

sedes the old idea that the absence of any wave-length effect in the genetic action of X-rays should be interpreted to mean that this action is produced by single ionisations or small ion-clusters, such as commonly occur along the paths of photo- or compton-electrons in tissue. Lea and Catcheside (Cambridge-England) used the same argument and calculated that clusters of approximately 20 ionisations ought to be the most effective in breaking chromosomes. Dr. Fano goes further and has calculated that 1r of X-rays produces approximately 0.1n clusters per cubic micron.

Mc Clintock has continued her investigations on the breakage and fusion of Maize chromosomes. She has evidence which suggests that the capacity for fusion of a recently broken

end of a chromosome will be lost if this chromosome undergoes a division cycle before fusion with another such end has occurred. In the course of an attempt to determine the amount of crossing over that may occur within small segments, Mc Clintock found that relatively large amount of crossing over may occur between the loci of two mutants that are physically close to each other on the chromosome.

However hampered by conditions of war, the uniform excellence of researches in 1942-43, and the direction of these to new channels mark a distinctive feature of the work of this mighty institution. In common with former volumes, the get-up is good and presentation perfect.

K. V. S.

COUNCIL OF RESEARCH, UNIVERSITY OF TRAVANCORE

THE Thirteenth Report of the Vice-Chairman (Dr. K. L. Moudgill), Council of Research, University of Travancore, presented to a recent meeting of the Council, is, in the main, a factual summary of the progress of the several research schemes inaugurated under the auspices of the Council. It is not easy even to enumerate within the compass of a brief note the several problems which are under investigation. They cover an extremely wide range from the utilisation of the bitters of the salt pans to the production of Agar-Agar, and of Titanium white from Ilmenite on the one hand, to a study of Teak defoliators, Gurukini, preparation of vaccines and Development of Fisheries on the other. The Laboratories of the Central Research Institute comprise of Public Health, Applied Biology, Applied Chemistry, Marine Biology and Observatory Sections. The work done in each of these sections is briefly indicated. It is obvious from even these necessarily brief summaries in this Report, that the Council has set before itself an ambitious programme planned with vision and enterprise. The very problems which have been given priority are indicative that Travancore, no less than other progressive communities, has not escaped the ferment which compels the attention of all thoughtful men to tomorrow and the brave new world to be brought into being after the war.

One is naturally tempted to project mentally some at least of these research schemes on to the larger canvas of the all-India research institutions and organisations. The retting of coconut work is a problem in which Travancore is not the only unit interested. Paddy problems are being tackled by the I.C.A.R. on a wider basis. Again, work on the collection and interpretation of meteorological data to serve even purely local needs could easily be made to be much more useful in conjunction with the all-India data. Conversely, the results or even the biproducts of the research carried out in Travancore might well prove to be of significant importance to people outside the State. An illustration, it makes sad read-

ing in the Report, is that although the production of Agar-Agar was successfully initiated and developed by the Council to cover local needs, Travancore could supply but 55 lbs. against a demand of 150 lbs. by the Public Health Department of stricken Bengal. It must be added, however, that the Council have taken steps to avoid such a contingency in future.

It would be of interest and use to the other States and Provinces if the expenditure incurred by the Travancore Council of Research for investigations on so wide a front were given in this Report.

Dr. Moudgill's Report concludes with some very apposite observations on the provision of research and technical personnel to adequately cover the needs of post-war India. He takes note of the dismal possibility that even the facilities for training and research might have to be rationed on a quota basis—so great would be the disparity between supply and demand not only in India but also in Europe and America. He raises the very grave issue whether "formal courses leading to diplomas and degrees have their limitations" in training a technician, "no matter what his status—operative, foreman or leader". He undisguisedly frowns on "our present plethora of publicity, it has become the fashion for people to talk of schemes of research they sponsor and to judge the worth of people by the number of schemes of research they sponsor and the number of papers which they publish", and urges "that we should plan attunement of our personnel to our needs of the future". The wish that this part of the Report is brought to the notice of the much wider audience than the one Dr. Moudgill actually addressed does not imply that one necessarily agrees with all the premises and conclusions of the author. Dr. Moudgill concludes with quoting a Chinese proverb, "If you are planning for one year, grow paddy; if you are planning for fifteen years, grow trees; but if you are planning for a hundred years, grow men". That needed being said—and heard by all the planners.