

Federal Coal Commission's Report on Anthracite

EDITORIAL comments on the anthracite report of the Federal Fact-finding Coal Commission, which became public on July 5, together with an analysis of its more important conclusions, will be found on another page of this issue. In this place, only a few extracts from the report, bearing more directly on technical matters, can be quoted, for lack of space.

COST OF MINING

Mining cost, as it stands on the books of each mining company, represents the average cost of the total output, all sizes, of anthracite. Egg coal has at least five times the market value of barley, but these sizes are mined together and their costs can not be separated. Mine costs directly reflect the conditions under which these deposits of coal are recovered. Even within the few counties in which anthracite is found there is a conspicuous range of natural conditions. The distinction between the Northern, Middle, and Southern field, or, as they are also termed, the Wyoming, Lehigh, and Schuylkill regions, is primarily geologic and topographic, but the effects of the natural conditions largely control costs. The contrast is great between some of the level-lying beds of moderate but fairly constant thickness under the broad Wyoming Valley, where mining and underground haulage present relatively simple problems to the engineer, and the steeply pitching or overturned and faulted beds of variable thickness in the Schuylkill field, where crushed coal and treacherous roof multiply the difficulties of mining and increase the unavoidable waste. Even more direct is the connection between geologic processes and the differences in the character of the coal as mined, the varying proportions of large and small sizes demanding differences in preparation and resulting in different average prices realized for the product of the mines.

It is gratifying to find that while 40 years ago estimates of the percentage of recovery were 27 to 40 per cent., and 20 years later the Roosevelt Commission predicted that with better mining methods and the utilization of former waste material a 50-per cent. recovery could be expected in the near future, the present study shows that this estimated higher recovery has been in fact exceeded, and that the practice of today in mining and preparing the coal for market yields an average recovery of about 61 per cent., the greater percentage of waste being in the Southern field, where

the steeply pitching beds of crushed coal place a natural limitation on recovery. It must be kept in mind, however, that this type of conservation, which increases the percentage of recovery and adds to the expected life of the limited reserves of anthracite in the ground, may involve an increase in the cost of mining.

It is found that all the factors involved in mining costs contribute to the increase in mine prices. In the 10 years under review, labor costs in the production of fresh-mined coal have risen from \$1.56 a gross ton in 1913 to \$4.12 in the first quarter of 1923; the cost of supplies from 35 to 71 c., and general expenses from 32 to 92 c. Labor cost bears about the same relation to total mine cost in 1923 as in 1913 (70%); supplies cost relatively less and general expenses are relatively higher in 1923.

DEFICIENCY OF PRODUCTION

For twenty years before 1913 production followed closely the increase in population, but since then it has not kept pace with the population either in the nation or in the States which rely upon anthracite as household fuel. From 1913 to 1922 the total production of anthracite remained practically constant except for the extremes of the record year 1917 when it rose to 99,611,811 tons and the suspension year 1922 when it fell to 54,683,022 tons, while the population is estimated to have increased in the same period about 15 per cent. This steadiness of output is in marked contrast with the extreme fluctuations in the bituminous industry.

The Roosevelt Commission 20 years ago assumed that anthracite production would reach its maximum limit at 60 to 75 million long tons, whereas the actual output in 1917 and the six months of 1923 indicate that the present mine and washery capacity is at least 90 million tons a year. More significant is the progress made in 20 years in lessening the wide gap between mine capacity and actual output; with approximately the same number of mine workers, the production was 50 per cent. greater in 1920 than in 1900; to that extent the anthracite industry was once overdeveloped and overmanned much as is now the bituminous coal industry.

In the past two decades, changes in the distribution of anthracite have been slight. The natural market for this coal is in the nearby regions of longer and more severe winters. Of the sizes suitable for household use,

74 per cent. goes to the states between Maine and the District of Columbia, and of these states only Maryland and Pennsylvania are coal producers. An additional 7 per cent. goes to central Canada. Pennsylvania herself consumes only about the same quantity of domestic sizes as New England, and less than half as much as is shipped to her nearest neighbors, New Jersey and New York.

A study of the present distribution of domestic anthracite has brought to light no evidence that economic combination takes the form of concerted partition of territory, either among the larger companies or between the "railroad" and the "independent" companies. Competition by the operators for territory has largely given place to an allotment system under which it is recognized that the first obligation of a mining company is to its former customers, a principle first made mandatory by the Federal Fuel Administration in 1918. Should any surplus supply of anthracite seek a market, the former active competition in salesmanship and advertising might be resumed.

CAUSES OF SHORTAGE

The failure of the anthracite industry to furnish an abundant supply of the domestic sizes is generally not due to a lack of transportation facilities; complaint of car shortage is rare. Failure to visualize the magnitude of the traffic involved in taking the daily output of anthracite to market leads to misapprehension. For several months past, from 6000 to 7000 cars have been loaded each working day at the anthracite breakers, so that 45 to 50 miles of cars start on their journeys each day. In its recent decision on the distribution of coal cars, the Interstate Commerce Commission specifically mentions the absence of any reason for continuing the investigation of carriers serving solely anthracite mines. Such community of interest as may exist between the mining of anthracite and its transportation has the beneficial effect of coördinating car supply and colliery output.

With one exception, the periods of shortage in the supply of anthracite have been associated with suspensions or strikes at the mines. The one exception was the period from the fall of 1916 to the spring of 1918, when increased demand resulting from the war, coinciding with a shortage in the supply of bituminous coal, made an unprecedented demand upon the anthracite industry. Though the number of mine workers was materially decreased, their response to the special demand established 1917 as the record year in anthracite production. Undoubtedly, the increase in output carried with it some decrease in quality.

The other periods of shortage have been directly connected with suspension of production at the mines. The country has not forgotten the effects of the great strike in the summer of 1902 upon the supply during the following winter. A shorter suspension at the expira-

tion of the wage agreement in 1912 was also reflected by scarcity in the following winter; in that year the mines were idle for 40 days and in the following winter high prices led to a Federal investigation. A 20-day "vacation" in which three-fifths of the men in the anthracite region were idle in September, 1920, in protest at the award of the Anthracite Coal Commission, led to a distinct flurry in the market in the next winter.

Even with a potential monopoly of production, it is not necessary that there should be a combination in restraint of trade, in the legal sense, to explain present price levels. If there is any well founded suggestion of concerted action, it is shown in the small range in circular prices, the extremes in prices of company coal of domestic sizes being only 35 c., although all this coal could be sold at the higher circular price and probably much nearer the price level of the independent coal. Doubtless, both business sense and regard for public opinion have led these strong companies to acquiesce in the noticeable differential between their own prices and the higher prices of the independents.

Only 6 per cent. of the coal left the mines, during the past winter at prices of \$10 to \$12, as against 77 per cent. at the circular prices of \$8 to \$8.50. The influence of this relatively small tonnage of extremely high-priced coal on retail prices was, however, all out of proportion to its amount.

The conservative policy of the larger operators in stabilizing the market is based on experiences of the past when unrestricted production caused disaster from which everyone connected with the industry suffered. This policy may be carried too far. If production is kept under demand, as it has been over many years, any temporary disturbance will of course give opportunity for swollen profits. Full credit should be given to operators, jobbers, and retailers who do not take advantage of this chance to profiteer. This does not, however, absolve the anthracite operators from responsibility for creating the permanent conditions which in a crisis make such profiteering possible; and even in a crisis the wholesalers and retailers cannot justify a sweeping advance in prices by any evidence which the Commission has obtained as to what they actually paid for premium coal and the amount of it which they actually bought. It is very desirable to prevent the panicky market which results from the stoppage of production; but it is also desirable that the normal demand for anthracite shall be met and that this shall be done at a lower price level if by any reasonable reduction of royalties, operating costs, freight rates, or profits, this is possible. The coal companies should not be allowed to hold large reserves indefinitely, instead of developing them. Genuine conservation will prevent waste and encourage the mining of thin seams, when the coal would otherwise be lost altogether, but will not countenance the holding of undeveloped reserves for the purpose of stabilizing

prices at a high level or insuring future tonnage to particular railroads.

Whether to increase the capacity of the anthracite mines or to make better use of present equipment is an economic as well as an engineering problem. It is estimated there remains a little less than 15 billion tons in these Pennsylvania fields. The capacity to mine the anthracite is dependent on underground development, the equipment of mines and breakers, and the available labor supply. Of these two factors the lack of labor is the more serious in that, without an adequate labor supply, mine-development can not be expanded. The number of employees in the production of anthracite reached its maximum of nearly 180,000 in 1914, but in the two years of maximum output, 1917 and 1918, the labor supply was near its minimum, only 154,174 and 147,121 respectively. The explanation of this apparent anomaly lies in the exceptionally large number of days worked in those two years, 285 days in 1917 and 293 days in 1918, and in the notable increase of efficiency during the war period. At the present time, the rate of production is fully equal to that of the record year 1917, and again this high rate of approximately 100 million net tons a year is maintained by the steadier operation of the mines and the more regular attendance of the mine workers rather than by any increase in mine development or labor supply.

More unskilled miners as well as laborers will be needed to maintain production, to say nothing of increasing it, for there are factors at work tending to lower the production per man. Whereas the output per man per day in the bituminous industry is increasing steadily, in the anthracite industry it is less today (2.09 tons) than it was 20 years ago (2.50 tons). For the past ten years the daily production of fresh-mined coal per man employed underground has been practically stationary.

Chief among the factors tending to decrease the production per man is the constant decrease in thickness of beds and the increase in depth of workings, both making for increased mining costs. Nor is the outlook encouraging when it is realized that the Northern field, in which the mines yield 70 per cent. of domestic sizes, is being exhausted much more rapidly than the Southern field where the mines yield only 53 per cent. of domestic sizes. At the present time the average mine-worker in the Northern field produces nearly 30 per cent. more domestic coal than the mine worker in the Southern field. Yet it is from this Southern field that the future supply of domestic anthracite must come in increasing degree.

That there is some tendency to limit each man in the amount of coal to be mined and loaded, in accordance with local feeling and tradition, is not seriously denied. The introduction of labor-saving or product-increasing machinery, although not opposed by the miner in principle, gives occasion for vexatious and expensive

delays in discussion over the conditions under which it is to be used, the rates of pay, the number of men on a machine, etc. It would be to the interest of the industry and the public if the miners' organization should become an active and aggressive instrument of greater efficiency in mining, cooperating heartily with the management in every effort to reduce mining costs by preventing waste, abandoning obsolete practices, diminishing labor turnover, and in all other ways helping to establish good production standards.

Study of the breakers indicates a daily capacity one-third in excess of actual production in 1920. This unused capacity is estimated as sufficient to handle the output of about 43,000 more men than were employed in 1921 and 13,000 more than the highest number ever employed. This unused breaker capacity might add 20,000,000 tons a year to even the present high rate of output, of which nearly 12,000,000 tons would be domestic sizes. With the relatively high-cost and inefficient mines in operation, the only practical method of increasing the supply of domestic anthracite is to recruit the labor supply of the lower-cost mines to full breaker capacity.

IMPROVED PRACTICES

Improved practices which promise some relief relate to the sizing of anthracite and the disposition of the smaller sizes; better inspection of the coal as it leaves the breakers; use of substitutes, and better fuel economy in household heating.

Coal is now commonly sold in four domestic sizes—egg, stove, chestnut and pea—and three steam sizes—buckwheat, rice, and barley. To prepare these seven sizes and keep them separate adds to their cost at every step of their journey from mine to consumer's cellar. Reducing the standard sizes from seven to four would reduce costs and increase the amount of domestic coal available, by facilitating wider use of the small sizes for heating.

The Commission suggests that the anthracite producers join in an intercompany inspection service, which shall be empowered to prescribe standards, inspect and sample shipments, reject inferior coal, and certify if not guarantee the quality of coal passed.

To eke out the inadequate production of anthracite each year the waning supply must be supplemented by increased use of other fuel. The consumer can create a demand for such fuels that will both increase their supply and lower their price. Under present levels of price the Commission is convinced that many householders, by a little more attention to the subject, can materially reduce their coal bills; those who cannot burn coke or bituminous coal outright can frequently use a mixture of coke and pea coal, or a mixture of the steam and the larger sizes of anthracite. Building up the demand for substitute fuels is one form of insurance against combinations of labor or of capital and the consequent rising prices.