

FUEL RESEARCH: INDIAN COAL.

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A complete research on all aspects of Indian coal would involve an immense task which would probably have to be carried out under three main divisions:—

- (1) Dealing with geological occurrence of the coal and including a study of the coal seams and the chemical constitution of the coal;
- (2) Dealing with the mining of the coal, questions of heating, fire-fighting, dust explosions, packing and general questions of drainage and ventilation; and
- (3) Dealing with the utilisation of the coal including problems of cleaning, coke making, pulverisation, gasification and hydrogenation as well as storage.

This would be impractical in India at present and several of the questions are not yet in need of immediate attention. Of the 28 million tons of coal produced last year only a relatively small proportion is used as a raw material in gas works, preparing metallurgical coke and soft coke—possibly not 7 million tons in all or 25 per cent as against the remaining 21 million tons which is used as fuel for steam raising, etc.

In my opinion an Indian Fuel Research Board while co-operating with existing organisations should concentrate on a few problems which when satisfactorily solved would provide data of commercial value. To mention only one such problem I would refer to the large quantities of low-ash high-moisture coals which are liable to spontaneous combustion in storage or ships' bunkers and are thus unexportable.

Returning again to the main divisions of research and the possibilities of co-operation it can be said at once that the

- (1) geological questions can best be left to the Geological Survey of India who have already surveyed most of the coalfields in this country but who do not possess the facilities nor the staff for making a chemical survey of the seams;
- (2) chemical study of the coal seams, bed by bed, traced throughout a coalfield is best carried out by the chemical departments of provincial universities or schools of mines working in touch with the Geological Survey and the Fuel Research Board.

Thus chemical study may include numerous questions:—

- (a) study peculiarities of different coal seams, as traced from locality to locality;

- (b) assist in bringing the chemical and physical data into line with the geological information;
 - (c) investigate different methods of coal sampling in the mines, for boiler trials and for export;
 - (d) suggest uses for coals whose peculiarities have been proved;
 - (e) publish information on the analyses and studies which have been made.
- (3) With regard to the purely mining problems such as ventilation, underground fires, coal dust, explosions, underground drainage, subsidence due to de-pillaring or collapse, etc. it would seem best to have these investigations made by committees appointed by the coal associations, mining institutes and such bodies in close touch with colliery companies and the mines. These are matters which get very close to the pockets of those engaged in winning and marketing coal and they would have a close personal interest in the investigations by establishing a colliery owners' research organisation.
- (4) Finally, there is the subject of the utilisation of coal and the various possibilities for cleaning coal, preparation of soft coke, improvements in hard coke manufacture, the recovery of gases and liquid fuels, the hydrogenation of tars, the testing of inventions or processes, investigation on pulverised fuel firing, the slagging of coal ash, and related questions. There is little doubt that as these investigations are of direct practical value they should be conducted by the special staff of the Fuel Research Board itself absolutely independent of any other department, association or educational institution. The chief objective of this central section of the Fuel Research Board is to try out processes, make tests, prove equipment and generally function as an experimental institution to prove and draw attention to various ways of using coal more economically, safely and profitably.