HIDDEN COAL FIELDS

By F. W. Gray.

At the annual general meeting of the Institution of Mining and Metallurgy, held on March 26th, the president of the institution, Dr. F. H. Hatch, took for his presidential address the subject, "The Relation of Geology to Mining." Dr. Hatch's remarks on concealed coal fields are of particular interest to the mining engineers of Great Britain, where remarkable discoveries of hidden coal fields have followed the application of inductive geological reasoning.

From the report of the address given in the "Iron and Coal Trades Review," the following interesting observations are abstracted:

"Specific instances, continued Dr. Hatch, of the successful application of geological knowledge to mining work can, of course, be given in abundance. In this country (Great Britain) the proving of the underground extension of the coal fields beneath the younger rocks surrounding them is of paramount importance to its industrial welfare. One of the first pieces of work in this direction resulted from the admirable mapping of the Midland coal field by Beete Jukes, a distinguished member of the Geological Survey of England and Wales. The entire correctness of his theories was demonstrated by the proving of the prolongation of the South Staffordshire coal field to the east under the fringe of overlying red rocks. Similarly, the discovery of a buried coal field in the southeast of England was the direct result of a piece of pure scientific deduction. Goldwin-Austen argued that the tectonic folds in the Paleozoic floor, by which the existence of coal basins are determined, would be traceable even when covered by a great thickness of newer rocks, because a line of disturbance, whether of faulting or folding, tends to be the locus of subsequent movement, and thus to set its mark on the newer strata. The correctness of this tectonic principle was demonstrated by the successful borings in the neighborhood of Dover, which showed that deeply buried under Mesozoic and Tertiary strata is a coal field, situated on the line connecting the seams worked in northern France and Belgium with those of South Wales and Bristol; and it appears not improbable that other coal areas might be found, if the underground geology of this line of country were systematically explored. A satisfactory feature of the discovery of buried coal fields in England is the large additions thereby made to our coal resources, as to which previous estimates had been rather pessimistic."

A line connecting the coalfields of northern France with those of Kent, the Forest of Dean and South Wales approaches very closely to London, and it does not require much imagination to see the industrial possibilities of the South of England if coal fields were to be discovered at a workable depth in a district that has London for its centre. Similar scientific deductions to those referred to by Dr. Hatch have led to the finding of buried extensions of coal fields in the Campine district of Belgium and in the Lippe Valley in Germany.

In Cape Breton Island and in New Brunswick the carboniferous appears to have been the latest formation laid down, and there does not appear to be any likelihood of the discovery of concealed coal fields, because of the absence of formations younger than the carboniferous. But in the Pictou and Cumberland counties there is a possibility of finding the coal measures under a mantle of younger strata. The possible occurrence of a coal area beneath the Neo-Carboniferous or Permian strata of Pictou county was discussed in a paper read before the Canadian Mining Institute by Dr. H. M. Ami, who set forth the extreme probability of a possible coal field "beneath the newer outlying series, and in the inclined beds below" in that portion of Pictou county north of the "North Fault." The greatest development of younger rocks under which there is a probability of the presence of coal seams is in Cumberland county. The tract of country bordered by Chignecto Bay on the west, having the Joggins mines at one extremity and the mouth of the Apple River at the other, and bounded by the Cobequid Hills on the east, running from Apple river to Halfway river, thence to Springhill Mines and back to the Joggins Mines, is covered by strata younger than the Carboniferous, and this district affords greater possibilities in the way of concealed coal seams than any other part of Nova Scotia.

Prince Edward Island should by all geological reasoning contain coal seams, but whether these seams are present at a workable depth will depend on the existence of folds in the presumably concealed Carboniferous formation. In a borehole, which was put down near Miminegash, at the extreme western end of the Island, the depth of the red Permian beds was only 950 ft., the remaining 710 ft. being in the lower grey beds of the Permo-Carboniferous. This borehole was most unfortunately lost before the Carboniferous rocks had been tested, but sufficient evidence was obtained to prove the very interesting field Prince Edward Island presents for just such geological deduction as has led to the discovery of hidden coal fields in such old world districts as Kent and the Belgian Campine.

In commenting on Dr. Hatch's address, the "Colliery Guardian" editorially remarks: "Whatever may be the theoretical arguments in favor of a concealed coal field, the borehole must necessarily become a final test, but without the aid of tectonic geology no borehole evidence can be properly and fully interpreted." It is to be deplored that the Miminegash boring was so inconclusive in demonstrating whether the productive measures of the Carboniferous are to be found under Prince Edward Island or not, but whatever evidence was obtained pointed rather to the probability of the presence of the productive measures than otherwise. Enough has been cited, however, to point out that all the possibilities of the Maritime Provinces in the matter of coal fields have not been exhausted.

CANADIAN OIL FIELDS.

There are comparatively few important oil producing districts in Canada. The principal production is from Southwestern Ontario between Lake Huron and Lake Erie. Lambton, Kent and Brant counties yield large quantities.

Some oil is produced in the district south of Moncton, New Brunswick.

PETERSON LAKE.

The first dividend on Peterson Lake is payable June 15th to stock on record May 15th, Dividends of 1¾ per cent. will be paid quarterly.