was paid on the first preference, and for 1890, 10 per cent., leaving arrears of 50 per cent.

Anglo-Canadian Asbestos.—Reconstructed in 1889. Accounts to December 1st submitted in April. At general meeting held on 16th April, a dividend at the rate of 20% per annum was declared. Debentures, £3,450.

Anglo-Canadian Phosphate.—The preference shares rank first for 7 per cent., and after a like rate has been paid on the deferred shares, both classes rank equally. Accounts to November 30, submitted in May. No dividend yet on either class. Debit to profit and loss on November 30, 1890, £5,749.

Bell Asbestos.—Accounts to December 31 submitted in January. Dividends for 1888 and 1889, 22½ per cent. each year; 1890, 15 per cent. Reserve, £45,000. The debentures are redeemable by 1913, by annual drawings at 115 from a sinking fund, which the directors may increase.

Canadian Phosphate.—Accounts to November 30 submitted in February. The working of the eleven months to November 30, 1888, resulted in a profit of £2,570, which was carried forward. A dividend of 6d. per share was paid November 1, 1891.

General Phosphate.—Registered June 13, 1890. To acquire properties in Canada and elsewhere. The founders' shares take one half the profits after providing for ten per cent. dividends on the ordinary.

Lake Copper.—Registered January 16, 1891. To take over the properties of the Excelsior Copper Co., (Ltd). Authorized capital, £450,000. Accounts to Dec.

Natural Gas Constantly Forming.

Professor W. J. McKee, of the U. S. Geological Survey, in a Washington paper, recently made the following observations regarding Indiana's natural gas supply:—

"The origin of the rock gas and petroleum, as well as the laws by which they are accumulated, is so well understood that it is as easy to predict the success or failure of a prospective bore for oil or gas as to tell where an artesian well will or will not fetch water. Scientific investigation has made known the cause of the tremendous pressure under which the gas and oil are confined. Every great field in Pennsylvania, Ohio and Indiana is an enormous dome beneath the surface of the ground, filled in with porous sand-stone or limestone. The natural gas of Indiana is in such a dome, about fifty miles across, formed by the bending out of shape of the strata incidentally to the contraction of the earth's crust. The coarse-grained limestone that is under it is charged with inflammable fluids. On top is gas, beneath it oil, and under the oil is salt water. This dome runs in the middle of a great basin 500 miles in diameter. The rain water falling into this basin is partly absorbed by the rocks, and it floats from all directions toward the centre, driving the oil and gas which are in the rocks towards the dome, and thus compressing it with enormous power.

"Rock gas is the same thing as marsh gas, which is often seen bubbling from the muddy bottoms of stagnant ponds. It, and the oil likewise, were formed originally by the slow decomposition of woody or other organic matter contained in the strata of the earth. The making of both is now in progress in all rocks containing partly decomposed organic remains. The question is often asked, 'Is natural gas yet forming?' Undoubtedly. It is only a question of the formation being equal in localities to the drain of consumption.

"All the compounds of carbon upon which the civilized world chiefly depends at present for fuel must be exhausted within a few centuries. The anthracite of America will be used up in a few decades, while the bituminous coal-beds formed in the carboniferous and cretaceous epochs, will be dug out within 1,000 or 2,000 years. Happily, however, the stock of bitumens in the rocks of the earth is practically unlimited, and in them will be found the fuels and illuminants of the future."

The Noble Gold Milling Process.

A new process which, according to the *Australian Mining Standard*, bids fair to be of great importance in gold milling is about to be introduced by the Noble Mining and Milling Company, of New York, a company recently organised for its exploitation. The process, which is the invention of the late Mr. B. G. Noble, ex-Governor of Wisconsin, an experienced chemist, who spent many years upon its development, is designed, our contemporary states, to save the very fine gold occurring in certain ores, much of which is lost as "float" in the ordinary process of plate amalgamation. This *desideratum* is accomplished by intermixing the pulp and mercury to a degree hitherto unattainable on account of the danger and consequent loss of flouring the mercury, this difficulty being overcome in the Noble process by the addition of a chemical which has the effect of coalescing the almost infinitesimally fine particles of floured mercury. A series of tests with the process, which has been conducted at the company's testing works, near New York, upon a working scale during the past six months, has given extremely successful results. By the Noble process the auriferous ore is ground so as to pass a 100-mesh sieve, a Fuller mill having been used for this purpose at the experimental works. The pulp, with the necessary amount of mercury for the amalgamation of its gold contents, is then run into a tub called the amalgamator, which is equipped with a stirrer suspended near the iron bottom of the vessel. The tub, which is 42 inches in diameter, has a capacity of ½ ton of pulp at a charge. The charge having been run into the amalgamator, the mercury-coalescing chemical, the nature of which is kept a secret, is added, and the stirrer put in motion, rotating at 250 revolutions per minute, the presence of the chemical preventing the flouring of the mercury. During this operation, which lasts 15 minutes, the particles of pulp are brought into contact with those of mercury in the most thorough manner, and the amalgamation is effected. The pulp is then drawn off into a settler, little different from those of the ordinary type, and diluted, whence it is drawn into a second settler and further diluted, from which the tailings are allowed to run away. In the tests which have been made various lots of ore, principally from North Carolina mines, have, the Australian *Mining Standard* states, been run. Ore from one mine which is now being regularly worked by plate amalgamation, furnished the best comparative results. It was a free milling ore, containing a very small amount of pyrite, assaying from 8s. to 16s. per ton. On the plates but 24 per cent. of the gold value was recovered, while by the Noble process as much as 93 per cent. was saved. Equally satisfactory results have been obtained from pyritous ores. The loss in mercury in experimental runs has been about ½ lb. per ton; in continuous runs this would, of course, be considerably smaller. It is claimed that in a 25 ton plant the process can be worked for 4s. per ton.

PROVINCE OF NEW BRUNSWICK.

Synopsis of "The General Mining Act," Chapter 16, 54th Victoria.

—LEASES FOR MINES OF—

GOLD, SILVER, COAL,
IRON, COPPER, LEAD,
TIN and PRECIOUS STONES.

GOLD AND SILVER.

PROSPECTING LICENSES up to 100 areas, (each 150 feet by 250 feet), issued at 50 cts. an area up to 10 areas, and 25 cts. afterwards per area, good for one year. These Licenses can be renewed for second year, by payment of one half above amount.

LEASES for 20 years to work and mine, on payment of $2 an area of 150 feet by 250 feet. Renewable annually at 50 cts. an area in advance.

Royalty on Gold and Silver, 2½ per cent.

MINES, OTHER THAN GOLD AND SILVER.

LICENSES TO SEARCH, good for one year, $20 for 5 square miles. Lands applied for must not be more than 2½ miles long, and the tract so selected may be surveyed on the Surveyor General's order at expense of Licensee, if exact bounds cannot be established on maps in Crown Land Office. Renewals for second year may be made by consent of Surveyor General, on payment of $20.

Second Rights to Search can be given over same ground, subject to party holding first Rights, on payment of $20.

LEASES.—On payment of $50 for one square mile, good for two years, and extended to three years by further payment of $25. The lands selected must be surveyed and returned to Crown Land Office. Leases are given for 20 years, and renewable to 80 years. The Surveyor General, if special circumstances warrant, may grant a Lease larger than one square mile, but not larger than two square miles.

ROYALTIES.

Coal, 10 cts. per ton of 2,240 lbs.
Copper, 4 cts. on every 1 per cent. in a ton of 2,352 lbs.
Lead, 2 cts. on every 1 per cent. in a ton of 2,240 lbs.
Iron, 5 cts. per ton of 2,240 lbs.
Tin and Precious Stones, 5 per cent. of value.

APPLICATIONS can be filed at the Crown Land Office each day from 9.30 a.m. to 4.30 p.m., except Saturday, when Office closes at 1 p.m.

L. J. TWEEDIE,
Surveyor General.

Hand-power Diamond Boring Machine.

In *Oesterreichische Zeitschrift fur Berg-und Hüttenwesen* Mr. E. Nordenstrom writes; "The use of bore holes in underground workings for the discovery of ore deposits, has been practised in Sweden for a considerable time. Thirty or forty years ago the maximum distance attainable by percussion hand-boring was 44 feet. In 1872 the method of diamond-boring was adopted in coal-bearing rocks in Scania, and about 1,100 yards of borings were made by foreign companies at an average cost of £6 5s. per yard, for which price shafts could have been sunk in the same ground. Subsequently an American prospecting machine, driven by compressed air, was adopted in the Norberg mines, where a bore, inclined upwards at a slope of 1 in 100, was driven a distance of 33 yards through granite, felstone and limestone. The average length driven per shaft was 8 feet 8 inches, the maximum of 16 feet having been obtained in limestone. About 220 yards of borings were done in the district at an average rate of 7·73 feet per shift, but the cost was still almost the same as that for which levels could be driven at the rate of wages current in the locality, so that the only saving was in time.

In 1887 a light, simplified manual power machine was introduced. The bore-rods are iron tubes, 1·29 inch external, and 0.98 inch internal diameter, and five feet long, screwed together. Eight diamonds—four inside and four outside—are used in the boring head, which is of 0·94 inch bore, giving cores of 0·86 inch diameter. The average weight of the diamonds was between 0·75 and 0·8 carat each, and the cost last year about £2 14s. per carat. The total weight of the machinery, including 55 yards of rods and the force pump and gear for flushing the hole, is 14 to 15 cwt.

Up to the end of 1888, a total length of 3,250 yards had been carried out by these machines, the longest bore being 200 feet from the face. Most of the borings have been underground, 25 per cent. being vertically downwards, 37 per cent. nearly horizontal, and 38 per cent. varied between 58° upwards and 78° downwards. From four to six men are required for working the machine, and about 1¼ gallons of water per minute is needed for flushing out the hole. The rate of advance per shift of 8 to 9 hours, varied from 2½ to 4¾ feet. The total cost is from £1 6s. 6d. to £1 8s. 6d. per yard, while that of driving levels, including the lifting of the debris to the surface, varies from £2 15s. per yard in ordinary, to £3 17s. 6d per yard in very close ground.

Money Orders.

MONEY ORDERS may be obtained at any Money Order Office in Canada, payable in the Dominion and Newfoundland; also in the United States, the United Kingdom, France, Germany, Austria, Hungary, Italy, Belgium, Switzerland, Portugal, Sweden, Norway, Denmark, the Netherlands, India, Japan, the Australian Colonies, and other Countries and British Colonies generally.

On Money Orders payable within Canada, the commission is as follows:

If not exceeding $4			2c.
Over $4, not exceeding		$10	5c.
" 10,	"	" 20	10c.
" 20,	"	" 40	20c.
" 40,	"	" 60	30c.
" 60,	"	" 80	40c.
" 80,	"	" 100	50c.

On Money Orders payable abroad the commission is:

If not exceeding $10			10c.
Over $10 not exceeding		$20	20c.
" 20	"	" 30	30c.
" 30	"	" 40	40c.
" 40	"	" 50	50c.

For further information see OFFICIAL POSTAL GUIDE.

Post Office Department, Ottawa.
1st November 1889.