method is regarded as an economic proposition with a 12-in. bore pipe-line over distances of 50–200 miles. In building, the report notes the trials made with hydraulically operated back-acting diggers thought to be suitable for digging foundations and drainage trenches; with the 'vacuum-processing' of concrete and the 'vacuum-lifting' of concrete units; and with the Tournalayer system of building, in which the concrete shell of a house is cast at a central point on a building site, and then carried away and placed on its foundations.

In mechanical engineering, considerable interest has been stimulated in the hot-forming and machining and grinding of titanium alloys, and in electrical processes for shaping and finishing hard materials, and increased attention is being given to the characteristics of machined surfaces. There has been an enormous growth of research in applied mechanics, and growing interest is also noted among engineers in the science of management and in the application of operational research to management problems. In metallurgy the shell-moulding process has attracted further attention; but phenol – formaldehyde resins continue to be the only ones of industrial importance as binders when casting alloys of relatively low melting point like those of aluminium. The production of nodular cast iron continues to increase, and American foundries are now investigating the effect of adding cerium simultaneously with magnesium to neutralize the harmful effects of residual elements.

EUROPEAN PRODUCTIVITY AGENCY

FIRST ANNUAL PROGRAMME OF ACTION

THE summary of the first annual programme of action of the European Productivity Agency, published by the Organization for European Economic Co-operation, Paris, points out that a campaign to increase productivity sets both technical and psychological problems, the latter being the more difficult and important. Some of the sociological effects of technological advances may be wholly beneficial, but others, such as the need for the worker to adapt himself to new processes or new trades, may cause temporary individual problems and require careful study. Resistance to change is not confined to labour; and it is important for it to be known that, under European conditions, higher productivity in the long run means increased possibilities of employment and that any temporary risk of technological unemployment is far less grave than that facing a community which allows itself to fall behind others in the efficient use of its resources. With proper co-operation between management and labour, even technological unemployment can be avoided, if everything is done to increase the speed of adaptation to new tasks by improving vocational training and to facilitate mobility of labour by housing policy and efficient labour-exchange services.

As regards general policy, the summary indicates that the Agency aims at giving an initial impetus to groups which can show a reasonable chance of continuing and developing with fresh sources of support and at making these continuing projects self-supporting to the maximum extent. The programme is summarized under six main headings: specific economic and legal problems; technical and administrative problems of industry and commerce; human factors of management and labour; applied research and technology; food and agriculture; and information and general services. Under the second heading, action is contemplated to bring European management to a wider understanding of the need for management education, and the creation or development of chairs of business administration in European universities and technical colleges. Further research is also proposed on the factors determining the attitudes of employers and employees to the scientific study of the selection of workers and conditions of workers, and the pooling of experience and effort in training supervisors.

In applied research and technology, the Agency's task is essentially to supplement what is being done in existing institutions, to co-ordinate such research and to strengthen the liaison between research and industry—for example, by facilitating contacts for exchanges of information and views between those in charge of the organization and administration of research. An essential task will be to improve existing channels for disseminating technological information and the study and development of new media. The establishment and development of specialized research and information centres in the main industrial sectors will be encouraged, and special attention will be given to increasing technological productivity in the building industry.

The Agency's efforts to improve productivity in the field of food production and agriculture will be directed towards the study of the economic organization of the farm as a production unit; the factors of input in agriculture, horticulture and fisheries; the marketing and distribution of output; techniques in production processes in these fields; and the exchange of information and techniques of communication.

TRIBUTE TO PROF. ALEXANDER LIPSCHUTZ

THE combined second and third numbers of Vol. 3 of *Acta Physiologica Latinoamericana* contain a series of thirty-one essays by distinguished contributors, offered as a tribute to Prof. Alexander Lipschutz on his seventieth birthday*. The articles are variously written in English, Spanish, French, Portuguese and German. The first, by B. A. Houssay, is a laudatory biographical sketch of Prof. Lipschutz; the remainder cover a wide range of subjects—reproductive and general physiology, cancer, steroid chemistry, and numerous miscellaneous biological matters—in most of which Prof. Lipschutz has himself been an active investigator. To summarize all these interesting essays is not possible in this short review; to single out a few for special mention must place the reviewer in an invidious position. His own interests, not the excellence of the articles chosen, can be the only criteria of choice.

Prof. Lipschutz enunciated the law of follicular constancy in 1930, and two papers are directly concerned with this. M. and C. Aron discuss the nature

* *Acta Physiologica Latinoamericana*. Vol. 3, Nos. 2 y 3: Numero de Homenaje al Profesor Alejandro Lipschutz. Pp. vi+49-202. (Buenos Aires: Asociacion Ciencia e Investigacion, 1953.) n.p.

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.)