(secretary); Mr. G. McFarlane, Board of Education (assistant secretary).

COMMERCIAL AND INDUSTRIAL POLICY COMMITTEE.—To consider the commercial and industrial policy to be adopted after the war, with special reference to the conclusions reached at the Economic Conference of the Allies, and to the following questions:—

(a) What industries are essential to the future safety of the nation, and what steps should be taken to maintain or establish them.

(b) What steps should be taken to recover home and foreign trade lost during the war, and to secure new markets.

(c) To what extent, and by what means, the resources of the Empire should and can be developed.

(d) To what extent, and by what means, the sources of supply within the Empire can be prevented from falling under foreign control.

Members: The Lord Balfour of Burleigh, K.T., G.C.M.G. (chairman), Mr. Arthur Balfour, Mr. H. Gosling, Mr. Richard Hazleton, M.P., Mr. W. A. S. Hewins, M.P., Mr. A. H. Illingworth, M.P., Sir William McCormick, Mr. A. McDowell, Sir J. P. Maclay, Bart., the Rt. Hon. Sir A. Mond, Bart., M.P., Mr. John O'Neill, Mr. Arthur Pease, Mr. R. E. Prothero, M.V.O., M.P., Sir Frederick H. Smith, Bart., Mr. G. J. Wardle, M.P., together with the following gentlemen, who are presiding over Board of Trade committees on the position of important industries after the war:—Sir H. Birchenough, K.C.M.G., Sir A. A. Booth, Bart., the Lord Faringdon, Sir Clarendon Golding Hyde, Sir Gerard A. Muntz, Bart., the Hon. Sir C. A. Parsons, K.C.B., F.R.S., the Lord Rhondda, Mr. G. Scoby-Smith; secretaries, Mr. Percy Ashley, Board of Trade, and Mr. G. C. Upcott, Treasury.

BOARD OF TRADE COMMITTEES.

In NATURE of January 6 (vol. xcvi., p. 525) particulars were given of a number of Government and other committees appointed to consider national scientific problems. In addition to these committees and the sub-committees of the Reconstruction Committee, the following have been appointed in connection with the Board of Trade "to consider the position of" the various trades in question "after the war, with special reference to international competition, and to report what measures, if any, are necessary or desirable to safeguard that position."

ELECTRICAL COMMITTEE.—The Hon. Sir Charles A. Parsons, K.C.B., F.R.S., Mr. J. Annan Bryce, M.P., Mr. T. O. Callender, Mr. J. Devonshire, Sir John Snell, Mr. P. Ashley, Prof. S. J. Chapman, Mr. B. M. Drake.

TEXTILES INDUSTRIES COMMITTEE.—Sir Henry Birchenough, K.C.M.G., Sir Frank Forbes Adam, C.I.E., Mr. J. Beattie, Mr. T. Craig-Brown, Mr. E. B. Fielden, Mr. J. W. Hill, Mr. A. H. Illingworth, M.P., Mr. J. H. Kaye, Mr. E. H. Langdon, Mr. J. W. McConnel, Mr. H. Norman Rae, Sir Fredk. H. Smith, Bart., Mr. T. C. Taylor, M.P., the Rt. Hon. Robert Thompson, M.P., Mr. C. T. Smith, Mr. Frank Warner, Mr. T. M. Ainscough (secretary).

SHIPPING AND SHIPBUILDING INDUSTRIES COMMITTEE.—Sir Alfred A. Booth, Bart., Sir Archibald Denny, Bart., Prof. W. S. Abell, Sir Edward Hain, Capt. H. B. Hooper, Mr. Summers Hunter, Sir Joseph Maclay, Bart., Mr. J. Readhead, Mr. O. Sanderson, Mr. J. Brown.

NON-FERROUS METALS COMMITTEE.—Sir Gerard Albert Muntz, Bart. (chairman), Mr. C. L. Budd, Mr. C. Cookson, Mr. C. W. Fielding, Lieut.-Col. A. J. Foster, Mr. A. W. Tait, Mr. A. H. Wiggan, J.P.

COAL TRADE COMMITTEE.—Messrs. Cory Brothers and Co., Ltd., Messrs. Mann, George, and Co., Messrs. Hull, Blyth, and Co., Messrs. William Mathwin and Son, Messrs. Mackenzie and Phylson, Ltd., Messrs. Pyman, Bell, and Co., Mr. T. E. Watson, Sir Richard Mackie, Mr. A. E. Bowen, Mr. N. Dunn, Mr. F. J. Jones, Mr. A. Nimmo, Mr. A. F. Pease, Sir Daniel M. Stevenson, Bart., Mr. R. Warham, the Rt. Hon. Lord Rhondda.

ENGINEERING COMMITTEE.—Sir Clarendon Hyde (chairman), Mr. Arthur Balfour, Mr. A. J. Hobson, Mr. W. B. Lang, Sir Hallowell Rogers, Mr. H. B. Rowell, Mr. Douglas Vickers.

IRON AND STEEL INDUSTRIES COMMITTEE.—Mr. G. Scoby Smith (chairman), Sir Hugh Bell, Bart., Mr. A. Colville, Mr. J. E. Davison, Mr. J. Gavin, Mr. J. Hodge, Mr. J. King, Mr. G. Mure Ritchie, Mr. H. Summers, Mr. B. Talbot, Mr. C. R. Woods (secretary).

GOVERNMENT CONTROL OVER FLOUR.

IN view of the shortage of wheat, steps have been taken by the Government to ensure a larger yield of flour from the same quantity of grain. The actual proportion of wheat endosperm that can be extracted as commercial flour varies with the nature of the wheat, but may be taken as approximately 70 per cent. The remainder consists of what are known in the milling trade as "offals"; these are subdivided according to the fineness of the particles into bran, pollard, and sharps or middlings. For some time millers have been more than usually careful in thoroughly separating the flour from offal, and have succeeded in lengthening their flour yield from 70 to about $71\frac{1}{2}$ per cent. It was intimated in Parliament in the first place that directions were likely to be given for an increase of yield of $8\frac{1}{2}$ per cent. From this it was foreshadowed that 80 per cent. war-flour would be the rule in the immediate future.

On promulgation, the Board of Trade Order as to the milling of flour was found to be much more moderate in its demands. A fairly exhaustive schedule of wheats is given, together with the percentage of flour that must be extracted from each. This has been made to vary with the natural white-flour yield of each variety. A reference to the Dictionary of Wheats given on pp. 284–289 of the writer's "Technology of Bread-making" shows that the wheats mentioned in the schedule have collectively an average white-flour yield of 70 per cent., whereas the average now required by the Government to be extracted is 75.3 per cent. This means an average extra yield of 5.3 per cent., with a maximum of 8 per cent. in the case of "Red Western" and a minimum of 4 per cent. with "No. 3 Manitoba." The Dictionary averages quoted are those of the respective wheats for a number of years, while no doubt the figures in the Government Order are based on actual current crops. It is further enacted that after January 1, 1917, no bread or other article of food shall be manufactured from any wheaten flour of a lower amount of yield than that quoted in the schedule.

The first problem which arises is the saving in

wheat which is thereby effected. Taking the increased yield of flour at 5.3 per cent., the new regulation will result in only 93 parts of wheat being required instead of 100 in order to yield the same amount of flour and bread as hitherto produced. This is a saving in wheat requirements of 7 per cent. Against this must be placed the loss of offals production. This will be diminished in two ways: first, by the actual milling of less wheat for the same amount of flour, and, secondly, by a less percentage of offals from the quantity of wheat milled. The result will be a diminution of the output of offals by 23 per cent. Their feeding value will also be reduced by the abstraction of the most nutritive portion and its transference to the flour-sack.

It will be observed that the new regulations cover two distinct points: the first is that of length of flour yield; the second is that all the flour is to be straight-run—that is, there is to be only one even quality. It would be quite possible to prescribe the proportion of flour to be extracted and still to permit the miller to subdivide such flour into two or more qualities. If this were done, the whole of the offal would be concentrated in the lower grade. There would thus be a white flour of the present “patents” or “supers” type, and a very dark flour. Possibly there is a fear that the darker flour would be so accentuated in character as to be objectionable. There would, however, be one benefit: as a result of the higher price that could be obtained for the better quality, the lower grade could be sold very much more cheaply, and so the extremely poor would reap an advantage.

This leads us, naturally, to the question of quality of the new straight-run flour. The writer has already had the opportunity of examining and testing samples submitted by various millers. Such flours are not quite so good commercially as the 70 per cent. straight-run flour, but are better than present ordinary household grades. Compared with the latter, the new flour contains the small proportion of included offal, but this is more than balanced by the retention of the whole of the patent flour. Properly milled from sound wheats, this flour should be found suitable for the manufacture of all forms of bread and cakes, and also for general home-cooking requirements.

The question is being asked: But if 70 per cent. can be increased to 75 per cent., why not an 80 per cent., or even an 85 per cent. flour? In reply it may be well to put on record the reasons why both the makers and users of flour have gravitated to adoption of the whiter sorts. The miller finds that the freer a flour is from offal, the better it keeps. This especially holds with regard to germ, which very quickly causes deterioration in the flour. Then both the germ and the offal are powerfully diastatic in character, and flours in which they are present tend to make a much more sodden and clammy loaf than does a white flour. But a yet more serious objection is the greater bacteriological impurity of the darker flour. Acidity develops during fermentation to a much greater

extent in dark than in white flours; in consequence the darker flour is much more liable to produce sour bread. Again, such organisms as *B. coli communis* are frequently present on wheat, with the result in milling that they are absent from the highest-grade flour, present in small quantity in that of medium grade, and abundant in wholemeal.

The general consensus of scientific opinion goes to show that the bread from white flour is superior in nutritive value to that from the darker kinds. This is vouched for by physicians such as the late Sir Lauder Brunton, and such physiological investigators as Rubner of Munich, Snyder of Minnesota, and Hutchison of the London Hospital. The general demand of the public is for white bread, and Hutchison sums up most pertinently the great importance which must be attached to its decision on problems of nutrition:—“In the last resort, therefore, we are driven for guidance to the results yielded by actual analysis of the diets selected by healthy persons. The value of such results must not be underestimated. Men have found out by long experience what is the best diet, better, perhaps, than science can tell them.”

For these reasons any further step in the direction of an additional increase in the flour to be extracted from wheat, and consequently darker bread, should not be taken unless from absolute necessity. The resultant flour would be less nutritious, darker in colour, and more difficult to bake into a sound and satisfactory loaf. It would be less attractive and appetising; and in proportion as bread forms the principal article of diet the change would be the more keenly felt. The poorest classes would therefore be the most adversely affected of the whole of the community.

WILLIAM JAGO.

SCIENCE AND THE CIVIL SERVICE.

THE Lords Commissioners of his Majesty's Treasury have appointed a Committee to consider and report upon the existing scheme of examination for Class I. of the Home Civil Service. The terms of reference are:—

To submit for the consideration of the Lords Commissioners of his Majesty's Treasury a revised scheme such as they may judge to be best adapted for the selection of the type of officer required for that class of the Civil Service, and at the same time most advantageous to the higher education of this country; and, in framing such a scheme, to take into account, so far as possible, the various other purposes which the scheme in question has hitherto served, and to consult the India Office, the Foreign Office, and the Colonial Office as to their requirements, in so far as they differ from those of the Home Civil Service.

The members of the Committee are as follows:—

Mr. Stanley Leathes, C.B., First Civil Service Commissioner (chairman).

Sir Alfred Ewing, K.C.B., F.R.S., Vice-Chancellor of the University of Edinburgh.

Sir Henry A. Miers, F.R.S., Vice-Chancellor of the University of Manchester.