J FLACK & SONS’
HAY ROYDS
COLLIERY

Direct lead smelting

PROCESSING OF
GOLD ORES AND
CONCENTRATES

Interim Council formed

March 1997
David Flack, who lives near Huddersfield, England, is Vice-Chairman of the Federation of Independent Mines and a member of the Mining Qualifications Board. He held various junior management posts with the National Coal Board after graduating from Leeds University in 1955 and then worked for Powell Duffryn Technical Services in Egypt, Spain and Argentina until 1970, after which he joined his family’s firm, J Flack & Sons Ltd., at Hay Royds colliery, Clayton West, between Huddersfield and Barnsley. The colliery produces 35,000 t/year from a 1.6-m seam, 0.5 m of which is in dirt bands. Washing is needed to remove the dirt (mostly shale), which is then pumped back underground. I asked David Flack to tell me something of the history of his firm.

I think we’re probably the oldest colliery company in the country. Nationalization in 1947 wiped out many of the previous coal owners, but we were one of the 450 small mines that weren’t nationalized.

We were founded in 1908 by my great-grandfather and his two sons, who were miners working at the neighbouring colliery. My great-grandfather drove the initial drift—which was about a hundred yards long, four foot high and four foot wide—by himself, then they started the pit going. We don’t quite know how they managed to get started, as they wouldn’t have had much capital, but through the first world war and up to the early 1920s they did reasonably well. From the 1920s onwards until about 1950 it was a hard struggle because they had to move into a thinner seam. Since about 1909 or so we’ve employed around 15 to 25 men; currently we have 18.

My father actually started when he was twelve, in 1916. From the 1920s on it was probably his determination that kept the thing going. He was working for his uncles, who owned the mine, but they just wanted to jog along steadily...they didn’t want electricity, for instance. My father was mad about electricity; he got his HNC in electricity from night school at Huddersfield Tech, at a time (in about 1922 or 1923) when there was only one electric motor!

After the war, when my uncles retired, there were some advances; electricity was installed and we got down into the present seam, so that the 1950s and 1960s were reasonable going. I came back in 1971, when prices were low, but in the mid-to late 1970s the oil crises lifted the price quite a bit. In that time we drove what is basically the present mine. We did quite a lot of drifting to get access to reserves and we modified the working methods. Since the strike the prices have been going down steadily, and sometimes dramatically. In that time we’ve developed loading machines.

How did you set about building your machines?

Alan Bolton, an engineer working for us, was the designer. We have the parts fabricated outside at local fabricators but we assemble them here, buying all the components in.

The original version carries three-quarters of a ton in a bucket and is powered electrically via a cable reel; the operator sits in the back of the machine. We worked for several years with these and then we developed a larger one, which carries two tons. We’d almost wiped our debts off and that put us in the red again.

Looking back at it, we really should have financed the machines differently. Everything has been financed by bank overdraft or by our own work up till now. When we developed the machines they cost us more than we expected, of course, and that led to overdraft situations in which myself and a fellow director have guaranteed our houses. We thought it would be a temporary problem, just a year or two, but it has dragged on; hopefully we are just wiping off the debt now. We have done all the development.

I think we’ve just made the first outside sale of the machine to somebody else. There’s obvious potential, but it needs capital to build a few machines and get them established. We had somebody who was interested in the machine and if we could have built one and leased or loaned it to them until it proved itself, that would have been the start. But because we were up to the limit at the bank, we couldn’t finance it.

What induced you to design and develop them yourselves?

The small mines have always been a very small part of the industry—one per cent of output, or something like that, although probably increasing now—maybe even to ten per cent. They were kept small by the previous British Coal licensing policy, usually to less than 30 men underground. So there was no incentive for the manufacturers to manufacture anything for those mines; there was not enough market, whereas there was a very big market with British Coal. That has meant that there is no really suitable equipment around for small mines in Britain. It’s quite different in, say, the United States, where there are a lot of small mines and the equipment that they use is easy to acquire, as with civil engineering plant here. If we wanted to mechanize, we were more or less forced to design our own equipment.

Why is the American equipment not suitable?

If our seams were flatter, like the Americans’ are, we could have just got a battery scoop which would have
worked in the seam height. Our seam height is 1.6 m, but the Americans go down to a metre. The principal thing is that the gradient in our seam is too steep for batteries. We're working on 1 in 7 or 1 in 6 and the machines consume so much power when they're running about loaded on a gradient that the battery would have to be changed two or three times a shift. The other problem is that the American equipment is certified for use in American mines; to bring it over here you've got to recertify it and maybe alter the electrics quite considerably to get it approved for British mines.

The cable reel is our design and has been certified at Buxton. It has to be manufactured elsewhere because it's a flameproof item. It reels the cable in when the machine is going back to the anchor point and when it goes away it pulls against the hydraulics; it works very well. Our overall productivity, at about 2000 t/man-year, is quite a reasonable figure, considering the seam thickness, the amount of dirt we've got in the seam section and the amount of faults. These machines load it all, so they must be quite good.

On the plans Nortonhorpe colliery is shown adjacent to yours. Was that a predecessor to your operation?

Nortons were the landowners and they owned the big factory complex down at Clayton West. Up to 1950 they more or less ruled this part of the world, this area. My family had a lot of trouble with them. We had to supply them with coal as well and if the boilerman complained that there was some dirt in the coal, they'd send a message up to the pit and my uncles would have to go home, get washed, walk up to the Hall and receive a dressing down from old Tom Norton. They worked the coal from 1860 to 1913, and I think it was when that was running out that they decided to let other people start up because they needed coal to keep the factory going.

Whom do you sell the coal to now? Is it a special coal at all?

Ninety-six per cent or so is power-station coal. We sell a little to local farmers, but most of the area is smokeless, so it's mainly the farmers on the hills who come down with their tractor and trailer. It's quite good power-station coal, except that the sulphur is moderately high. The calorific value's good, the chlorine's low and other things about the coal are good except for the sulphur. That makes it much more difficult for us in the present climate. We're likely either to attract penalties for that or to have to import coal for blending to get the sulphur content down, or we may have to go to a more distant power station with flue gas desulphurization, so it's certainly a big handicap.

Surely it must have been very difficult to survive alongside such big competitors as the NCB/British Coal?

Early on in the period it was pure determination to keep going. We've always had one or two very good bikes and that spirit's still around: whatever the price is going to be, there's a group of us who will probably keep it going.

The other thing is that we've not really been an economic success and not really made any returns on the capital employed. If the time that various people have put into the mine had been charged at a normal economic rate and the surplus from what they earned had been put into a bank account and had been making compound interest, there would be a lot of money there, but there isn't! So if we'd been a public company, it
wouldn’t have survived.

With the Coal Board it was easier to compete even though they got much higher prices from the generators and also got subsidies, grants and various other things. We always felt that we could compete with them, but the competition is going to be much keener now. I still think we’ll survive.

What sort of relationship did you have with the Coal Board?

We had generally good relationships with the Coal Board as regards obtaining licences, except in the 1980s, when they spent a lot of money on a neighbouring colliery; we wanted to extend eastward slightly and they refused on the grounds that they thought they would work it themselves. There was no way that they would really ever have done so because our area is too faulty for longwall mining, the area was too small and there were problems of old workings, but they were reluctant to let us have the extension. If they’d been a commercial organization at the time, they should have given us the neighbouring pit. We could have worked it, they would have given us a small royalty and we could even have split the difference between the prices that the generators paid them and us, whereas they were trying to mine it and were losing money.

How has the licensing system changed?

We had to obtain a new licence from the Coal Authority in 1985 and we spent a lot more time and trouble getting that licence than we spent getting the previous licences from 1947. The Coal Authority seems to be more definitely a government body and not really interested in the mining industry. They seem to want to minimize their exposure to any problems and get as much money as they possibly can out of the operations.

We are very upset because the previous licence that we had from British Coal was generally renewed every ten years, but the way the thing worked was that you could get an extension almost automatically unless you did something really wrong; very few licences were withdrawn. When the Coal Authority came into being and the first licences were to be negotiated we had to put in a offer for the coal, and when we did so the area was advertised so that theoretically anybody else could put an offer in for that coal. That was certainly unfair. It wasn’t as though this was a mine that the Coal Board had developed and which we were operating. The coal was theoretically the country’s, but everything else that had been put into the mine was ours. The Coal Board had never put in anything. This surface is the only really practical access to the reserves and we own the site, so nobody else could get in anyway.

We didn’t want to have to bid for our own mine, but we took the view that it was worth nothing. Nobody nowadays would sink a new mine here if it were a greenfield site and if our coal were put alongside one of the ex-British Coal pits, it would not be classed as reserves—the seam would be too thin, it would be too dirty, the sulphur would be too high and there are too many faults.

Do you have to pay more for the right to work the coal now?

We’re paying about the same. The only thing was that to apply for the licence we had to pay £12 000 up front, whether we got the extension or not. On top we pay, say, £1000 a year, but then we’re on fewer pence per tonne.

I know you’re Vice-Chairman of the Federation of Independent Mines. How many small mines are there?

Operating now there are about 63 mines; Budge has about 20 and there are two or three big ones. That leaves about 40-odd, and we have about 26 in the Federation.

Do you find the Health and Safety Executive overly attentive—given that some small operators have gained a reputation as cowboys?

The Inspectorate will quickly know what type of people are running a job and can eventually bring them to book. The Federation fully supports them in coming down hard on anybody who’s not really trying. In general I think we have a good relationship with the HSE because we don’t want any accidents—we don’t want a breakdown, never mind accidents. They always come at the wrong time of course, when everything’s not quite 100% If we can get the mine running smoothly and efficiently, and that means safely as well, we’re all ears for anything to improve the set-up and sometimes the inspectors do come up with an idea. Especially in small mining you don’t meet many people from the outside world. The Mines Inspectorate still has that constructive aspect to it.

A problem that we find with the legislation at the moment is that because of privatization everybody wanted to ensure that British Coal’s standards didn’t slip when the owners took over. A lot of British Coal’s internal rules have been made law or turned into an approved code of practice. I would expect that our standards should be as good as those of any other mine, but our mines tend to be quite different, so the hazards can be different and we may use different methods to achieve the same standards.

In what areas are British Coal’s safety rules not appropriate for a small mine?

We’ve decked our conveyor and we protect it quite well. We have similar protections on it to those used by British Coal, but we’re also very careful with the selection of the motor and overloads. It’s very unlikely to break or get jammed, skid in the drums and catch fire, and that’s the main thing. It’s very expensive equipment anyway and it has lasted 20 years because we look after it. Yet we wouldn’t necessarily want to do all the things that British Coal did, seeing that their mines were much bigger and their conveyors possibly much longer; there may not be as many people near the conveyors; and they may be started
remotely, which doesn't happen here. The whole assessment of the risk should be taken into account—not, well British Coal do it this way, therefore we should do too.

The other thing is that we lay out our workings out so that we don't have long single roadways. They probably go about 10 m and then connect through, which is a big advantage for ventilation. If the power went off, we'd just open the air door and the mine would ventilate itself naturally—and it would remain gas-free if we left it for weeks. If there was a problem and the men wanted to walk out, they could just walk out up the intake roadway and they're in fresh air. It's quite different if your power goes off if you've got a deep mine and you've people at the end of a single tunnel that might be 2000 or 3000 m long in a gassy seam. Those men are a big problem then because they've not long before the gas builds up; they have a long way to walk out and they have to be got up the shaft.

If you have a problem, you must do something about it, but that doesn't mean that if the ex-British Coal mines have to do a certain thing, we should automatically have to do the same.

How deep is your mine?

We work generally with about 100 to 200 m of vertical cover. In the past year a bit got down to about 45 m, but that's an exception. At the present time we have about a kilometre and a half longitudinally to walk to the face.

You don't have a shaft at all?

We've no shafts, no. That's a big advantage. We really couldn't work with a shaft because they're very expensive items.

Over 90 years the mining operation must have moved quite a distance.

Yes it has. We've been struggling a bit recently because we've had more faults than usual. We always tend to
be tangling with faults, but the last twelve months have been horrendous. Hopefully we’re into a clear patch where we can keep working consistently. We’re in an area that has been overworked, so we have a good idea of the faulting and there’s not much really in this area. I’ve been here 25 years and this is the first time we’ve been able to lay the workings out square. Previously we’ve have had to bend the things to suit the faulting, but now we can, for quite a while, just go square.

Do you have to buy in surveying or other more specialized skills from outside?

You do have to have someone who has got the right qualifications for that, so he comes on a part-time basis just to do enough. In general, we do most of our own things.

One thing that we haven’t touched on is that the washer is quite complex for a small mine, and we pump the dirt back down the pit. When we started we didn’t have much technical backing for that. We could have gone to a consultant, but we did it our own way—blocking the pipes quite often for a while—but now we have mastered that technology, partly because my son worked with us for a year of two on a temporary basis. He’s an aeronautics engineer, but his knowledge of fluid mechanics came in useful to sort out the flow of dirt and water through pipes. And, as in everything else, technology’s improving. You can get things to clamp on a pipe so that you can read out what the velocity is and put it on the computer, so we’ve now got a lot of information.

Do you manage to get employees with the skills you need?

In general the workforce are quite good, but we would like to be able to train some of our men more. Just as British Coal were so big that they dominated the manufacture of equipment, so all the training schemes tended to be what British Coal wanted. We would like that made more flexible to suit our type of mining. We would like to be able to train some of our people, maybe in night classes or weekends or distance learning, or maybe let them have a week or two off, but not go away from the mine for a long period of time—we can’t afford that at the present time. There is quite a surprising interest in most miners to get some qualifications. We were part of the trial for the NVQ for extraction workers and I thought I might have difficulty in getting volunteers, but, no, they were very keen.

If you’ve got a good facesman who knows your mine and gets some training from outside, he could become a very good deputy for you. There’s much less risk in that than in trying to employ a deputy who’s been trained at another pit under completely different conditions.

That said, the problem of the supply of trained staff is not urgent because a lot of ex-British Coal people are around from pits that have closed down. But in a few years it will become scarcer and it extends right through the range, from junior officials right to management. Under the regulations most small mines need at least one manager and if there’s not one available you need a stand-in. So in a few years’ time we’ll need more managers than are taking the papers at the present time.

Are there legal stipulations as to the content of the training?

There’s two aspects to mining training. You need the people to be competent at doing their job but the legislation also requires that you have a training scheme and it has to be approved by the HSE. So the qualifications aspect is very important. We are working with the HSE to try and develop training pro-
grammes for everybody, from the junior officials right up to the managers eventually.

Are people keen to come and work here?

We've always people that are wanting to come. At the present time we would like a deputy really or someone with a qualification, so we might have to advertise for that. But until now we've normally never had to advertise. When there's been a potential vacancy people have usually heard about it and come and asked, and we've been able to select people on that basis. Probably 75% of the people working here started straight from school and we've trained them up. But it has changed in the past few years because (a) we don't see the future as long-term as we used to do and (b) there's been very good people around from the pits that have closed in the neighbourhood, so we've been very glad to take them on board.

We're a very stable workforce. Nobody ever leaves unless they retire, which in many ways is quite good. On the other hand, it does mean that some people who have been here a long time just assume it will carry on, they won't have to alter any patterns or anything and there's no problem whatsoever. But really there is. We're going to have to meet the likely new prices in a year's time. We're going to have to make some adjustments—maybe longer shifts or we might have to make one or two redundant.

If you're not thinking quite so long-term as you might have been once, how do you see the future?

Unless something is done on new coal-burning technology, in a few years' time there's obviously not going to be a coal-mining industry. The sulphur is always a problem that's going to get keener and keener as time goes on. To get into a flue gas desulphurization power station might help us, but that would mean much further transport, much extra cost and if it's a declining industry, there's always pressure on prices.

Do you feel that the Government has done things that it shouldn't or not given help where it should have?

They've certainly not helped us in any way. In fact, if it hadn't been for the EC, we would have been out of business, I think. In the early 1990s we were knocking about £5 a ton behind British Coal to the power stations and we got nowhere in Britain with the Government or British Coal or the CEGB. It wasn't until we started tackling Brussels that they came down and restored the previous differential at about 10%. But if it hadn't been for that, at that stage we could have gone out of business. And I don't think the DTI would have batted an eyelid over it.