

in 1914. The crux of the success of both measures lies with the teachers, who must now, whatever the cost, alike in respect of payment, prospects, and pensions, be attracted to the most vital and worthy of the national services.

THE SCOTTISH JOURNAL OF AGRICULTURE.

THE appearance of an official organ of the Board of Agriculture for Scotland marks an important development in the activity of that body, which, though created but six years ago, has already accomplished much good work in the development and guidance of agriculture and forestry north of the Border. On the educational side of its work it has co-ordinated under its ægis the agricultural colleges and other educational agencies with a success which is noted with warm approval in the report of the Agricultural Subcommittee of the Reconstruction Committee. Much useful information has also been furnished for the Scottish farmer in the annual reports and leaflets issued by the Board. Its rapidly growing activities rendered inevitable, however, the creation of some more suitable medium of publication of matters of general interest to the agricultural community, and this has been found in the new journal, of which the first three quarterly issues are now available. In appearance and general character the *Journal* is not unlike the older-established *Journal* of the English Board, but the resemblance is little more than superficial, and the design to cater for the specific needs of Scotland is clearly evident throughout.

Original articles of educational value form the most prominent feature, and are supplemented with notes on varied topics of current interest, summaries of official notices and statistics, and a useful review of recent agricultural periodical literature.

The interest aroused in practical circles in Scotland, as in other parts of the kingdom, in the subject of the costs of production of agricultural products is indicated by the inclusion of articles on this subject in each of the three issues, no fewer than four articles dealing with the cost of production of milk alone. Crop production is represented by articles on oats, potatoes, and flax. Other articles selected at random, such as the effects of the war on Scottish forestry, the improvement of hill pasture, the restocking of deer forests, farmers and income tax, rural housing, and women's institutes, illustrate the varied and interesting character of the problems discussed, and incidentally the wide scope of the activities of the Board.

The *Journal* is secure of a hearty welcome from the Scottish agricultural public, and will assuredly in due course be in considerable demand throughout far wider circles of British agriculture as a standard educational publication. C. C.

CHEMISTRY IN EDUCATION AND INDUSTRY.¹

IN the early eighties of last century the great Livery Companies of the City of London combined for the promotion of technical and scientific education in this country; by reason of their great wealth, the administrative capacity at their command, and their complete freedom from State interference, the City Companies were admirably fitted for this task. Amongst their circle they numbered many men of high scientific and technical standing, such as the late Sir Frederick Abel and Mr. George Matthey, both of

¹ From the first Streatfeild Memorial Lecture delivered at the City and Guilds Technical College, Finsbury, on October 17, by Prof. W. J. Pope, F.R.S.

whom worked nobly to ensure the success of the new movement. Without describing in more detail the scheme which was adopted, it will suffice to note that the great Livery Companies established and financed, first, the City and Guilds Technical College, and, a year or two later, the larger Central Institution at South Kensington. Both these institutions were designed with the view of popularising scientific and technical education and of counteracting to some extent the overwhelming influence of the older universities; both Oxford and Cambridge, with their glorious history and their scholastic traditions, remained very exclusive, and contributed but little at that time towards the advanced teaching in pure and applied science of which our country stood in urgent need.

We have always been accustomed to attribute importance to aristocracy of birth and family position. This attitude is probably sound; other things being equal, the son of able and influential parents is more likely than another to exhibit ability and a sense of responsibility; we find no cause to revise this opinion in the light of the record of our great families during the last four years. During recent times, however, the conclusion must have thrust itself more and more upon us all that there is another aristocracy, equal in nobility to the first, if not greater—an aristocracy of real achievement and of intellectual attainment. Promotion to this modern aristocracy is slow and painful, but is worth attaining; it can be attained by any young man who possesses the requisite physical and mental equipment. The City Fathers understood this forty or fifty years ago; they realised that one of the greatest needs of the British Empire was the proper utilisation and cultivation of every intellectual talent latent in its children; they believed it desirable that these potentialities should be directed into the wide channels opened by the advance of science and the exploitation of the scientific industries. Acting upon these convictions, they founded our two colleges.

As time went on, the municipal authorities established technical schools and similar institutions broadcast, and the initial striking success of the City and Guilds Colleges waned somewhat under the stress of competition. Although the instinct which guided the Livery Companies in their great scheme of technical instruction was sound, one cannot but think that that instinct played them false at a later date; the closing of the chemical laboratories at the Central Technical College was a real calamity to the nation, as well as a disaster to science. The country needed facilities for still more advanced education and research in applied science—needed them so urgently that the Government has had to provide them at South Kensington. An institution for this purpose established under the auspices of the City Companies could scarcely fail to become really great, whilst under Government administration it incurs some danger of becoming merely colossal.

The scheme initiated by the City and Guilds of London some forty or fifty years ago, having for its object the promotion of scientific and technical education, attracted a number of ardent teachers well known to us all, of whom F. W. Streatfeild was one. With the collaboration of this band of workers the new movement rapidly became fruitful, not only by pouring a host of well-trained workers into the scientific industries of the country, but also by the way in which its very success stimulated other public bodies to emulation, and ultimately provoked intense competition. Since, as we have had to deplore, the original scheme was not raised above this competition by a further spontaneous effort of its initiators, it is only gaining but slowly upon its initial success. At the same time,