in the report that Uganda has already more than 7 per cent of reserved forest. In knowledgeable quarters it is judged that 15 per cent of well-distributed forests is none too much for safety in an arid tropical country. A very considerable amount of planting has been carried out during the year, a large planting campaign having been organized.

The staff of the Department amounts to twenty officers (two under training in the United Kingdom) and seventy-six in the subordinate ranks, other than forest guards, who are not mentioned. If this staff was doubled it would scarcely be able to carry out all the duties facing a Forestry Department entrusted by its Government to undertake all the forestry work in the country. Enumeration surveys of all forests of commercial value, in which saw-mills appear to be multiplying, and, perhaps even more important, investigations into the ownership of supplies from which the large demands for firewood and charcoal are being obtained, would appear to be urgent. For example, one reads in the report on this subject: "For the southern division the Conservator writes of the increased prosperity in Khartoum Province, reflected in much building with an accompanying increase in the demand for firewood to burn the bricks. The demand far exceeded the supply of firewood imported by the Department into Khartoum Province on rail, with the result that the illicit cutting of desert 'scrub' forest showed an unwelcome increase, although no widespread devastation took place." Who is to be the ultimate sufferer through the "illicit cutting of the desert 'scrub' forest"? Moreover, who is the authority directly responsible? Is it the Forestry Department?

In the seventies of the last century a somewhat similar situation arose in the so-called *rukhs* in the Punjab plains, covered by a desert scrub, on account of its use for firewood. The newly building railways demanded wood fuel for running the engines and wished to have the exclusive use of the scrub; the calculations of the possible available amounts included digging out and utilizing the roots, thus ensuring a resultant desert. This was prevented by placing the management of the *rukhs* under the management of the Forest Department, which, as the Secretary of State said, had been brought into the administration and trained for the purpose of undertaking this type of work. E. P. STEBBING

ROBERT JAMESON AND THE ROYAL SCOTTISH MUSEUM, EDINBURGH

A PAPER by Mr. V. A. Eyles on "Robert Jameson and the Royal Scottish Museum", published in the April issue of *Discovery*, is particularly appropriate in view of the centenary this year of the Royal Scottish Museum, Edinburgh, for it was through Jameson's enthusiastic labours in the College Museum that eventually it attained such a status that it was taken over by the State. In a foreword, Mr. Eyles describes the origin of the University of Edinburgh and its relationship to the civic authorities. He then records the circumstances of the establishment of the chair of natural history and its progress under Dr. Robert Ramsay, Dr. John Walker and Robert Jameson, who succeeded in 1804.

The professor of natural history was *ex officio* keeper of the Museum, and Jameson, in addition to a long and distinguished career as a naturalist, was also zealous in his care of the collections. Eventually geology became his chief subject, and he was caught up in the great Huttonian–Wernerian controversy. He studied under Werner in the mining town of Freiburg for nearly two years; and Eyles records that he "absorbed uncritically all that he [Werner] had to say" and eventually became the greatest protagonist for Wernerism in Britain. But his enthusiasm for geology did not mean the neglect of the other branches of natural history, for he lectured on meteorology, hydrology, mineralogy, geology, botany and zoology—truly a formidable list. The general impression among his students, including Charles Darwin, was that the lectures were rather dull but accurate, and unrelieved by any humour or figures of speech.

As a museum man, Jameson experienced all the trials of a present-day curator, including lack of accommodation and funds. In 1852 Jameson prepared a report on the Museum, and eventually the collections were accepted by the State in 1854. The foundation-stone of the Royal Scottish Museum in Chambers Street was laid by the Prince Consort in 1871. All interested in the history of geological studies and their influence on contemporary thought are indebted to Mr. Eyles for his painstaking paper.