In high temperature carbonisation, the principal work of the year has been a study of the effect of size of coal on the working of horizontal and vertical gas retorts, being a continuation on a larger scale of work already carried out at the University of Leeds for the Gas Investigation Committee of the Institution of Gas Engineers. "The general result of the investigation is to confirm that the influence of size of the coal charged is greater with vertical than with horizontal retorts, and that with vertical retorts those variations offer a means of controlling, to some extent, the yields and qualities of the products to suit the needs of particular circumstances. In particular the increased yields of tar may be important."

Among other subjects receiving notice may be mentioned the composition of low temperature tars, combustibility, 'shatter' tests, and reactivity of coke, the effect of oxidation on the coking properties of coal, briquetting, the water gas process, the use of coke for domestic purposes, the heating requirements of a house, an interesting method of expressing fuel consumption in internal combustion engines, and various methods for sampling and analysis.

JOHN W. COBB.

The Atlantic Earthquake of Nov. 18, 1929.

AN earthquake that could break a dozen deep-sea cables, that could give rise to destructive sea-waves on the Newfoundland shores, and to a shock felt along 940 miles of the American coast, must clearly have been one of unusual strength.

In Nova Scotia, the shock was felt severely in Halifax, Yarmouth, and other places. In Windsor, chimneys were thrown down. At St. John's (N.F.) the shock was slight, but all along the New England coast, as far as Boston, it was distinctly felt. At the time of the earthquake the White Star liner *Olympic* was about 300 miles from the spot at which cables were broken. The captain reported that, at 3.30 P.M. on Nov. 18, he felt the vessel suddenly quiver, as though she had cast off a propeller blade, and this movement was followed by vibrations lasting for two minutes. The ship was found to be undamaged and there was no wreckage in its wake.

Two and a half hours after the shock was felt, sea-waves flowed up the southern shores of Newfoundland. In Long Harbour, which lies at the head of a narrowing inlet, fishing-booms and stages were damaged by the sea-waves, and 75 yards of roadway were destroyed. A wave, 15 feet in height, swept away several houses in the town of Burin and all the buildings on the water-front. Nine lives were thus lost in Burin and seventeen others at Lord's Cove and Lamalin. In the open ocean the waves must have been much lower, but it might be worth while to examine the mareograms obtained at the western ports of Great Britain for any traces of their passage.

A remarkable effect of the earthquake was the fracture of a large number of telegraph cables. Of the twenty-two cables that traverse the central district, twelve were damaged, and ten of these cross the Atlantic. The probable site of the breakages is said to be in Lat. 44° N., Long. 57° W. The fractures, however, were not concentrated in one spot, for two of the Western Union cables were severed at a depth of 90 fathoms off the coast of Nova Scotia, while a third, belonging to the same company, broke at a depth of 900 fathoms. The exact positions of the fractures will throw light on the origin of the earthquake. It may be that all twelve sites will be found to lie along a straight line, as happened in 1884 with three cables on the south-eastern slope of the Newfoundland Bank. At the same time, it seems quite possible that the earthquake may have had a multiple origin and that a displacement not far from land was responsible for the strong shock felt in Nova Scotia. It is difficult otherwise to account for the damage at Windsor, slight as it was, this town being more than 300 miles from the spot assigned to the fractures. On the other hand, that the sea-waves originated at a distance from land of this order of magnitude seems to be indicated by the long interval that elapsed between the earthquake and the arrival of the waves.

That the disturbed area was one of great size is clear from the length of coast shaken. As Boston is 700 miles from the spot above mentioned, it is possible that the disturbed area may have contained so much as 1½ million square miles, an area that has seldom been exceeded in earthquakes of the last fifty years.

C. DAVISON.

Oil-Pools and Fault-Zones.

THE effect of faulting on oil accumulation, equally on oil dispersion, has always been a matter of added interest in working out subsurface conditions, probably because each new case studied presents some peculiar feature worthy of close investigation. So many circumstances enter into the consideration of fault-fields, that were a classification of these alone attempted it would result in a tabular scheme almost, if not quite, as large as those already in existence for other structures, and, moreover, just about as useless. Accumulations dominated by normal fault systems, as at Luling, Texas; by reversed faults, as at Whittier, California; by overthrust faults, as at the well-known McKittrick field, California; by the high factor of porosity in many fault-belt shatter-zones where adequately sealed; by the buffer action of solid bitumen resulting from inspissation of heavy oil along planes of dislocation: these are a few of the many possible expressions of fault-structure capable of influencing storage.

Probably the most difficult cases to elucidate, if not the most important from an economic point of view, are those pools either determined or to some extent controlled by low-angle overthrusting, with its concomitant network of subsidiary 'blatts', or by those thrust-faults in which curvature of the planes, when pronounced, complicates definition except under the most favourable conditions of full well-data. As illustrative of the latter, Mr. Frank Reeves' survey of the Highwood Mountain oil-areas, Montana (*Bulletin* 806-E, 1929, United States Geological Survey), is worthy of note. The type of overthrust most commonly displayed in this region is that in which the surface-trace has a high angle of hade (or low dip) and flattens out in depth by mergence with the stratigraphic planes, so that it becomes, in fact, an almost horizontal thrust at some particular horizon in the area concerned.

Altogether an interesting contribution, although in this region the author concludes that the structures are not favourable to the ultimate location of oil and gas pools.