Statistics Department National Coal Board

20 YEAR REVIEW OF THE COAL INDUSTRY

1947-1966/67

20 Year Review of the Coal Industry

The diagrams and notes in this 20-year review cover the most important aspects of the industry's performance—marketing, production, capital expenditure, profitability, and safety.

A review of the first ten years of nationalised coalmining in Great Britain was published by the Colliery Guardian in 1957*. The second decade of the history of the Board was completed in 1967, and it has turned out very different from what had been expected during the first.

For the first ten years after nationalisation, the efforts of the industry were primarily concentrated on increasing coal output as quickly as possible. For the second ten years, the emphasis was primarily on the reduction of costs and the curtailment of output to balance a reduced demand.

In general, the story revealed is one of successful adaptation to changing circumstances brought about by forces outside the Board's control. The enormous redeployment of men during the second decade was effected without causing extensive hardship and social disruption and without interrupting the steady improvement in industrial relations and productivity.

The review does not cover the twenty-first year of the Board's operations during which the outside pressures on the industry enforced an accelerated rate of contraction. The future is uncertain but is not without grounds for confidence that a competitive and healthy coal industry will continue to serve the nation for many decades to come.

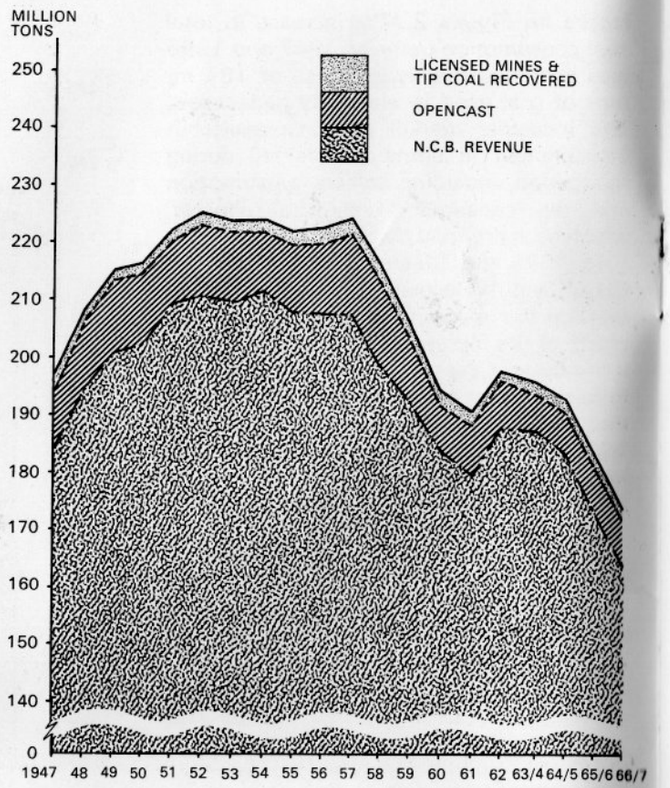
*National Coal Board. *The first ten years.*
A Colliery Guardian Publication, London, 1957

Economic Adviser and Director of Statistics

Annual NCB Revenue Output, Opencast Output and all other Output of Coal in Great Britain. 1947 to 1966/67

Notes on Figure 3. One of the first jobs of the newly formed National Coal Board in 1947 was to survey the existing capacity of the industry and to plan for future expansion. The need emerged for a huge programme of reconstructing existing collieries and sinking new ones in order to meet a demand which was forecast to rise to 240 m. tons. During the early years of 'coal at any price' production rose annually from 1947 until 1952, but by that time the effect of diverting scarce resources of men, capital and management from current production into the reconstruction programme was being felt. Many of the reconstruction projects were of great size and complexity, and were not completed until the late 1950's or early 1960's. During this period of excess of demand over the production the main emphasis was on increasing output in order to reduce the need for costly imports and to avoid the danger of coal shortages imposing restrictions on the expected growth of British industrial production.

By 1957 the fierce price competition from oil changed the emphasis to the lowering of costs, with a consequent reduction in overall production by a process of concentration and improvement in efficiency.

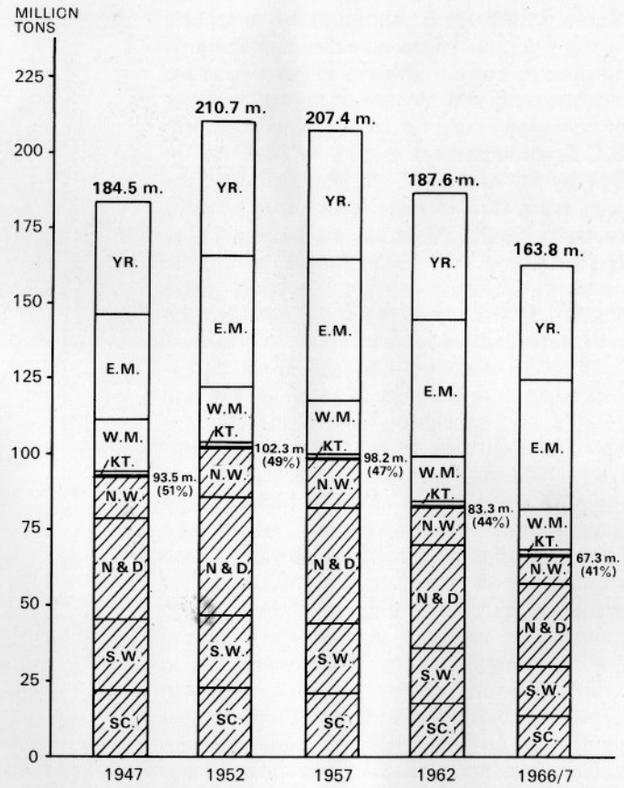


YEAR / COAL OUTPUT (mill. tons)	REVENUE	OPENCAST	LICENSED MINES & TIPS	TOTAL
1947	184.4	10.2	2.2	196.8
48	194.6	11.8	2.1	208.5
49	200.7	12.4	1.9	215.1
50	202.3	12.2	1.7	216.2
51	209.4	11.0	1.8	222.2
52	210.7	12.1	2.1	224.9
53	209.8	11.7	2.0	223.5
54	211.4	10.2	2.2	223.8
55	207.8	11.4	2.4	221.6
56	207.3	12.1	2.7	222.1
57	207.4	13.6	2.7	223.7
58	198.8	14.4	2.7	215.9
59	192.5	10.8	2.8	206.1
60	183.8	7.6	2.3	193.7
61	179.6	8.5	2.3	190.4
62	187.6	8.1	1.7	197.4
63/4	187.0	6.1	2.1	195.2
64/5	183.2	7.0	2.3	192.5
65/6	173.5	7.1	2.2	182.8
66/7	163.8	7.1	2.1	173.0

Annual NCB Revenue Output of Coal in Great Britain grouped by NCB Divisions. 1947 to 1966/67

Notes on Figure 4. Between 1947 and 1956 all the coalfields, except Scotland, managed to increase their output.

After 1956 the pattern of outputs in terms of coalfields, or Divisions, changed considerably. By 1966/67 Yorkshire, East Midlands and Kent had maintained production at almost the 1957 levels, but in Scottish, North Western and South Western Divisions output had fallen to about two-thirds of the 1957 figure. Between 1947 and 1957 Yorkshire, East Midlands and West Midlands produced about half the Board's total output, but by 1966/67 these three Divisions accounted for about three-fifths of the reduced national total. These changes reflect the policy of concentrating output on the most productive Divisions, especially Yorkshire and East Midlands.



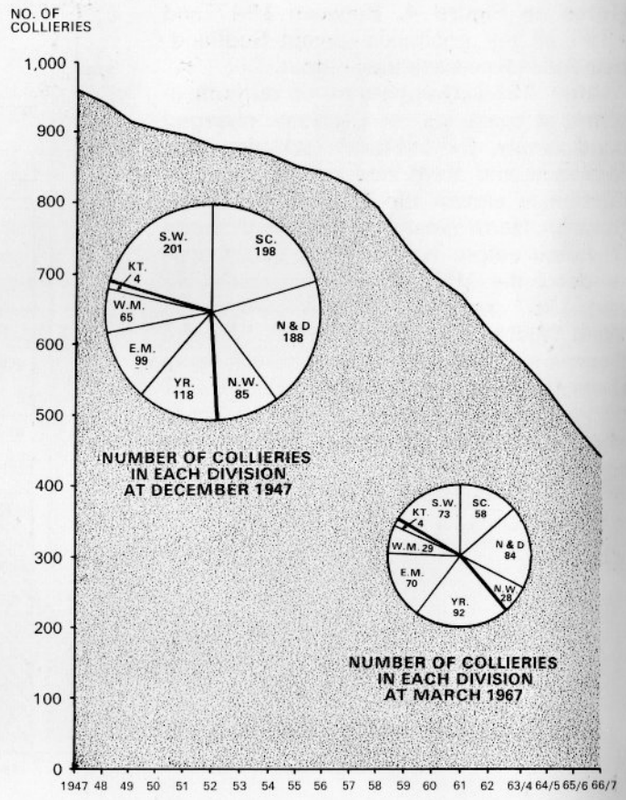
YEAR / DIVISION (mill. tons)	YORKSHIRE	EAST MIDLANDS	WEST MIDLANDS	KENT	NORTH WESTERN	NORTH-UMBER-LAND & DURHAM	SOUTH WESTERN	SCOTLAND
1947	38.0	35.0	16.6	1.4	14.3	34.7	22.3	22.1
1952	44.8	43.8	17.9	1.7	16.4	38.6	24.6	22.8
1957	43.3	46.7	17.4	1.7	16.3	37.4	23.6	21.0
1962	42.2	46.3	14.3	1.5	13.2	33.8	18.8	17.5
1966/7	38.9	42.6	13.5	1.5	9.7	27.2	16.0	14.4

Number of NCB producing collieries at end of each fiscal year. 1947 to 1966/67

Notes on Figure 5. Although the emphasis in the first ten years was directed towards maximum output, mining is an extractive industry and the closure of a large number of collieries could not be avoided. The 980 N.C.B. collieries taken over in 1947 fell to 841 by the end of 1956. Many of the closures were due to exhaustion, but in other cases collieries were closed because they were making very heavy losses, with little prospect of improvement. Closures were scattered through all the coalfields, but the greatest numbers were in South Wales.

Because demand had not risen as expected, a surplus of coal arose in the late 1950's and stocks became high. This enabled a new look to be taken at unprofitable collieries, and from 1957 onwards many collieries were closed which, though uneconomic, had previously been kept open in order to maximise output. These closures took place in all Divisions, but were particularly drastic in Scotland and Lancashire, where less than 40% of the collieries operating in 1957 were still in production in March 1967. In South Western, West Midlands and Northumberland and Durham Divisions about half the collieries were closed in this period, and altogether the number of N.C.B. collieries was reduced from 841 in 1956 to less than 450 in 1967.

In general, the changes show how the programme of closures in the last ten years has been linked with the policy of concentrating output in the most productive and economic collieries in the country, especially in Yorkshire and East Midlands.



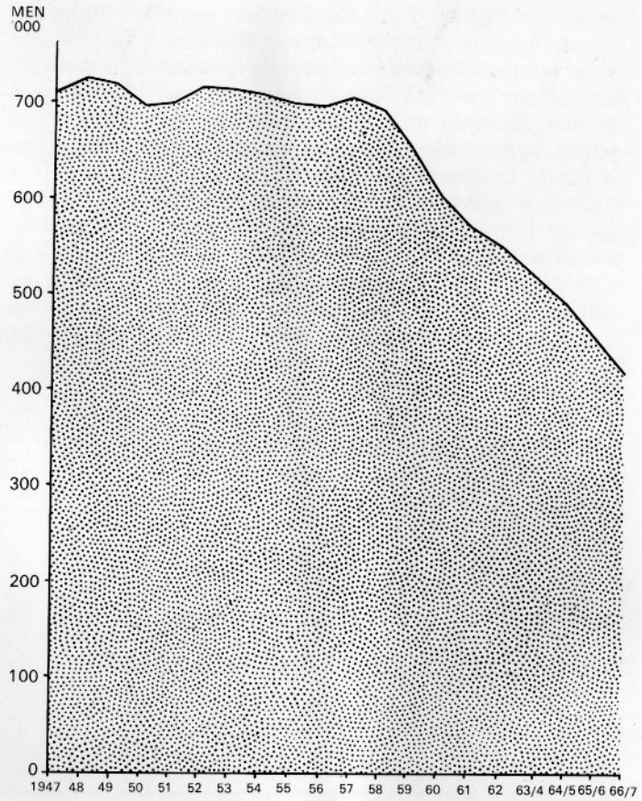
YEAR	NO. OF PRODUCING COLLIERIES	YEAR	NO. OF PRODUCING COLLIERIES
1947	958	1957	822
48	940	58	793
49	912	59	737
50	901	60	698
51	896	61	669
52	880	62	616
53	875	63/4	576
54	867	64/5	534
55	850	65/6	483
56	840	66/7	438

Annual average number of Men on Books employed at NCB collieries. 1947 to 1966/67

Notes on Figure 6. It has been the Board's policy since vesting day to deploy men in the most efficient way and in the most productive places. Thus, in the first ten years up to 1957 the increased production of coal was accomplished without a rise in the total manpower. In this first decade, there was in fact a basic shortage of men, despite determined efforts at recruitment.

The fall in demand in 1957 threatened to create unemployment amongst the 700,000 men then on the books, but the Board took various measures to meet the situation, e.g., by stopping Saturday working, by eliminating imports of coal, by reducing the scale of open-cast mining in spite of its high profitability, by a phased programme of colliery closures designed to redeploy as many men as possible to continuing collieries, and by severely controlling recruitment.

Total manpower fell rapidly from 1957 onwards. Continuous increases in productivity, however, produced the effect that the drop in manpower from over 700,000 in 1957 to less than 450,000 in 1967 was accompanied by a much less than proportionate fall in output.

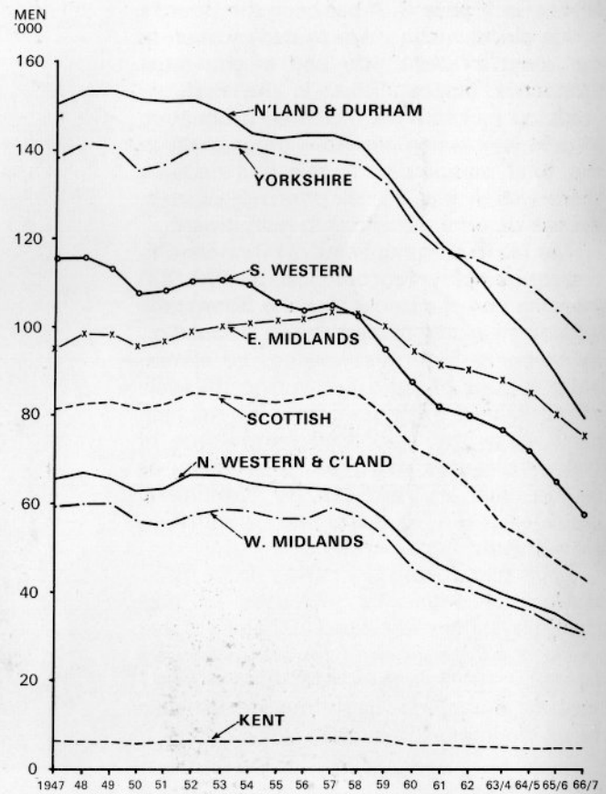


YEAR	AV. NO. MEN ON BOOKS (000's)	YEAR	AV. NO. MEN ON BOOKS (000's)
1947	711	1957	704
48	724	58	693
49	719	59	658
50	697	60	602
51	699	61	571
52	716	62	551
53	713	63/4	517
54	707	64/5	491
55	699	65/6	456
56	697	66/7	419

Annual average number of Men on Books employed at NCB collieries by NCB Divisions. 1947 to 1966/67

Notes on Figure 7. In the first ten years the changes in manpower in all Divisions were relatively small, although a gradual but steady fall in Northumberland and Durham Division and in South Wales, together with a corresponding rise in East Midlands Division, showed that even then the trend towards concentration of production into the more profitable Divisions was in progress.

During the second ten-year period, differences in trends within different Divisions became more marked. Thus, in Scottish, North Western, Northumberland and Durham, West Midlands and South Western Divisions, the drop in manpower was considerable, whereas in Yorkshire and the East Midlands the manpower was relatively well maintained.



YEAR ('000s) / DIVISION	1947	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63/4	64/5	65/6	66/7
SCOTTISH	81.1	82.4	82.7	81.5	82.2	84.8	84.2	83.5	82.7	83.7	85.6	84.7	79.9	72.2	69.4	63.8	54.6	50.8	47.0	43.0
N&D	150.4	153.3	153.3	151.4	150.8	151.1	148.5	143.9	142.9	143.3	143.3	140.8	134.2	125.3	118.2	113.4	103.2	96.9	88.6	79.2
YORKSHIRE	138.5	141.5	140.5	135.5	136.3	140.2	141.1	140.1	138.8	137.3	137.8	136.4	132.1	121.9	116.5	115.3	111.9	108.4	103.1	97.2
NORTH WESTERN	65.5	67.0	65.9	63.0	63.4	66.5	66.5	65.1	63.8	63.9	63.2	61.4	56.9	49.9	45.9	43.0	39.8	37.6	35.1	31.4
EAST MIDLANDS	94.6	98.2	98.1	95.7	96.6	99.3	100.5	100.8	101.5	101.9	103.4	102.9	100.1	94.4	91.3	90.1	87.9	84.7	80.1	75.7
WEST MIDLANDS	59.5	59.9	59.9	56.2	55.2	57.4	58.6	58.2	56.7	56.4	58.8	57.2	53.1	45.4	41.8	40.3	37.9	35.7	32.5	30.5
SOUTH WESTERN	115.5	115.5	113.0	107.8	108.0	110.0	110.4	109.1	105.6	103.8	104.6	102.1	94.9	87.0	81.6	79.6	76.5	72.0	64.6	57.8
KENT	6.4	6.3	6.1	6.0	6.2	6.4	6.4	6.5	6.7	7.1	7.2	7.2	6.9	5.9	5.7	5.5	5.2	5.0	4.8	4.7

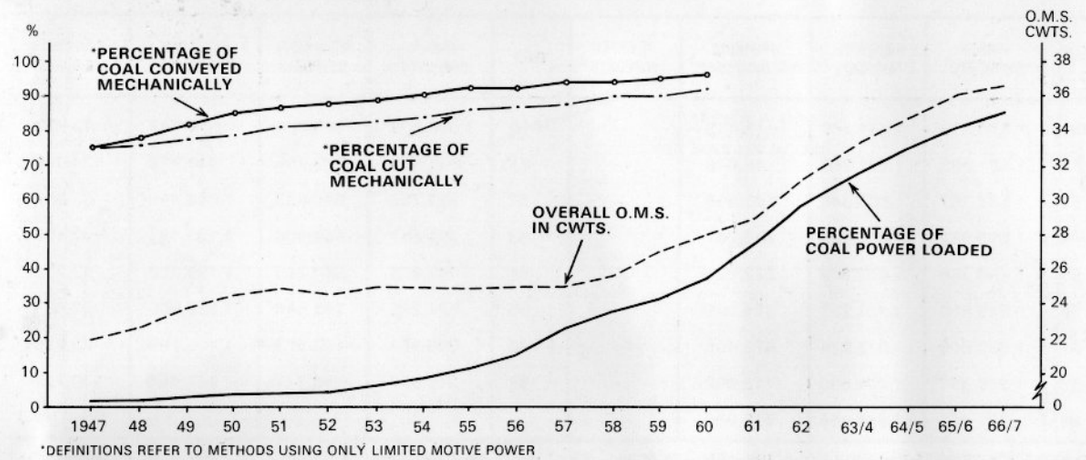
NCB Revenue Coal Mechanically Cut, Conveyed and Power Loaded together with Overall Output per Manshift. 1947 to 1966/67

Notes on Figure 8. Under-cutting of coal by machine and mechanical conveying were widely established at the time of nationalisation, when about three-quarters of output was handled by these techniques. On the other hand in 1947 only about 3% of total production was obtained by power-loading techniques. The proportion rose to 15% by 1956 as the determined drive towards fuller mechanisation got under way.

From 1957 onwards the urgent need to contain costs gave an enormous boost to the mechanisation drive, mainly because it provided a means of lowering the wages element of production costs, and the percentage of output which was power-loaded rose from 23% in 1957 to 85% in 1966/67.

As an illustration of the effects of mechanisation and of the consequent reduction in manpower, the figure includes a graph showing overall productivity expressed as O.M.S. in cwts. per manshift. Overall O.M.S., having risen from 22 cwts. in 1947 to about 25 cwts. in 1951, remained at this figure until 1957. Since then, there has been a spectacular and consistent increase.

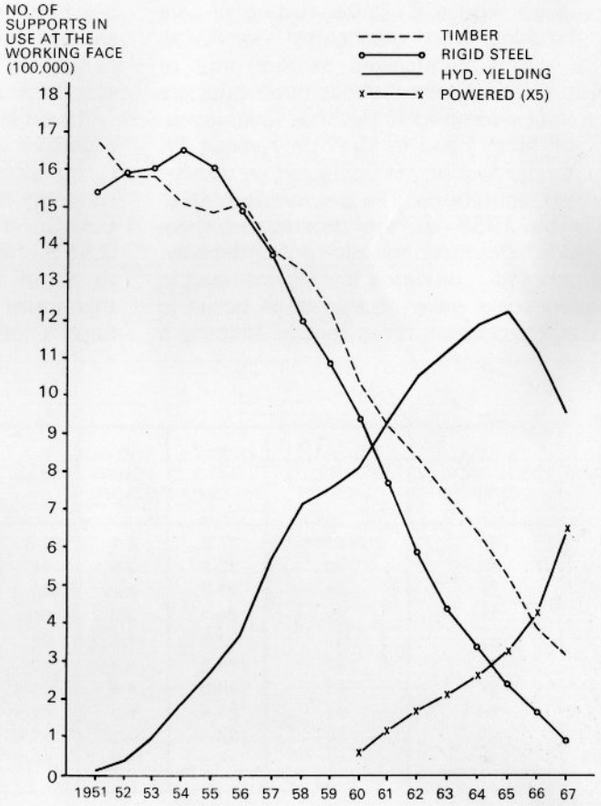
YEAR	% COAL MECHANICALLY CONVEYED	% COAL MECHANICALLY CUT	OVERALL O.M.S. IN CWTS.	% COAL POWER LOADED	YEAR	% COAL MECHANICALLY CONVEYED	% COAL MECHANICALLY CUT	OVERALL O.M.S. IN CWTS.	% COAL POWER-LOADED
1947	75	75	21.9	2.4	1957	94	88	24.9	23.0
48	78	76	22.6	2.5	58	94	90	25.6	27.8
49	82	78	23.7	3.2	59	95	90	27.0	31.3
50	85	79	24.5	3.8	60	96	92	28.0	37.5
51	87	81	24.8	4.2	61			28.9	47.7
52	88	82	24.5	4.9	62			31.2	58.8
53	89	83	24.9	6.0	63/4			33.4	68.4
54	90	84	24.9	8.3	64/5			34.8	75.0
55	92	86	24.8	11.1	65/6			36.1	80.7
56	92	87	24.9	15.5	66/7			36.6	85.7



*DEFINITIONS REFER TO METHODS USING ONLY LIMITED MOTIVE POWER

Number and Type of Supports in use at the Coal Face as at June of each year 1951–1967 (NCB mines only)

Notes on Figure 9. In the early years of nationalisation there was a trend towards replacing traditional timber props on the coalface by rigid steel props, but the drive for mechanisation on the coalface led to the introduction of hydraulic yielding face supports to replace rigid steel. Thus, between 1950 and 1965 the number of hydraulic yielding supports rose from nil to about $1\frac{1}{4}$ m. From 1960 onwards the emphasis on mechanisation encouraged the development of more automatic means of supporting the face by the use of powered supports, and by March 1967 more than half of the industry's mechanised output was, in fact, obtained from faces equipped with powered supports.



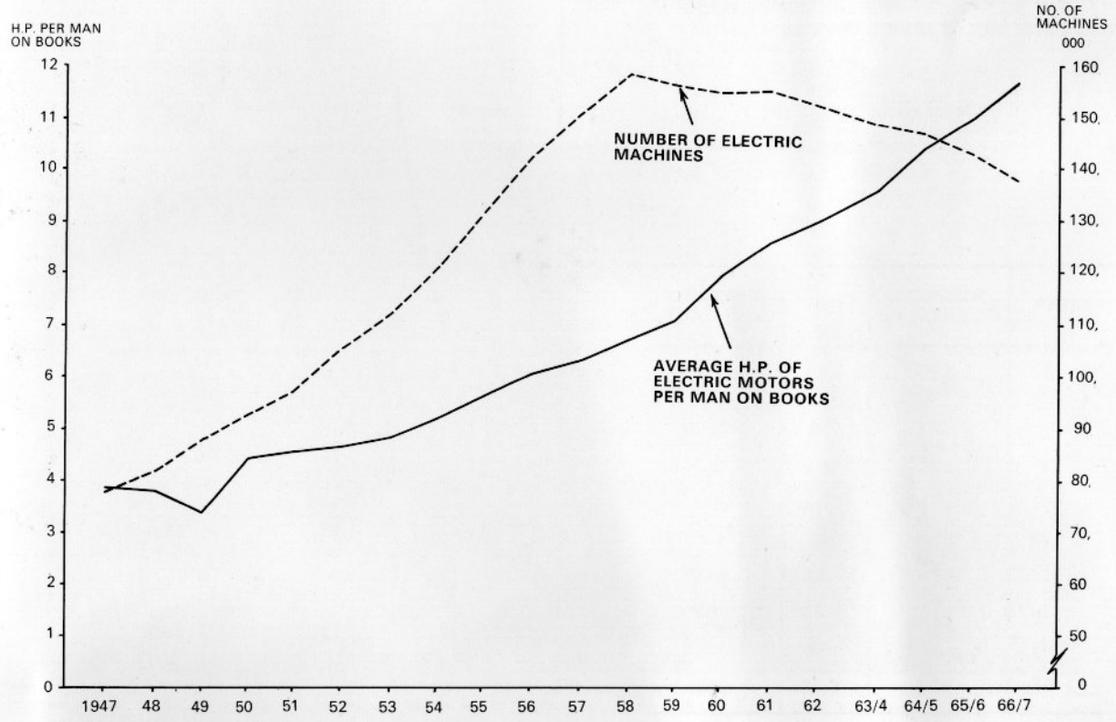
YEAR	TIMBER SUPPORTS	RIGID STEEL SUPPORTS	HYDRAULIC YIELDING SUPP.	POWERED SUPPORTS*	YEAR	TIMBER SUPPORTS	RIGID STEEL SUPPORTS	HYDRAULIC YIELDING SUPP	POWERED SUPPORTS*
1951	1,670,213	1,541,645	18,835	—	1960	1,039,309	940,909	818,747	13,937
52	1,581,069	1,591,968	48,026	—	61	911,583	773,254	940,829	24,989
53	1,581,767	1,603,346	103,958	—	62	803,788	596,593	1,056,498	35,057
54	1,513,982	1,655,639	192,241	—	63	731,861	449,906	1,120,181	42,159
55	1,494,358	1,608,609	272,091	—	64	641,328	340,223	1,199,170	52,799
56	1,515,850	1,492,292	374,595	—	65	524,285	242,546	1,222,966	67,909
57	1,382,809	1,372,274	579,405	—	66	395,984	163,673	1,101,289	88,295
58	1,338,537	1,206,630	719,092	—	67	315,077	98,141	957,690	130,237
59	1,221,452	1,086,455	758,660	—					

*1 Support Unit taken as equivalent to 5 of the other Supports

Average horse-power of Electric Motors in use per man on books and number of machines (electric) in use as at June of each year in deep mined coal production. 1947 to 1966/67

Notes on Figure 10. In the early days of mechanisation the rise in productivity was largely achieved by increasing the number of machines. A later development has been to increase also the power of the machines available and to use them more efficiently and for a higher proportion of the available working time. The diagram shows that the average horsepower available per man has increased fairly evenly with time. In the curve showing the number of electric motors in use an abrupt break occurs in 1958, confirming the trend towards smaller numbers of more powerful machines.

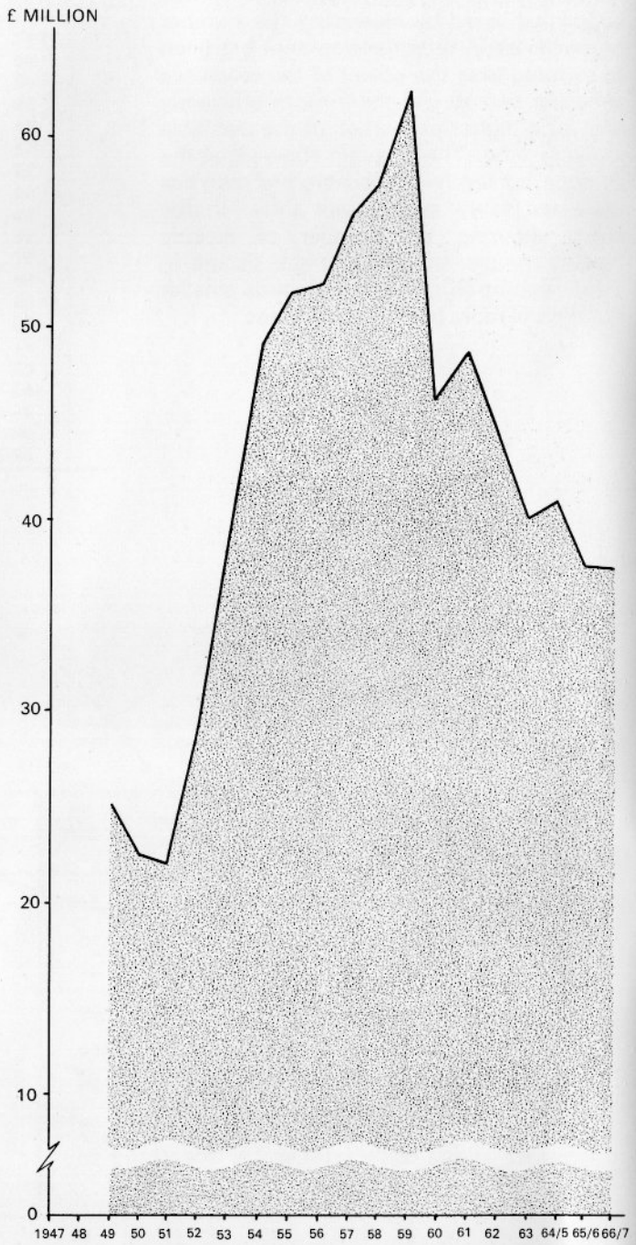
YEAR	NO. ELECTRIC MOTORS INSTALLED	AV. H.P. PER MAN
1947	77,327	3.87
48	81,544	3.80
49	88,060	3.39
50	92,499	4.41
51	97,183	4.56
52	105,157	4.65
53	112,104	4.82
54	120,820	5.19
55	131,490	5.60
56	142,083	6.02
57	150,662	6.31
58	158,117	6.71
59	155,990	7.09
60	154,332	7.93
61	154,885	8.55
62	152,186	8.95
63/4	148,736	9.55
64/5	146,609	10.38
65/6	142,588	10.98
66/7	137,360	11.68



Annual Capital Expenditure by NCB (weighted by 1947 prices). 1947 to 1966/67

Notes on Figure 11. The rapid increase in the Board's capital expenditure from 1951 to 1959 mainly reflects investment in reconstruction and major new construction projects up to 1957. Since capital expenditure for a major project has to be committed years before its completion, the peak was not reached until 1959.

After 1957, few new major construction projects were undertaken and capital expenditure (weighted at 1947 prices) dropped rapidly. On the other hand, expenditure on plant and machinery in the last ten years showed only a slight drop in real terms. As a result, expenditure on plant and machinery in 1958 was about three-fifths of the total, whereas by 1964/65 it represented about three-quarters. This change reflects the big reduction in major construction schemes and the continuing emphasis on the need to equip collieries still working with the most modern power loaders, powered supports and other labour saving devices.



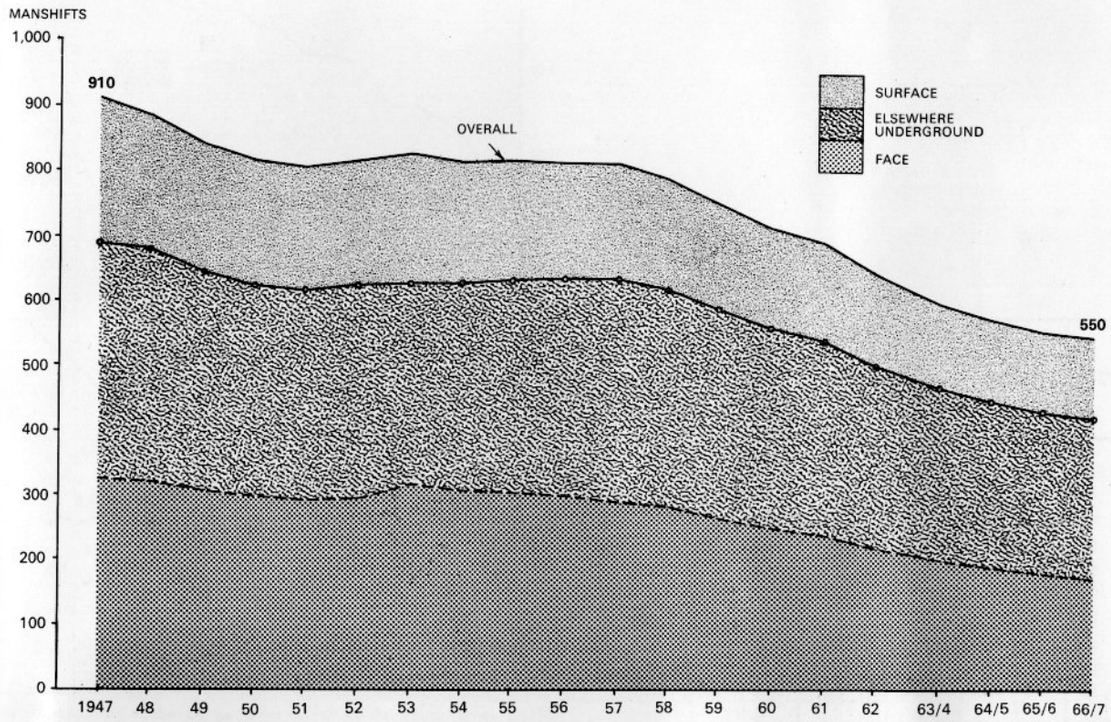
YEAR	WEIGHTED EXPENDITURE	YEAR	WEIGHTED EXPENDITURE
	£.M.		£.M.
1949	25.1	1958	57.4
50	22.5	59	62.3
51	22.0	60	46.1
52	29.3	61	48.6
53	38.8	62	44.2
54	49.1	63	40.0
55	51.7	64/5	40.8
56	52.1	65/6	37.6
57	55.8	66/7	37.5

Annual Average Manshifts worked to obtain 1,000 tons of deep mined saleable coal at NCB collieries by place of work. 1947 to 1966/67

Notes on Figure 12. The reduction in manpower associated with increased mechanisation is shown by plotting the number of manshifts worked to obtain 1,000 tons of product. In 1947, a total of 900 manshifts on the face, elsewhere underground and on the surface was needed to produce 1,000 tons of saleable coal, and after a small drop in the early years the figure levelled off at about 800 manshifts between 1951 and 1957.

From 1957 onwards improved productivity, especially on the coalface, reduced the figure to 550 manshifts per 1,000 tons in 1966/67.

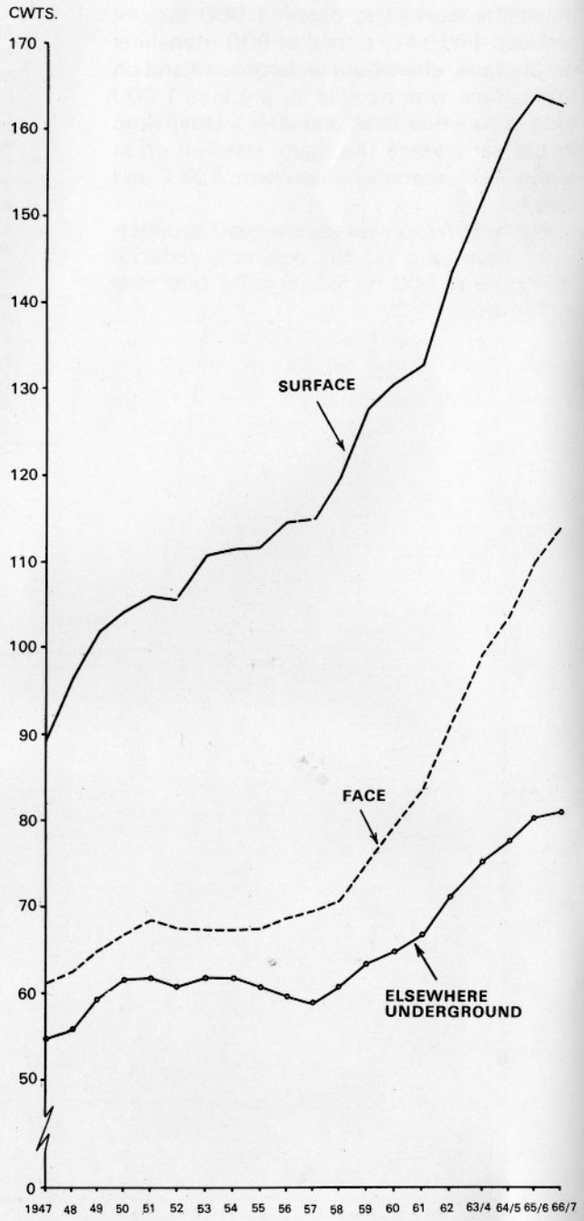
YEAR \ PLACE OF WORK (manshifts)	FACE	ELSEWHERE UNDERGROUND	SURFACE	OVERALL
1947	327	364	223	914
48	321	358	208	887
49	308	338	197	843
50	299	326	192	817
51	293	324	189	806
52	296	330	190	816
53	318	310	198	827
54	307	322	184	813
55	305	329	182	816
56	300	334	178	812
57	290	345	177	812
58	284	336	171	791
59	268	322	161	751
60	252	308	154	711
61	240	300	151	691
62	220	282	140	642
63/4	202	266	131	599
64/5	193	257	125	575
65/6	182	250	122	554
66/7	176	248	123	547



Annual Average Output of Saleable Coal per Manshift worked in NCB collieries by place of work. 1947 to 1966/67

Notes on Figure 13. In the first decade, productivity at the face and elsewhere underground rose by only about 10%, but the effect of reconstruction schemes was shown in a rise in surface productivity of nearly 30%.

The mechanisation drive from 1957 onwards brought about a considerable improvement in productivity underground, especially on the coalface; elsewhere underground and surface productivity continued to rise, but less swiftly than on the coalface.



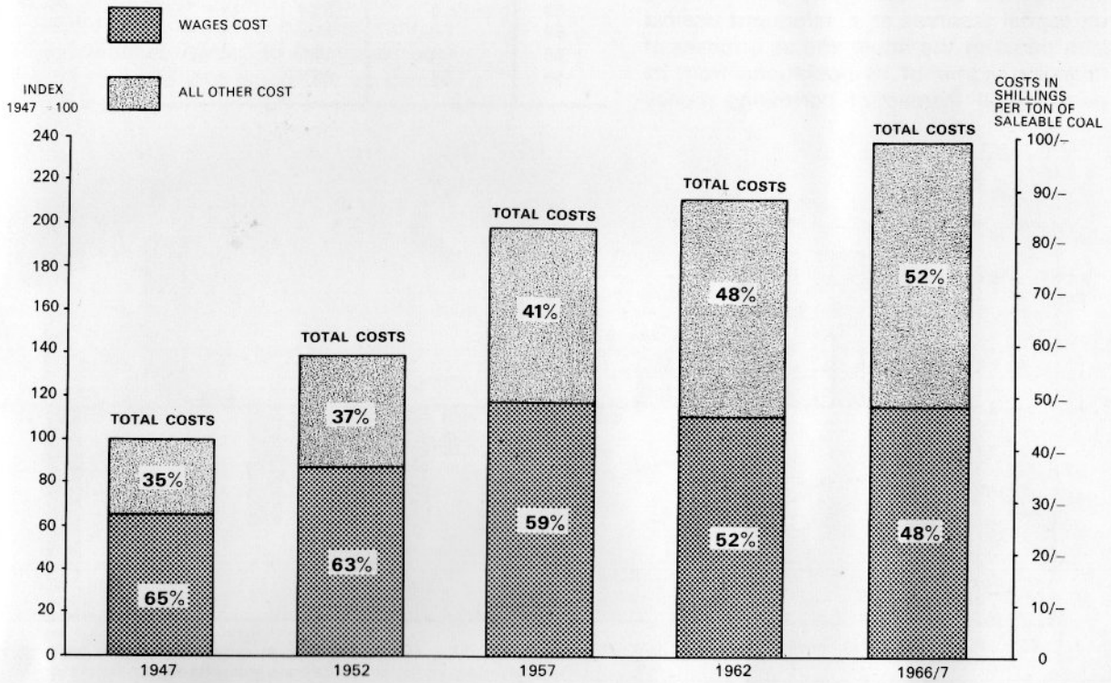
YEAR	SALEABLE O.M.S. CWTS			YEAR	SALEABLE O.M.S. CWTS		
	AT SURFACE	AT FACE	ELSEWHERE U/GROUND		AT SURFACE	AT FACE	ELSEWHERE U/GROUND
1947	89.6	61.1	54.9	1957	114.9	69.3	58.8
48	96.2	62.3	55.9	58	119.5	70.7	60.5
49	101.6	64.9	59.2	59	127.4	75.0	63.1
50	104.1	66.9	61.4	60	130.1	79.5	64.8
51	105.9	68.3	61.7	61	132.3	83.5	66.6
52	105.4	67.5	60.6	62	143.1	91.0	71.0
53	110.7	67.2	61.6	63/4	152.5	99.1	75.1
54	111.2	67.2	61.7	64/5	159.9	103.6	77.7
55	111.5	67.4	60.4	65/6	163.7	109.8	80.0
56	114.3	68.6	59.4	66/7	162.6	113.7	80.8

Total cost of production, wages cost and all other costs, (1947 = 100) per ton of saleable coal 1947, 1952, 1957, 1962, 1966/67

Notes on Figure 14. In 1947, 65% of the total costs of production per ton of saleable coal was attributable to wages and 35% to all other costs. By 1957 the total costs had almost doubled and the wages factor had dropped to 59% of the total, with 41% attributable to other costs. In actual figures wages rose by about 30s. per shift (£1 per ton) over the decade.

The continuous improvement in overall productivity which was achieved between 1957 and 1967 lowered wages costs per ton in actual figures, despite increased earnings amounting to approximately £1 a shift. An important result of this stability in wages cost per ton was that the rate of increase in total costs per ton during the second decade was considerably lower than in the first.

YEAR	PER TON OF SALEABLE COAL		
	WAGES COST	OTHER COSTS	TOTAL COSTS
	s. d.	s. d.	s. d.
1947	26 11	14 4	41 3
52	35 9	21 0	56 9
57	48 3	33 3	81 6
62	45 8	41 6	87 2
66/67	47 9	50 8	98 5

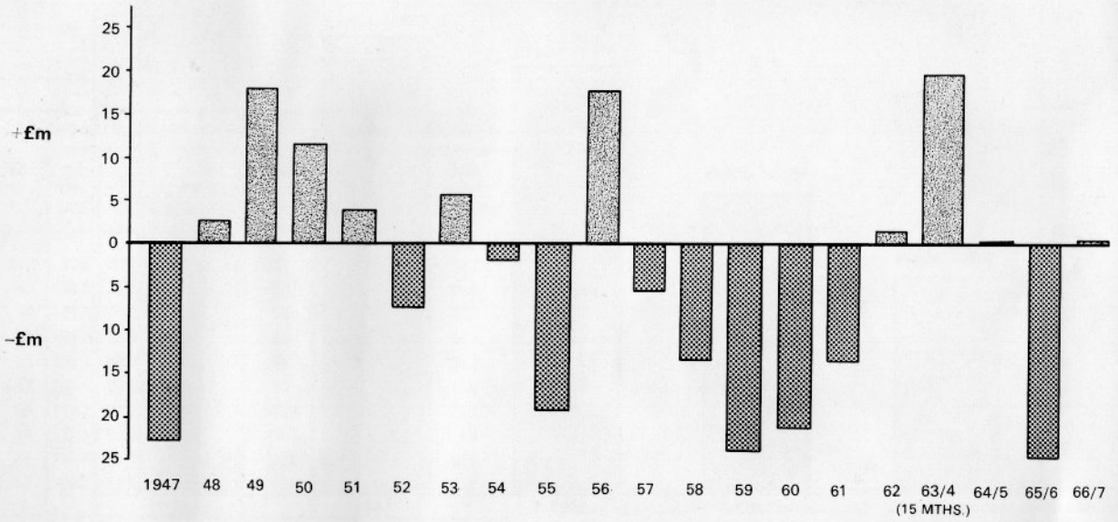


NCB Financial Results profit or loss after interest. 1947 to 1966/67

Notes on Figure 15. The financial rules according to which the Board has had to operate differ from those of private enterprise in important respects. In the first place, all the money required to 'start up' in 1947 had to be borrowed from the Government at fixed rates of interest. The starting capital included money to compensate the previous owners of the mines, as well as the resources required for development, reconstruction and the normal running of the industry. The interest has to be repaid annually, and there is no possibility of declaring no dividend'' on any appropriate occasion. Secondly, the Board is precluded from having complete control over the prices it charges for its products, and instead has to receive the approval of the Government for any proposed increases. As a result of these restrictions the Board was unable in its early years—when slightly higher prices would not have affected the markets in any way—to build up capital reserves as a safeguard against lean times in the future and as a means of financing some of its operations from its own capital instead of borrowing money from the Government at interest. No such provision could be made and when the markets changed the effects on the Board's finances were serious.

In the twenty years, 1947–1967, a profit was made in ten years of operations and a loss in the other ten years. The broad pattern is of profits in the late 1940's and early 1950's followed by losses until 1961, with profits from 1962 to 1964/65. In general the results show that in spite of a certain inflexibility of prices, the Board's annual profitability has been kept under remarkably close control.

YEAR	PROFIT OR (LOSS) AFTER INTEREST	YEAR	PROFIT OR (LOSS) AFTER INTEREST
1947	22.9(L)	1957	5.3(L)
48	2.5	58	13.5(L)
49	17.8	59	24.0(L)
50	11.5	60	21.3(L)
51	3.8	61	13.8(L)
52	7.4(L)	62	1.4
53	5.6	63/4	19.6
54	1.9(L)	64/5	0.1
55	19.3(L)	65/6	24.8(L)
56	17.8	66/7	0.3

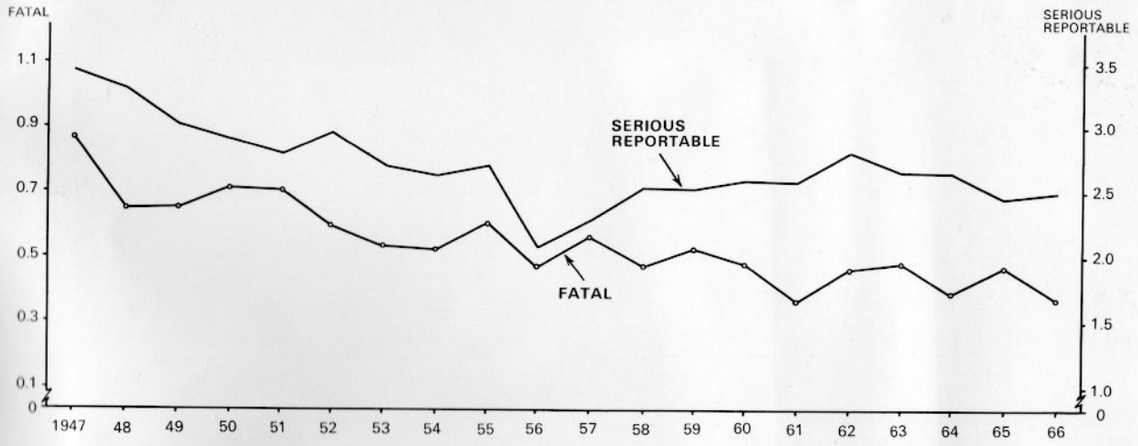


Fatal and Serious Accidents per 1,000 men on books in NCB mines. 1947 to 1966

Notes on Figure 16. Throughout its existence, the Board has been very much concerned about safety in its coalmines and has devoted a great deal of time, money and other resources to reducing accidents. In actual figures the number of fatal and serious accidents has consistently fallen over the twenty-year period. During the period of stability in manpower up to 1957 the numbers of fatal and serious accidents were reduced to almost one-half.

During the second decade the actual numbers of accidents continued to fall, but the number of men at risk also decreased considerably. The diagram is therefore produced in terms of the accident rates rather than actual numbers. In the period 1956 to 1966 the enormous increase in mechanisation and the emphasis on output and productivity introduced a serious potential source of accidents, but through vigorous attention to safety matters, including propaganda and the organisation of competitions, the rate of fatal accidents continued to show a decline and the rate of serious reportable accidents was held level.

YEAR	NO. PER 1000 MEN		YEAR	NO. PER 1000 MEN	
	FATAL	SERIOUS REPORTABLE		FATAL	SERIOUS REPORTABLE
1947	.87	3.44	1957	.56	2.28
48	.65	3.30	58	.47	2.53
49	.64	3.03	59	.52	2.53
50	.71	2.90	60	.48	2.58
51	.70	2.78	61	.36	2.57
52	.59	2.95	62	.46	2.80
53	.53	2.70	63	.48	2.65
54	.52	2.62	64	.39	2.64
55	.60	2.69	65	.47	2.46
56	.47	2.08	66	.37	2.49



*SERIOUS INJURIES EXCLUDE MINOR INJURIES ATTRIBUTED TO SHOTFIRING 1958 ONWARDS

Designed by NCB Public Relations,
Printed by the National Coal Board,
Hobart House, London, SW1