REVIEWS

Industrial Oil and Fat Products. By Alton E. Bailey. (Interscience Publishers, Inc., New York, N.Y.), 1945. Pp. 735. Price $ 10.0.

The book under review is essentially intended to be a text on Oil and Fat Technology in its physical, chemical and economic aspects as it is practised to-day in America (U.S.A.). The author is the senior chemical technologist in charge of the Southern Regional Research Laboratory, U.S. Department of Agriculture at New Orleans, Louisiana and is well-known to readers of *Ooil and Soap* and *Industrial and Engineering Chemistry* by his valuable contributions in recent years to diverse aspects of modern oil technology ranging from studies in specific and latent heats of fusion of oils and fats to fundamental investigations on rancidity, antioxidants, tocopherol from cotton-seed oil, refining and deodorisation of oils, conditions governing production of iso-oelic acid in oil hydrogenation and catalytic rearrangement of glyceride structure in natural and synthetic fats.

The greater part of the book comprising sections C and D and forming sixteen out of a total of twenty-three chapters is devoted to a description and discussion of the commercially important oil and fat products and the processes used in their manufacture, the sections dealt with being cooking and salad oils, plastic shortening agents, butter and margarine, bakery products and confections, soaps, paints, varnishes and related products, and miscellaneous fat products like lubricants, illuminants, cosmetic and pharmaceutical oils, polishes and insecticides.

The unit processes in oil technology which are described in a systematic though brief manner comprise extraction of fats and oils by expression as well as solvent extraction, refining and bleaching, deodorisation, hydrogenation, soap production, fractionation of fats and fatty acids, fat splitting and esterification, polymerisation and isomerisation, including dehydration of castor oil and other ordinary oils, and finally solidification and emulsification of oils.

Much of what the author has presented is based on his own personal experience and as such is quite valuable. The author, however, has had the benefit in other matters of the advice and suggestions of about twenty professional colleagues including G. S. Jamieson, the well-known author of *Vegetable Oils and Fats*. Though the main purpose of the book is technological, the chemical and physical nature of fats and oils has not been neglected, the subject being reviewed in two preliminary sections A and B comprising the first seven chapters dealing with the structure and composition of fats and oils, reactions of fats and fatty acids, the physical properties of fats and fatty acids and the occurrence, production, composition and classification of the common fats and oils. A refreshing feature of the classification adopted in this book is the stimulating departure from the well-known grouping of oils into non-drying, semi-drying and drying oils and their rearrangement into the following groups: milk fats, lauric acid oils, vegetable butters, animal fats, oleic-linolic acid oils, erucic acid oils, linolenic acid oils, conjugated acid oils, marine oils, and hydroxy acid oils. This system of grouping is characteristic of the author's technological standpoint of the industrial utilisation of oils and fats.

However, in the part relating to pure chemical composition of fats and oils the treatment was not expected to be so thorough and occurrence of one or two errors of omission in that regard need not be surprising. For example, the statement on p. 13, line 9, about the occurrence of C_{20}, C_{22} and C_{24} saturated acids in nature, evinces regrettable ignorance of valuable contributions during the last decade and a half to rich sources of these acids in nature in the Sapindaceæ, Mimosæ and Moringaceæ seed group of fats. This does not in any way detract the valuable amount of technical material which is published here for the first time filling up notable gaps which have existed so far in such branches of the technology of the edible fats and oils as plastic shortening agents and bakery products and on the practical operations of refining, bleaching, deodorisation and hydrogenation as these are practised to-day with the most recent advances in their knowledge incorporated into practice.

The book on the whole is a valuable contribution to modern technological literature on oils and fats forming a tribute not only to the professional enthusiasm and achievements of the author but also to the scientific organisation and administration of the U.S.A. Agricultural Department and every technological institute would be well advised to secure a copy of this publication for the use of their technical staff.

P. RAMASWAMI AYYAR.
(MISS) R. J. IRANI.

Erosion in the Punjab—Its Causes and Cure. By Sir Harold Glover. (The Civil and Military Gazette, Ltd., Lahore), 1944. Pp. 143. Price Rs. 15-7-0 or 23*sh*.

Literature on the complex problems relating to soil erosion with specific reference to Indian conditions is none too plentiful. The Punjab has the distinction of being amongst the pioneer provinces in India to recognise the existence and urgency of soil erosion and to make a beginning with ameliorative measures. But, apart from papers in the professional journals and departmental reports, there was till now no publication giving a connected narrative of the considerable amount of work that has been systematically carried out in that province since 1939. This gap has been filled by the book under review, *Erosion in the Punjab—Its Causes and Cure*, by Sir Harold Glover, late Chief Conservator of Forests, Punjab.

The volume is divided into two parts. Part I, General, gives a brief description of the

country dealt with, the climatic, biotic and human factors influencing erosion, the consequences of erosion and lastly the methods recommended for the check of erosion. The second part is devoted to fairly detailed accounts of the varying conditions in the individual districts of the Punjab and contains summaries of the work done in them so far. These two parts are illustrated by a wealth of photographs (nearly 180 of them) which give the reader an excellent idea of what may be termed the qualitative side of the problem. The book, however, does not include specific quantitative data with regard to experimental plots, run-off volumes, weight of soil removed under defined conditions, the actual protection afforded by different types of vegetation and the like. But, the practical difficulties which a soil doctor—if the term be permissible, for erosion is definitely no more but no less than a disease—encounters in Indian rural communities, the administrative set-up that is required, the organisation of co-operative endeavour and more than all, the gradual building up of informed public opinion on which alone all soil conservation plans ultimately depend for success, all these are dealt with in an admirable manner with illustrative details which reveal a long and intimate knowledge of the problems handled.

A feature of the book is the large number of photographs. Anyone who has attempted to photograph large landscapes to bring out the details of topography and vegetation knows what a difficult job it is. The photographs which adorn this volume maintain on the whole a high standard, a few of them being taken from the air. The pictures tell eloquent tales which sometimes (for example facing p. 16, tap-root of a tree in an eroded field; p. 112, soil loss in an avenue) are startling. In fact, the photographs by themselves would form a very effective and entertaining background for a lantern talk on soil erosion to an Indian audience. The photographs are, unfortunately, neither numbered nor listed in a table of contents so that reference to them is not easy. The general level of these illustrations is so high that one wonders why such specimens as those facing pp. 14, 26, 28 (The Maili Village Co-operatvie Society), 91 and the like, have been included. These latter neither illustrate the text nor convey any significance to the central theme but only disturb the overall excellent impression made by the scores of other telling photographs.

The book carries a preface by His Excellency Sir Bertrand Glancy, a foreword by Sir James Penny and concludes with an appendix on the Bombay Presidency Land Improvement Scheme.

A few minor improvements would considerably add to the convenience of the reader. It is very curious that the "Contents" at the beginning of the book list the chapters but omit the paging. The lack of numbering of photographs has already been referred to. The second part of the book contains several official forms, model bye-laws, draft Gazette notifications and the like (pp. 95-106), which could with effect be divorced from the text and brought together in an appendix. In a volume so well illustrated, the absence of a few maps indicating the geography, rock and soil types and forest types in the area dealt with is a noticeable omission. One also notices occasional statements clothed in picturesque language as, for example, on page 16: "when the trees disappear, the rocks, heated by the direct rays of the sun, radiate out heat until the barren ravines are unbearable, the hot air rises and forces up the clouds which fail to drop their moisture." The cause and effect implied in this statement are still by no means proved beyond doubt and is best omitted from a book meant for the general reader. Two minor printing errors, noticed were *Magnifera indica* for *Mangifera indica* (p. 140), and *Acacia lencophlœa* for *Acacia leucophlœa* (p. 113).

The special value of a book such as Sir Harold's—written with the authority and perspective of many year's first-hand knowledge—is this. Land reclamation costs money. Thus, the cost of soil conservation in the northern Punjab districts alone is estimated by Sir Harold Glover to be about Rs. 53 lakhs a year for 15 years. The soil specialist of course knows that the expenditure of these large sums of money is not only good investment but is the bare minimum insurance against the total loss of the essential capital of the rural community—the soil. For the success of anti-erosion measures, it is indispensable that Mr. Average Citizen be convinced of this for, as Sir J. D. Penny observes in his foreword, "..... in the last resort the success or failure of soil conservation measures will depend on the extent to which they enlist the assistance both of nature and of the humble tiller of the soil and the still humbler shepherd and goat-herd". In the absence of knowledge of the facts of the problem neither the money required nor the requisite co-operation of the villager would be forthcoming. Sir Harold Glover's book should be of great help—quite apart from its value as an objective record of valuable soil reclamation work in the Punjab—in opening the eyes of a complacent public to the menace of soil erosion in the Punjab and in convincing an even wider public that erosion is a deadly but curable disease.

The Exodus from Travancore to Malabar Jungels. Surveys by K. G. Sivaswamy and six Doctors. (Servindia Kerala Relief Centre, R.S. Puram Post, Coimbatore), August 1945. Pp. 39 + iv. Re. 1.

Unable to bear the privations in their native homes in Travancore brought about by famine, 15,000 settlers travelled long distances to the hilly parts of Malabar which have remained uncultivated for centuries. Migration was preferred as being the lesser of two evils; partial starvation at home or cultivation in malarial tracts infested with wild animals. The heroic struggles of these settlers against malaria and wild animals are described in this pamphlet. Medical and nutritional surveys, carried out with considerable difficulty, are also included. About 2,000 of the settlers died of malaria and malnutrition while some returned home broken in health and fortune. Many among the re-

maining are dragging on a miserable existence, with impaired vitality and heavily indebted to money-lenders. An appeal is made for effective and immediate relief, especially an unlimited supply of anti-malarial drugs. Anti-malarial operations, like aeroplanes spraying with insecticides, are also suggested.

Regarding the etiology of certain diseases in these settlers, it is wished that the authors have made less audacious statements. "Rice fermentation (fermentation) and these organisms may be a prominent cause of cirrhosis of the liver" (p. 15); "Want of animal protein in the diet also increases anæmia and particularly nervous diseases" (p. 16); "Their eating preserved foods of the previous night may have some relation to choleraic diarrhœa" (p. 32). These statements appear all the more glaring when one considers the caution exercised about tapeworm, a disease "attributed to the eating of dead cattle. This requires medical investigation" (p. 18). The expression "nitrogenous proteins" is rather revolting. Except for these minor blemishes, the book is an admirable document containing much material painstakingly collected. The book is priced too high. S. RANGANATHAN.

Report of the Scientific Advisory Board for the Year 1st January to December 1944. Issued under the authority of the Governing Body, Indian Research Fund Association, New Delhi. (The Secretary, Governing Body, Indian Research Fund Association, Secretariat, New Delhi.) Pp. 188. Re. 1.

The Annual Report of the Scientific Advisory Board for 1944 records another year of successful research despite the handicaps imposed by war conditions. Reports of the Advisory Committees on Cholera, Malaria, Nutrition and Plague are also incorporated. Work on the treatment of cholera with sulphaguanidine, and the statistical evaluation of the degree of protection conferred by anticholera inoculation form the principal researches under cholera. Results of detailed studies in the prevention and control of malaria, and large-scale field trials with various insecticides (including D.D.T.) and mosquito repellents are included. The comparative value of different sulpha drugs in the treatment of plague and the peculiar mode of spread of plague in certain rural areas in the Madras Presidency were investigated.

A good number of the researches financed by the I.R.F.A. are concerned with nutrition; 16 out of 42 enquiries relate directly to nutrition while a few of the schemes under "Other Researches" have an indirect bearng on nutrition. It is not surprising, therefore, that the bulk of the Report is devoted to this subject. A document of 18 pages dealing with the practical and public health aspects of nutrition, prepared for the benefit of the Public Health Committee of the Health Survey and Development Committee of the Government of India is also included. The findings of the Sub-Committee on "Nutritional Requirements" form a useful addition as also those of the Soyabean Sub-Committee. The latter conclude that "the nutritive value of soyabean, in comparison with that of other common Indian pulses is not such as to justify, from the standpoint of human nutrition, the immediate encouragement of the production and consumption of soyabean on a wide scale in India." The budget allotments for the various enquiries and staff of the I.R.F.A. and for the publication of the *Indian Journal of Medical Research* appear towards the end of the Report.

Those interested in the progress of medical research in India will find the Report useful and informative. S. RANGANATHAN.

The Indian Cotton Textile Industry 1944 Annual. (Published by Messrs. Gandhi & Co., Publishers, Jan Mansion, Sir Pheroz Shah Mehta Road, Bombay), June 1945. Pp. 150. Price Rs. 5.

The Annual represents a valuable contribution to the knowledge and objective study of the Cotton Textile Industry of this country. In layout and format, it closely follows its predecessors.

As usual the volume reviews the major domestic events in the industry and gives a wealth of valuable statistical data intelligently presented and takes the reader through the long and eventful history of the industry with remarkable brevity. Accurate and exhaustive statistical data plays an important role in all economic and industrial planning and in this aspect Mr. Gandhi's contribution is indeed praiseworthy.

The book reproduces some of the more important Textile Control Orders and also gives an exhaustive list of other control orders affecting the industry, which lends to the volume special topical interest. It presents in a lucid manner a brief history of the evolution of the Textile Control touching all its important aspects, the intricate problems it has had to face particularly of distribution and how they had to be tackled and solved. The book also publishes the recent Textile Industry (Control of Production) Order and explains its purpose and benefits. While all may not agree with the editor about the benefits of the scheme to the industry, there can be no doubt that it is an admirable emergency measure which has helped to relieve the present cloth famine in the country. The author's detailed survey of post-war problems facing the industry is of special interest, particularly his reference to the considered views expressed by the Chairman of the Bombay Millowners' Association on the obligations of the mills and the Government to the industry if it is to stand on a sure foundation to withstand the foreign competition.

The volume annexes at the end two appendices, one dealing with the subject of cotton cultivation, its development and problems and another with the handloom industry and its potentialities during the post-war period supported by fresh extracts from the Report of the Fact Finding Committee (Handlooms and Mills) released in 1943.

On the whole the book is very interesting and informative and should be particularly useful in the field of post-war planning.

B. G. R.