

practice of utilising suckers, carelessly taken from plum orchards for propagation purposes, owing to the risk of working stocks infected with 'silver leaf'.

The thorny subject of pruning is dealt with in a masterly manner, and the section devoted to this important operation will appeal to the many amateur fruit-growers who, owing to well-meant but occasionally contradictory suggestions of numerous advisers, are hopelessly at sea on this matter. The general principles are clearly indicated; it is pointed out that no hard and fast rule can be applied to all species and varieties, but that the system of pruning should be modified in accordance with their special characteristics.

It is doubtful if the extended commercial cultivation of pears in Great Britain is worthy of consideration, as imported produce of high quality is now available for the greater part of the year. Much useful information respecting up-to-date storage methods is contained in a chapter devoted to this subject, but further research is needed.

Renovation of old orchards and the control of pests and diseases of fruit trees are ably dealt with, and the bulletin should be in the hands of all who wish to see

an improvement in the general standard of fruit culture, and are interested in the future of an important home industry.

Bulletin No. 4 deals with 'soft fruits', which now form an important section of the British fruit industry, and its contents comprise the more important results attained by research workers, and also details of sound cultural methods.

The descriptive lists of standard commercial varieties should be of great assistance to intending planters, and information respecting varieties suitable for canning will enable growers to cater specially for this purpose. Black currants and gooseberries in recent years have failed to give remunerative returns, and the area devoted to these crops will probably decrease. Figs and melons are among the fruits included in the bulletin, but their commercial cultivation is likely to remain in the hands of a comparatively few growers. Cob nuts and filberts realise high prices and there appears to be ample scope for their extended cultivation; the nut is not fastidious as to soil, but possibly the prevailing system of land tenure is responsible for the small area devoted to this and other 'permanent' crops.

Rainfall of the United States.

SUPPLEMENT Number 34 of the *Monthly Weather Review* of the United States Department of Agriculture is a summary giving the main results of fifty years of organised rainfall measurement, in the form of daily, fortnightly, monthly, and annual normals of precipitation for the regular first order stations of the U.S. Weather Bureau.

The need for a revision of the normals for the United States available before this publication appeared arises from the fact that the last revision was made so long ago as 1907, since when many new stations have been started. The new normals all refer to the period January 1878 to December 1927 inclusive. Where a complete record has not been available, the usual procedure has been adopted, namely, an adjacent station has been selected for which the full fifty years' record is available, and its measurements have been compared with those at the station with the incomplete record throughout the period of overlap of the two records. In this way the relative degree of wetness has been obtained, and thence a correction which, when applied to the normal computed from the period of overlap, gives a close approximation to the required normal.

A publication of this kind, consisting of little more than a vast array of figures in tabular form, is clearly

not to be regarded as reading matter in the ordinary sense even for the expert meteorologist. It would, however, have been more nearly so had there been a key map showing the positions of all the places for which normals are given, preferably with shaded or coloured altitude zones, and any other features that might assist in explaining the great diversity in the amount and seasonal distribution of the precipitation, which a careful inspection of the tables reveals. For the work has under review the rainfall of a country in which virtually rainless areas exist side by side with areas of great altitude and wetness, where lofty mountain peaks force the moist westerlies from the Pacific to rise and undergo such dynamical cooling that a large proportion of their moisture is condensed to rain or snow. A rapid survey of the normal annual falls did not reveal any total that is not surpassed in the Lake District of England, but showed many smaller than can be found anywhere in the dry eastern lowlands of England and Scotland. Yuma, Arizona, has the interesting annual normal of 3.47 inches, based on a full fifty years' record.

In addition to its value in general climatology, this work is obviously of the first importance to American water engineers and to many of the industries of the States, particularly farming. E. V. N.

Parliamentary Representation of the Universities of Great Britain.

IN view of the clause relating to the abolition of university constituencies which appears in the Representation of the People Bill, the text of which has recently been issued, a joint memorandum has been submitted to the electors of the Universities of Oxford and Cambridge by their present parliamentary representatives. The memorandum gives a brief history of university representation in Great Britain. In 1603 James I. by a charter issued on the advice of his Attorney-General, Sir Edward Coke, granted to the Universities of Oxford and Cambridge the right, which they have ever since enjoyed, of each returning two burgesses to Parliament. A similar right of representation in the Irish Parliament was accorded to Trinity College, Dublin, ten years later. By the time of the outbreak of the War there were nine

university members in the House of Commons, returned by the following constituencies:

	Voters.
Oxford (2)	6,895
Cambridge (2)	7,145
Dublin (2)	5,020
London (1)	6,070
Edinburgh and St. Andrews (1)	11,319
Glasgow and Aberdeen (1)	11,714
	48,163

A large measure of parliamentary reform and a great extension of the franchise were undertaken by the Coalition Government in 1918. Three new university constituencies, the Combined English Universities,

the University of Wales, and Queen's University, Belfast, were created, and the Scottish universities were awarded an additional member. At the same time, reforms were effected in the qualification for the university vote which immensely increased the number of voters in the existing university constituencies, particularly in Oxford and Cambridge. It was also enacted that whenever a university constituency returned two or more members, the elections should be conducted according to that variety of proportional representation known as the single transferable vote.

As a result of these reforms, the university constituencies, at the date of the general election in 1929, were as follows :

	Voters.
Oxford (2)	15,770
Cambridge (2)	23,978
London (1)	15,558
Scottish Universities (3)	43,192
Combined English Universities (2)	13,775
University of Wales (1)	3,623
Queen's University, Belfast (1)	3,324
	119,220

In place, therefore, of five constituencies (if Trinity College, Dublin, be omitted) with 43,143 voters returning seven members, there are seven constituencies with 119,220 voters returning twelve members. Nor is the process of expansion nearly completed, especially at Oxford and Cambridge. Although these two constituencies have more than doubled in numbers since the franchise was altered in 1918, they will undoubtedly double themselves again in the next twenty years, as the existing regulations, which provide for the automatic registration of all British subjects who take degrees, gradually equate the number of voters with the number of living graduates of the university. It may, therefore, be predicted that if the representation of the universities in Parliament is left undisturbed for a generation, the twelve members will be representing a body of between 200,000 and 250,000 graduates.

When account is taken of the very large numbers of men and women students, from all grades of society, including those who began their education in our primary schools, who now make their way to Oxford and Cambridge, and of the still larger numbers who proceed to the Scottish and the modern English universities; of the pronounced success which has attended the efforts of the universities to provide a training suitable to students entering on professional, commercial, or industrial careers; and of the fact that the general widening of the educational ladder has not yet had time to bear its full fruit, it is claimed that graduates of the universities of Great Britain, as a whole, represent to-day, even more fully than they did half a century ago, that section of the community which exercises the greatest influence on the formation of public opinion.

Of 1263 men students matriculated at Oxford during the academical year 1928-29, less than half came from the English public schools. Of the remainder, 179 were students from overseas, and 445 were from secondary schools which do not rank as public schools. Of these 445, no fewer than 223 had started their education in public elementary schools, which means that at any time there are about 750 elementary schoolboys in residence at Oxford, and the proportion to the whole would be at least as large amongst the women students. The evidence also shows that more than 45 per cent of Oxford undergraduates are in receipt of financial assistance without which their parents would be unable to give them a

university education. The figures for Cambridge are similar, and at some of the modern English universities more than two-thirds of the students began their education in the elementary schools.

Further justification for the existence of a small number of university representatives in the House of Commons is found in the special knowledge they may be expected to have of the needs of higher education and educational policy generally. The independence from government control enjoyed by the universities of the British Empire can only be maintained by very cordial co-operation between the governing bodies of the universities and the Government of the day, and in the delicate negotiations which such co-operation constantly involves, the university members play a part which is essential, although it naturally does not bulk in the public eye.

The university constituencies, by reason of their peculiar constitution, provide for the enfranchisement of a large number of men and women who would otherwise be without a vote. Since the university voter is placed on the register for life, and can vote through the post, he carries his qualification with him wherever he goes; he can exercise it although, owing to a change of residence, he may be without an ordinary vote, or unable to travel to a constituency to exercise it: if he goes abroad, he can appoint a proxy, and, with the recent extension of air mails, he can now exercise the franchise himself from a great many distant parts of the world. A careful analysis of 900 consecutive voters on the Oxford Register showed that no fewer than 75 had addresses overseas, many of them serving their country in distant parts of the Empire, which means that at Oxford alone the abolition of the University seat would disfranchise nearly 1500 overseas voters. In the Scottish universities the proportion of overseas voters is probably higher.

University and Educational Intelligence.

CAMBRIDGE.—Applications are invited for a research studentship at Emmanuel College, the maximum annual value of which will be £150 and the period of holding two years or a possible third. Preference will be given to candidates who have completed one but not more than two years of research work. Applications must be received by the Master of Emmanuel College by, at latest, June 30.

THE Air Ministry announces that five hundred aircraft apprentices, between the ages of fifteen and seventeen years, are required by the Royal Air Force for entry into the Schools of Technical Training at Halton, Bucks, and at Cranwell, near Sleaford, Lincs. They will be enlisted as the result of an Open Competition and of a Limited Competition, to be held in the near future by the Civil Service Commissioners and the Air Ministry respectively. Boys in possession of an approved first school certificate may be admitted without other educational examinations. The scheme offers a good opportunity to well-educated boys of obtaining a three-years' apprentice course of a high standard. The principal trades open to them are metal rigger, a new trade brought into existence by the introduction of the metal aeroplane, which involves training in both fitting and sheet metal work; fitter (aero engine); fitter (armourer); wireless operator-mechanic; and electrician. Full information regarding the examinations can be obtained upon application to the Secretary, Air Ministry (Aircraft Apprentices' Dept.), Gwydyr House, Whitehall, London, S.W.1.