

jig machines came into use, is 25,000,000 tons, and the total amount of waste coal for that period is about one fourth of the amount of coal sold. In spite, however, of the means of reducing the waste coal just mentioned, the total quantity of culm accumulated since 1853, when breakers were first used is something appalling. Up to 1896, 43 million tons was the estimated amount of waste coal that had accumulated since 1853, about the Pennsylvania mines,—a quantity large enough to cover the state of Rhode Island evenly with a mass of good coal 125 feet high.

Not only is there that amount of good coal wasted; but the question of land upon which to put the waste heaps becomes a very serious one, especially in the Wyoming Valley, where the land is notably good farming land. The culm ought not to be put on top of the mine as it increases the danger of the mine sinking. It must not be put where it may be washed into water courses by rains, as it is then liable to be spread in the time of floods over farming land, thus injuring the fertility of the soil. Several lawsuits have arisen regarding cases of the latter sort, in which the mining companies were often the losers.

All these things, realized more and more as the mining of anthracite coal became more extensive, gave importance to the question of what to do with the culm heaps.

It was once thought that the supply of coal was inexhaustible, and as a result the fact that such large quantities of good coal were thrown away excited but little concern, and the great culm heaps were disposed of in all sorts of wasteful ways. The railroad companies were given permission to use them for grading and ballasting, and where the sinking of a mine was the cause of a certain length of track losing its foundations, which occasionally happened, the culm heaps went to fill up the gap. Many companies used their culm for filling up old mines in order to prevent the latter from caving in. The real value of the culm heaps as marketable coal was for a long time unthought of, chiefly be-