

from being washed away and carried off by streamlets; next, a coating of vegetation soon covers the soil on which trees are growing, and binds it all together, though at the same time rendering it permeable to, and retentive of, moisture, so that the rain no longer flows off as it would over a hard surface without benefiting the soil below. Thus a cool surface is produced in place of an otherwise dry and heated one, on which the sun's rays would impinge directly, and from which they would be reflected; shade and shelter are provided, and in the end a moister climate prevails.' "

The conclusions arrived at by Mr. Eardley-Wilmot after studying the conditions that prevail in all those parts of India which have been the subject of careful investigation are that there is probably at the present time a vast area in India supporting inferior crops, or, perhaps, none at all which could by means of irrigation, if that were available, be brought under forest-growth with certainty and celerity, to the great advantage in every way of the country, and that the systematic spread of afforestation in many localities would tend to protect the water-supply and thereby indirectly afford local security against famine or scarcity.

AFFORESTATION OUTSIDE NEW ZEALAND.

As already stated, this matter is now arousing great attention in all parts of the British Empire and other countries. The Prime Minister of England (Right Hon. H. H. Asquith) on the 19th June was reported to have stated that his Government intend submitting legislation dealing with the subject next session, and it is evident that its importance is recognised by our statesmen.

As a means of comparison between New Zealand's methods and those adopted elsewhere in Australasia, a brief account of the work accomplished in the leading States is appended, and well repays perusal. In next year's report it is hoped to submit a more comprehensive statement of the position in the Southern Hemisphere, so as to show the various views taken of the growing need for reforestation by the different Governments.

AFFORESTATION IN AUSTRALIA.

New South Wales.—The Under-Secretary of Lands, Sydney, states that his Government has not yet entered upon systematic planting-work, and is unable to furnish information based on any extensive practical experience.

South Australia.—The Conservator of Forests, Woods, and Forests Department, Adelaide, reports that forest operations were commenced in this State in 1876 under a Forest Board, and subsequently the Department of Woods and Forests was established in 1882, with a Conservator of Forests at its head. It possesses a permanent staff, consisting of five foresters, five nurserymen, seven foremen, and sixteen general labourers, with extra labour as needed during planting time.

The area of forest reserves on the 30th June, 1907, was 164,113 acres, and the number of nurseries for rearing the stock was seven, while the total area of plantation satisfactorily established and actually valued was 7,047 acres.

The main objects of the Department have been—

- (a.) The proper utilisation of the mature timber and the conservation of the younger growing trees in the reserves.
- (b.) The issue of trees gratis to encourage tree-planting for ornamental and shelter purposes.
- (c.) The provision of various timbers for future use.

With reference to the above, it may be stated—

(a.) Considerable numbers of sleepers have been obtained (as well as posts and rails) as long as matured timbers were available from red-gum (*Eucalyptus rostrata*), blue-gum (*E. leucosylon*), box-gum (*E. hemipholia*), and sugar-gum (*E. corynocalyx*), and young trees of these species are now steadily developing over a moderate area as a result of careful conservation in the different reserves.

(b.) During the twenty-six years in which the distribution of trees "gratis" has been carried out 6,988,909 trees have been given away to farmers and other settlers for beautifying their homes and providing shelter for both their stock and crops.

(c.) Various gums have been planted in the different plantations, and exotics (principally pines) have been experimented with to test their suitability for our climatic and soil conditions.

All things considered, the pine giving most satisfactory results is the Remarkable or Monterey pine of California (*Pinus insignis*). From timber obtained from trees of this kind of twenty to twenty-five years old fruit-cases of various kinds—principally apple export, raisin, and apricot—have been made to the number of 41,121, realising a gross return of £1,278, and leaving a satisfactory margin for revenue after deducting all costs to the Department.

From other timber large quantities of rails, posts, and firewood, and other useful material, have been obtained from time to time as thinnings, but the main crop of timber has not yet matured.

In a report on "Deforestation in South Australia," Mr. W. Gill, F.L.S., the Conservator of Forests, gave very cogent reasons in favour of a systematic scheme of replanting, and in the course of a lengthy exposition on the subject stated amongst other principles that "the whole output of a forest should be regulated on the universally accepted principle among foresters that the forest as a whole constitutes the capital, and that only so much timber should be cut annually as is equivalent to the annual increase in growth made by the timber—that is to say, that the interest only should be taken and the capital left untouched. . . . The grazing of forest land acts both directly and indirectly in denuding the country of timber. Many trees in their seedling stages made excellent fodder, of which stock are not slow to avail themselves, and so direct and extensive is the damage done in this way that in some countries some species of shrubs and trees have totally