PART III.

ON THE SAFE STORAGE OF COAL.

When coal is stored in large piles, there is always a danger that its temperature will rise to a point where it begins to burn rapidly. This is due to combustion which takes place on the surface of each piece of freshly mined coal when exposed to the air. Unless the temperature of the body of the coal is allowed to rise unduly, this combustion soon ceases, and the surface only is oxidized. If each particle of coal in the pile is easily reached by a good flow of air the heat generated by this initial combustion is carried off by the air and the coal will not reach a dangerous temperature. If, on the other hand, no air is allowed to reach the coal, no combustion at all can take place, and there will be no possible danger of the coal pile burning.

To prevent the firing of coal piles, it is necessary, therefore, either to keep air away from the coal altogether, or to ventilate the coal pile thoroughly. The only absolutely safe way to exclude all the air from coal is to store it under water—usually an impracticable method in Canada. Fine coal or slack is sometimes stored so as to prevent air reaching the interior, by either building a closely sealed wall round the pile, or packing the fine coal very closely. But a pile of slack coal is always very liable to eatch on fire, therefore, it should always be watched, and stored in such a way that it may be moved easily if it gets very hot. Another method of preventing the initial combustion of the surface of the coal is to see that the initial combustion of the surface of the coal takes place before the coal pile is completed. This method, which is often effective, is accomplished by piling the coal in, say, layers of 2 feet, and waiting for two or more days between the piling of each layer. Each layer then becomes oxidized on the surface of the lumps, which are thus less easy to ignite by further combustion in the pile.

The most successful method of storing coal is by placing it in a pile which is well ventilated by currents of air which keep down the temperature. Lump coal is thus more easily stored than fine coal, for two reasons: (1) because there are more voids in the pile for the passage of air; and (2) because the surface of a large lump of coal is smaller in proportion to its weight than with a small lump. Coal, therefore, should be handled so as to reduce the breakage as much as possible. Friable coal should not be stored if one less liable to break-up is available. When it is found necessary to store a coal which contains both lump and fines, precautions should be taken to see that the fine and lump coal are evenly distributed through the pile. Coal should be stored, if possible, in cold weather; or if in warm weather, preferably on a cloudy day. The coal piles should be as shallow as space will permit, and formed in such a manner that the coal may be easily moved if it gets too hot. It is well, for the same reason, to subdivide the pile so that, if necessary, any part may be moved, instead of shovelling