

unshared with an honours degree where the dissemination of knowledge rather than its acquisition is in question. Specialists are frequently heard to complain of the narrow outlook which the present stage of development of science has forced them to maintain in the pursuit of their objective. Is not therefore the danger in loosening external control of progress accentuated rather than reduced? It might reasonably be argued that the heuristic method of all methods requires the watchful eye of an outside examiner, albeit a wise and sympathetic one. It is the very narrowness of school science of which Prof. Armstrong complains.

It is, indeed, even an open question whether research, by members of the teaching staffs of our universities, is not being exalted above its proper place in the scheme of things; whether the student is not being subordinated to the published paper; whether the teaching function, with its concomitant requirement of leisure for thought and reading, should not receive greater attention and recognition. This is a matter which has recently been discussed by the president of the Association of University Teachers, who views the present tendency with some concern. The question, however, bears only indirectly on our subject; another consideration has a more direct influence. It appears impossible under existing conditions to remove Prof. Armstrong's engaging and important problem from the domain of theory to that of practice, for the essence of the method is greater informality, elasticity, and individuality than is usually possible in a school or graduate college class of the usual size and heterogeneity. Large classes, or even classes less large, are scarcely amenable to real heuristics, and failing the substance the shadow is probably of negligible value in comparison with the conventional article.

A. A. E.

#### Britain's Coal Resources.

PROF. J. H. JONES gives a very complete and useful summary of the existing conditions of the coal industry of Great Britain in a paper entitled "The Present Position of the British Coal Trade" in the *Journal of the Royal Statistical Society*, Vol. 93, Part 1, 1930. He has collected valuable statistics from British and foreign sources and has published these in some twenty-nine tables by way of an appendix to his paper; these figures form also the basis of the paper.

Prof. Jones has dealt with these statistics in the effective manner that might be expected from so accomplished a statistician. Any defects in his

treatment of the subject are due to the fact that he is a statistician and not a miner, and, therefore, overlooks some of the points which to a mining engineer would have been comparatively obvious. Thus he deals in considerable detail with the falling off in British output, which he determines by a comparison of the present condition with conditions in 1913, the last pre-War year. He apparently overlooks the fact that 1913 was an exceptionally prosperous year for the coal trade, and should not be used as a basis for comparison.

In any case, however, the fact that the British coal trade has fallen off compared to what it was in the years immediately preceding the War cannot be disputed. Prof. Jones does not, however, appear to see, as a mining engineer would, that this falling off is an inevitable consequence of the lead which Britain enjoyed for so long among coal-producing nations. He has overlooked the fact that coal, like every other mineral deposit, is a wasting asset, and that the nation which, like Britain, first developed and worked its richest seams, thus supplying the markets of the world, must inevitably sooner or later come to the stage when, with incipient exhaustion of these exceptionally fine and accessible seams, other nations are able to enter into competition with it on more equal terms.

The conclusion that Prof. Jones reaches is as follows: "The machinery which is now being established serves merely to relieve the pressure of excessive competition. . . . The cause can only be removed by a reduction in the producing capacity of the industry to the volume of demand which is likely to exist under the new conditions, . . . I believe . . . that we may reasonably expect the industry not only to recover some of its lost markets on the Continent, but also to benefit from a growing demand for home consumption."

As a statistician, Prof. Jones is perhaps justified in his conclusion from a study of the statistics of the industry, but it is scarcely one that can be justified in the eyes of those who know all the circumstances of the case.

Even a statistician might, however, find grounds for apprehension, seeing that Britain's probable coal resources are only about 3 per cent of the probable resources of the world, whilst Britain's coal output, as Prof. Jones shows, is approximately one-fifth of that of the whole world and fifty years ago was practically forty-four per cent. These figures surely indicate that Great Britain could not possibly maintain its leading position at the above rate of output for more than a limited period.