

Haedicke¹ (1881) thought that pyrites is the primary cause of heating in coal.

Lewes² (1890) discussed the effects of the presence of inorganic matter in coal; he also discussed spontaneous heating in general, especially with regard to the occurrence of the same in ships. Lewes concluded that pyrites played a large part in spontaneous heating.

Erdmann and Stolzenberg³ (1907) think that humic acid is the prime cause of heating, especially where ozone is present in the air as at sea. They record some very interesting experiments.

New South Wales Commission⁴ (1897-8). In the evidence heard before the Commission the question of depth of storage piles was shown to be one of great importance. This had, of course, been conclusively shown by Fayol previously.

Haldane and Meachem⁵ (1898) show from experiments that mine air is usually at a higher temperature than the seam and strata through which it circulates; they also sealed coal in flasks and obtained a reduction in pressure, the residual gas being nitrogen. Haldane and Meachem arrived at the following conclusions:—

1. The rate of absorption of oxygen is proportional to the partial pressure of the oxygen present.
2. The rate of absorption of oxygen is doubled for every 30° C rise.
3. The rate of absorption of oxygen decreases as time goes on.
4. Absorption goes on at the coal surface and does not penetrate very deeply."

Hale and Williams⁶ (1899) found that a bituminous coal lost from one-half to one per cent of its calorific value in eleven months.

Fischer⁷ (1901) concluded that weathering of coal is due to oxidation, that actual wetting hastens the weathering of pyrite and marcasite, and that many coals contain organic sulphur compounds. Fischer proposes as a test that a gramme of any finely powdered coal be shaken with 20 c.c. of half normal bromine solution for five minutes, and if any smell of bromine remains, the coal may be safely stored.

Macaulay⁸ (1903) after conducting steaming tests with locomotives, concluded that English coal depreciates ten to twelve per cent per year in storage.

Doane⁹ (1904) concluded that the amount of moisture left on air drying is an indication of liability of coal to heat when stored.

¹ Dingles Poly. Jour. Vol. 239; 1881, pp. 148-9.

² Trans. Inst. of Naval Arch. Vol. XXXI, 1890, pp. 201-228.

³ Jour. Soc. Arts. Vol. 40, 1892, pp. 352-365.

⁴ Braunkohle Vol. VII, 1908, p. 69.

⁵ New South Wales Royal Commission on Ships carrying Coal; 1897-8.

⁶ Trans. Soc. Min. Eng. Vol. 16; 1898, p. 457.

⁷ Trans. Am. Soc. of Mech. Eng. Vol. XX, 1899, pp. 333-341.

⁸ Die Brennstoffe Deutschlands, etc., 1901, pp. 1-107.

⁹ Practical Engineering, Vol. XXVIII, 1903, pp. 318-320.

¹⁰ Engineer (London), Vol. 96, 1903, p. 415.

¹¹ Engineering News, Vol. 52, 1904, p. 141.