

end till the left end was moved upstream to the nose of the left divide wall when the weir would be normal to the main stream with the pockets getting a straight current.

The construction of the Emerson Barrage was started after the above experiments

were carried out. Model experiments not only indicated a suitable design but prevented the adoption of faulty designs entailing possible future expenditure on protective and remedial measures.

C. GOPALAKRISHNAN.

AGRICULTURE IN AFGHANISTAN

WE owe the following brief summary of the agricultural features of Afghanistan and of the directions in which development is possible to extracts from the report of the Indian Agricultural Delegation which visited that country in the year 1939. The area fit for cultivation is said to be less than a quarter of the total extent of the country which is 270,000 square miles, mostly mountainous in character. The average height is about 3,000 feet and the central valleys are over 6,500 feet above sea-level. The rivers flow through deep gorges, are snow fed and liable to sudden spates. A peculiarity of these rivers is that as they get farther from their sources they dwindle away and get lost in the soil. The average annual rainfall including snowfall is only between 12 and 15 inches and in certain places no more than 2½ inches. The climate varies between an Alpine one in the north-east to a hot desert one in the south-west. The soils are on the whole fertile and under irrigation yield an abundant harvest. Irrigation is from streams, springs and from what are called "kerezes". The inhabitants are engaged mostly in agriculture and pastoral pursuits.

It is as a fruit-growing country that Afghanistan has impressed the Delegation and many useful suggestions are given for developing this industry on proper lines. These relate to the introduction of citrus fruits and of loquats, figs, and canning peaches, of better varieties as regards both quality and yield, of improved planting methods and pruning and to the control of insect pests and diseases. Improvements in propagation methods are indicated with special reference to suitable stocks from East Malling and elsewhere. Alongside of the fruit-growing industry is stressed the need for developing the fruit-products industry and for this purpose a fruit products laboratory is recommended to be

opened under Government auspices. Among other crops, cotton has made great progress, the staple is suited for 60 counts and the crop is remarkably free from diseases and pests. Sugar beet is extensively grown and a beet sugar factory is under construction. Its progress will depend upon the extent to which diseases can be kept under control. Wheat is the most extensively grown crop but it is subject to both rust and smut; the breeding of higher yielding and disease-resistant types is recommended. Large tracts are under rice and the Delegation thinks that the area may be reduced and money crops like cotton, tobacco, fruit, etc., may be substituted. Experiments with a view to establishing the cultivation of cigarette tobacco are suggested and an increase in the cultivation of potatoes is recommended especially because the cold climate will enable the country to meet the large Indian demand for both seed and table potatoes admirably. Artemesia is growing wild and an examination of its quality as a source of santonin is suggested. As mulberry grows extensively in the country the development of sericulture forms another recommendation. Likewise attention is drawn to the introduction of the bee-keeping industry both as an aid to fruit cultivation and as an independent source of income. The cultivation of berseem is desirable for fodder and green manure and also as a source of seed supply to India. Irrigation, artificial manures, and improved implements are briefly touched upon, with a keynote of caution. The Delegation on the whole has been so greatly struck with the agricultural possibilities of Afghanistan as to observe that "Its agricultural potentialities are immense" and that "it is round agriculture that the future prosperity and well-being of the country will revolve".

A. K. Y.