

RIO TINTO REVISITED

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Abstract: A recent visit to Rio Tinto is described. There are still substantial remains there of the huge Rio Tinto Mine, though modern operations have been suspended, and a railway/mining museum has been established. The quality of the remains is compared to other world class sites, and it is suggested that Rio Tinto should be considered as a World Heritage Site or Geopark.

Introduction

During the 1980s the writer, and other PDMHS members visited Rio Tinto, in the province of Huelva in Spain, on several occasions. The first, in 1982, was to survey what remained of the Roman Mines there (see Willies 1997) under the auspices of Professor Beno Rothenburg's Huelva Archaeo-Metallurgical Project. A year later the writer began a survey of the industrial period and 20th century remains there, which, the following year, was continued, accompanied by the late Craig Meredith* using medium format photography. This provided a very substantial record of the mines at that time, one of very major change. This included the ending of railway use and the development of a major new mining project, the Cerro Colorado Project, which was subsuming the area of the former-worked North and South lodes (though not the Atalaya Pit) (see Thorburn 1990). Subsequently the writer became part of a team to develop a major mining museum there (Willies 1989), a project (1984-85) which failed as the copper price took one of its substantial dives. Instead, the mining attention turned to a gossan project, for its gold and silver content, which effectively destroyed the main area of last surviving Roman mines.

This overseas interest in the mines, which also extended to several other expeditions investigating the Roman slags and settlement at Corta Lago, was only slightly matched by indigenous interest, though the Fundicion de Minas de Rio Tinto was founded in those years. The major local interest was in the Huelva-Rio Tinto Railway and the core of a railway museum was more-or-less in place, though depredations during a bitter strike took a substantial toll.

Events since 1985

It was pleasing, thus, to hear in 1992 that a permanent exhibition had been set up as a local initiative in the former Rio Tinto Hospital by the Fundicion, and a brief visit was made by my wife and I that year to see it. Though simple in scope, it was, nevertheless, a substantial attempt to portray the history of the mines. Subsequently it has been developed much further, and a railway museum, integrated with it, opened at the old railway workshops at Zarandas.

Meanwhile the Cerro Colorado Project was resumed. The Rio Tinto Company ownership of the mines had partially passed in 1954 to the Spanish Government, and up to 1990 two Spanish Companies operated the mines, Rio Tinto Minera and Rio Tinto Patina, owned, in varying proportions by the Spanish Government and by RTZ, the British Rio Tinto Company successor (now again called the Rio Tinto Company). This does not appear to have been a wholly satisfactory arrangement (or perhaps just not a sufficiently profitable one) and in 1990 the mines passed into Kuwaiti ownership. In 1993 they passed

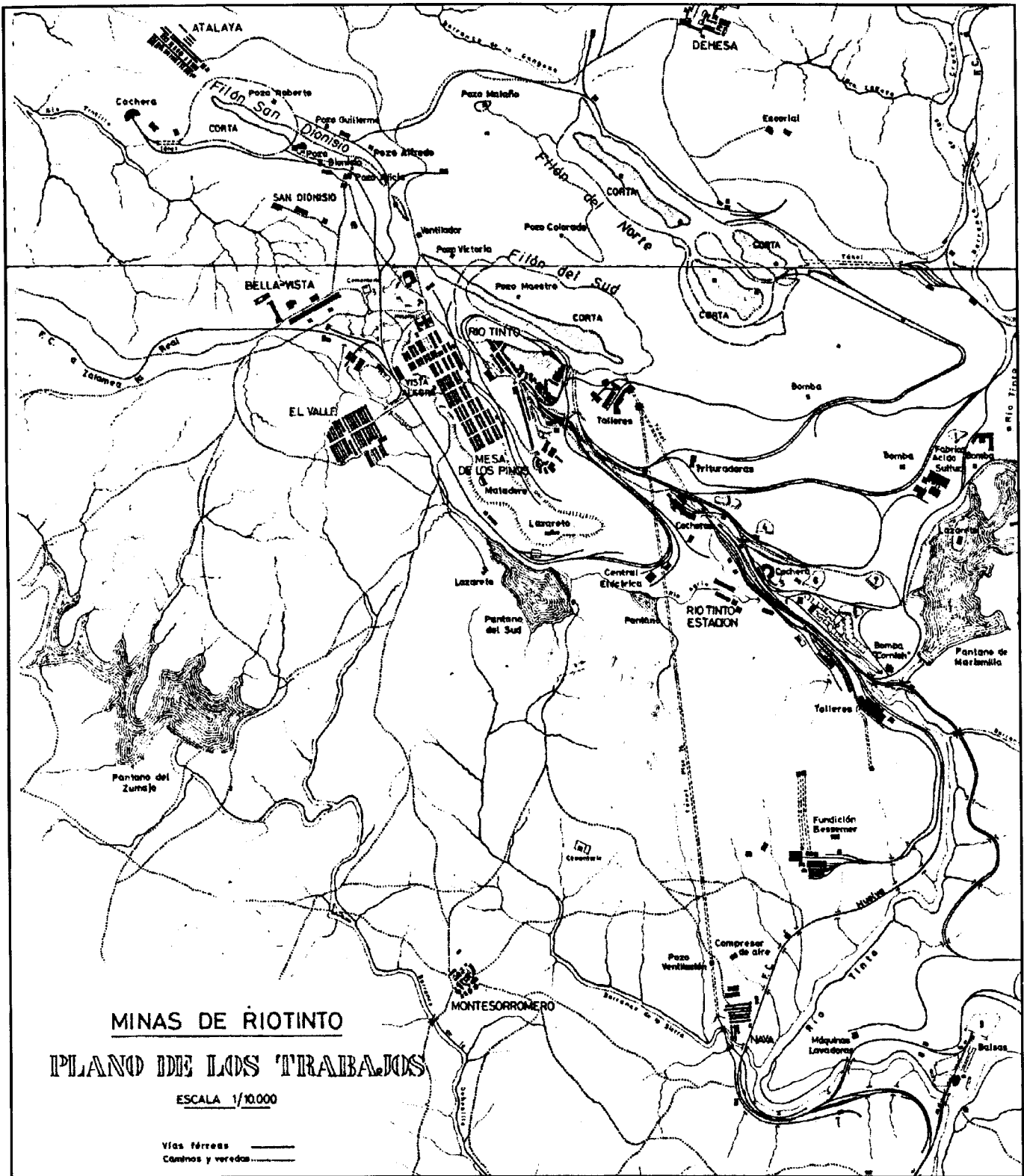
into the ownership of Fremont Mining, an American Company. They appear to have actually wished to acquire the smelter at the port of Huelva, and so passed on the ownership of the mines in 1995 for a sum reputed to be a single peseta (roughly equivalent to an old British penny), to the miners themselves in conjunction with their union. Their decision, (of union and miners) was a mixture, perhaps to safeguard their jobs but also to fulfil a continuing socialist objective (dream?). It almost immediately began to run into problems, with again a fall in copper prices. The result, which some would think might have been anticipated, was that the mines' operating debts soon began to overtake their assets and in 2002 they were bankrupt. Assets were sold off, the trucks and excavators, for example bought by the (British) Rio Tinto Company for their Australian mines.

At present the mines are stopped. The position and any plans for the future are unknown, though there must remain some potential for either traditional mining and smelting or perhaps working using the SX / EW (solvent extraction / electro winning) process. This is a wet process involving heap leaching, usually within an old pit, with high grade copper directly recovered on to plates. This process, developed by Phelps Dodge at Morenci in Arizona seems to be being widely adopted by American copper pits, partially in response to environmental restrictions on traditional smelters. The position is complicated however, by the equivalent of scheduling of some areas of the mine territory, apparently including the Atalaya Pit. This may well create some interesting conflicts and possibly, ingenious solutions. It does, however, leave the museum development somewhat in a limbo, though Fremont, perhaps in relief at divesting what is seen by environmentalists as the most polluted mining area in Europe, do provide some continuing support for the Fundicion.

The Museo de Rio Tinto

The Fundicion de Minas De Rio Tinto in effect has three operations: a very substantial and well-developed archive run by a single archivist; a railway museum at the Railway Workshops site (and further accommodation at the former diesel-electric locomotives sheds at Zarandas with a section of running track from which visitors can see some of the sites next to the Rio (River) Tinto; and a museum and store at the former hospital, a building which seems particularly well adapted to this task which is at the modern Minas de Rio Tinto settlement. Currently there are some 47,000 visitors a year, so this is a fairly flourishing operation, with some twenty people employed. They do not have volunteers.

Outside the Museum are a few of the more substantial exhibits, of which the former Planes Shaft headstocks, with its stainless steel water bucket, is the major. Inside, displays in the former



Rio Tinto in 1918. (Not to scale)

wards are arranged opposite each other along a central corridor. The layout is fairly formal, and some rooms are especially impressive, notably the Roman room which includes the lamp originally found by John Peel in 1982 (thought to have been stolen), a series of dioramas showing the development of the area, the exhibit of a locomotive, crane and the "Maharaja's carriage", and a still developing room showing use of an early battery locomotive and the underground loading facility used in the 16th floor tunnel from the Nava dressing area to the Atalaya Pit. The most recent development is a mock Roman underground section, in which has been installed two, full-scale, water-lifting wheels, rotating

and raising water. It is all impressive indeed.

The wide range of other objects and pictures make the visit wholly satisfying. The Railway museum nevertheless appears to attract most interest from visitors (in 1984-5 we had envisaged the site as a railway-linked museum, using it for viewing the mining remains in a carefully controlled safe environment, and this is what it may yet become). It is certainly one of the most potentially rewarding railway sites in Europe. Features of the railway as a whole has received lovingly detailed attention by J.L.G. Mateo in a compendium of diagrams and photographs (1998).



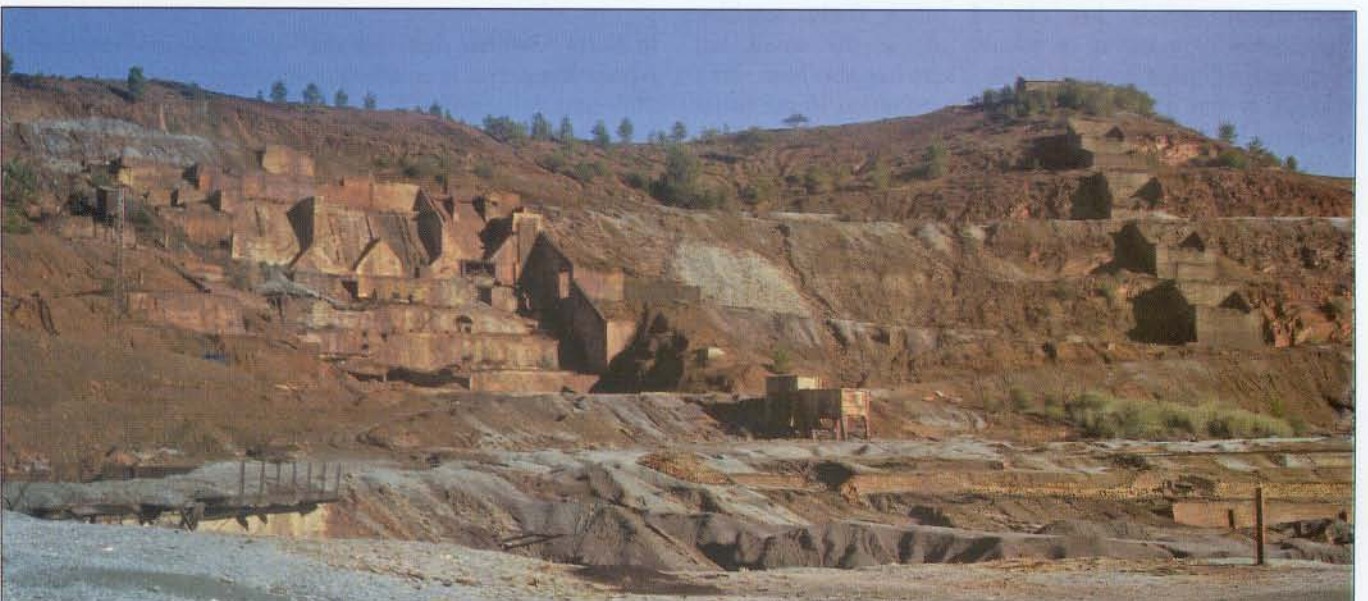
Rio Tinto in November 2004.

Plate 1(top). The flooded Cerro Colorado pit, cutting into the old Corta Lago (in the distance) and the old Corta Dehasa (left) and Corta Lago pits with the hill of Quebrantahuesis in the far distance (during a thunderstorm)

Plate 2 (below). RIP - will it work again, or rest in preserved peace?

Plate 3 (right). The Pozo Rotilio headstocks on the east extension of the Planes Lode.

Plate 4 (bottom). The remains of the Zaradas mill and railway waggon elevator.



The Wider Area of Rio Tinto

I was prepared to be disappointed by loss of the remains, in contrast with what we found in the early-mid 1980s but this aspect was also to be very rewarding. There have been losses, of course. Almost the whole of the track of the railway has been lifted except near the Railway Museum facilities. The area of the old Rio Tinto Station and the lower part of Mesa Pinos (the "English" houses of the earliest Rio Tinto, deliberately built "on the other side of the tracks"), together with the old site of the controversially demolished bullring, have been obliterated by the tips from the South Lode area of the Cerro Colorado. However, the former power station survives (stripped of its roof) and its reservoir and the nearby areas of Cerda, much of Planes, and most of the area of Zarandas and Nava, though stripped of iron and steel, remain substantially intact. Thus there remain examples of the teleros (open heaps for burning pyrite), leaching heaps, cementation troughs, gravity mill, remains of a railway-wagon elevator, colourful slimes ponds, remains of the concentrator and Bessemer and pyritic furnace area and flues and railway workshops, with the rather later headstocks at Pozo Rotilio and an adjacent mine. These are within an area of landscape that extends to the mining area of Cerro Colorada and the almost untouched Quebrantahuesa. Corta Atalaya, which is probably the most spectacular cone-shaped deep pit in Europe, survives, though the nearby Alfredo shaft with its conical winder has gone. The site as a whole remains one of the most complete mining landscapes in Europe and is almost certainly the most spectacular.

Off the mining area, the Mesa Pinos and the old El Valle (modern Rio Tinto) settlement remains intact. The "English" settlement is little changed, but the "English" Church (Presbyterian in fact) is sadly neglected. It needs friends. Perhaps the most surprising relic found was a timber headstocks at the nearby town of Nerva, which bears more than a passing resemblance to the La Peña headstocks (featured on the cover of *Mining History* 14:2 of 1999, which were formerly reported as "burned down"). A visit to La Peña De Hierros Mine was also a surprise. This is some three kilometres from La Dehesa, part of the main mining site where the modern (1970s) plant survives. Much of the gossan of the area has been mined, for its gold and silver, since we were last there. However, this mining has revealed some Roman workings, the main mass behind the former main shaft has its gossan untouched, and the Junta de Andalucia, the Provincial government agency, has carried out a fairly sensitive "restoration", including a picnic site at the small but spectacular flooded open pit there. There has also been some realisation that its undoubtedly gross pollution in the usual sense, is also the cause of its spectacular nature, and that it can form a chemical, mineralogical and biological laboratory of unsurpassable quality useful in training scientists, historians and archaeologists amongst many others, as well as having very substantial tourism potential.

We were unable to gain access to the main mining site. The Cerro Colorado Project is now a long wide pit, partly filled with dark coloured water. Its compass encloses the former North Lode pits of Corta(s) Lago, Dehasa and Salomon, and the South Lode. Of the Roman workings, one may remain under the observation building of Dehasa on the north side, and it is possible the slag heaps and possibly the water tunnels and the end of a "double drift" adit remain on the north side of the former Corta Lago.

The eastern end of the pit has destroyed the main Roman workings which were reported (Willies 1997), but the glorious red gossan is still conspicuous in a high cliff rising out of the pit at Quebrantahuesa and a Roman level may remain there too. Red yellow and other tips also survive down towards Planes, though those south and east of the old South Lode are less colourful, though still very, very dramatic. The spectacular powder house of South Lode also seems to have gone, but many other small buildings have survived in ruined form.

How does Rio Tinto rank in the metal mining landscapes of the western world?

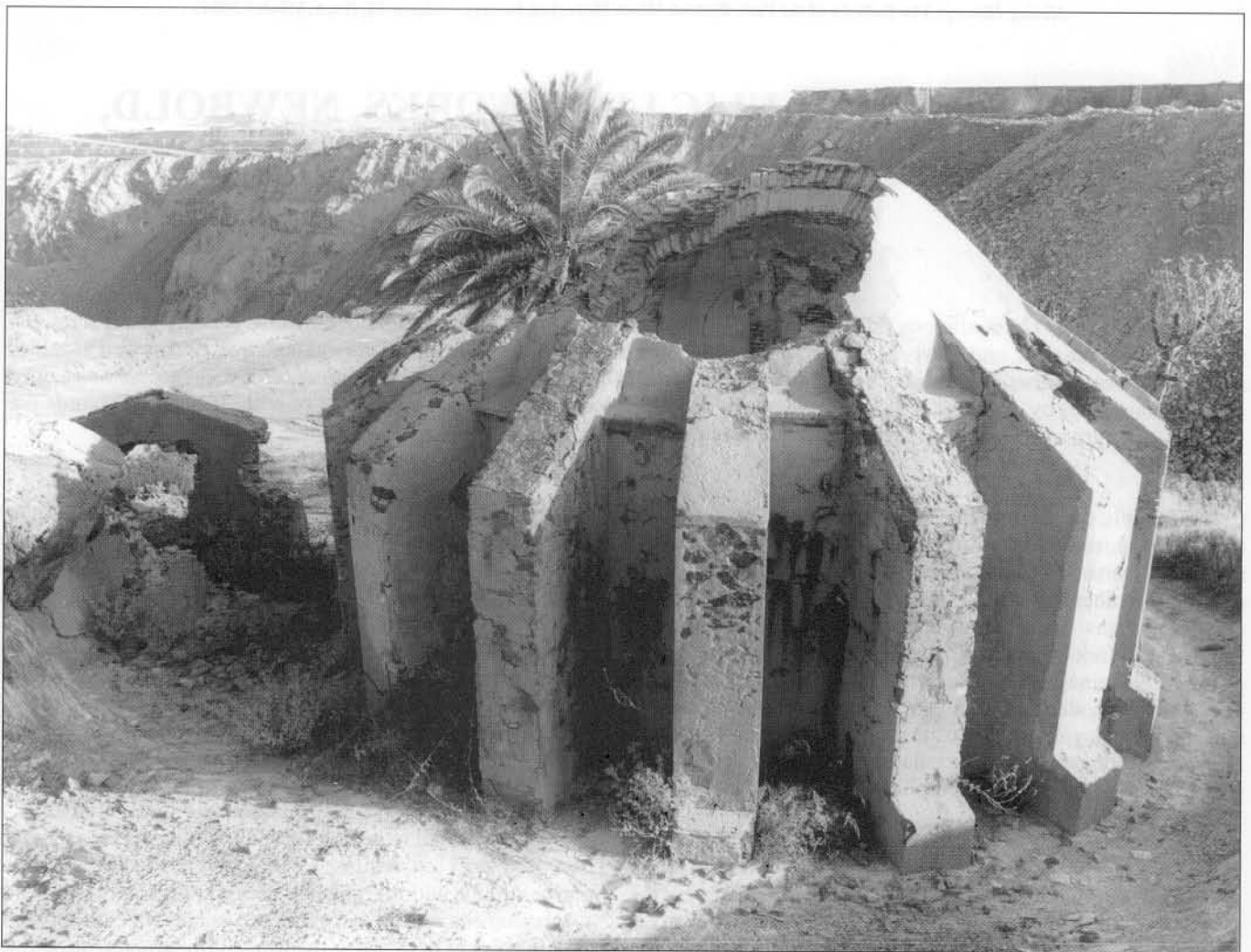
Although there are other landscapes of similar age in the Iberian Pyrite Area which extends between Seville and Lisbon (see especially *Bocamina, Revista de Minerales y Yacimientos de Espana* 4 of October 1999), previous visits and the revisit suggest there are no better sites in that region than Rio Tinto. In other areas of Spain, the most spectacular site is undoubtedly Las Medulas, the Roman gold mining site in Northern Spain, which is a World Heritage Site. Rio Tinto has an equivalence with Las Medulas in its Roman importance (both almost certainly those described by Pliny), though Rio Tinto's remains (including those at La Pena) are now sadly diminished. For a quarter century from 1873, it became the world's most important copper mine, introducing (long before the usual claimant, Bingham Canyon) the open pit techniques which dominated much of the 20th century, and also introducing wet methods of processing on a large scale which also became widely adopted in copper mining. It was also the birthplace, and, gave its name to one of the largest mining corporation in the world. Given these attributes, its spectacular landscape and substantial remains of this period, it is probably the most important of its period and kind in Europe.

Other European areas with the highest quality equivalence for surviving landscapes, featuring other methods or periods, would include Bronze Age copper mines in Yugoslavia, the open pit following underground collapse at Falun and perhaps the iron mining landscapes of the Eco-Museum at Bergslagen, both in Sweden. In Germany the Harz would be high for its pre-Industrial phase and Greece for its Athenian silver mines at Laurium. In Britain, Cornwall's copper and tin mines of the 18th and 19th centuries would qualify (a potential World Heritage Site). Remains, both early and late, at Parys Mountain, and at Llandudno and other sites in Wales, rate highly though they are less spectacular than Rio Tinto.

In North America, there are also very substantial remains. In Alaska Kennecott is an almost complete example of an early 20th century mine/mill and railway copper complex. In California Bodie probably best represents gold. Bingham Canyon in Utah could hardly be omitted. Other huge mines and complexes exist there, but few can present anywhere near the range, spectacular nature, and associated innovation and other historical attributes seen at Rio Tinto.

This is not to say that other European or American mining landscapes do not have much to offer. They do, it is the combination of features remaining and the innovative features of history they illuminate which makes those mentioned stand out. It is impossible not to be subjective, but of the dozen or so cited, Rio Tinto, in this writer's estimation, is within the top half, suggesting it should be a UNESCO World Heritage or, at least, a Geopark candidate.

Rio Tinto is thus at least amongst the world's most important



Powder House at South Lode, Rio Tinto in 1983. Photo: Craig Meredith Collection. Lynn Willies Collection and the Institute of Archaeology, London.

mining landscapes, with plenty to see and facilities for interpretation. Protection is at a beginning stage for the most important remaining areas, and a local realisation of its importance has gained ground. Once the uncertainty of its mining future is settled, and mining there can now add relatively little to the potential future economy of Andalusian Spain, there is a potential for long term preservation and exploitation of its scientific and tourism interest. To achieve this is probably impossible with the present limited means of the Fundacion: hopefully the Junta De Andalucia or heritage authorities with national status will leap into the breach.

***Note.** Dr Craig Meredith recently died. His papers and photographs are now held at the Institute of Archaeology, University of London.

Acknowledgements

I am grateful to the staff of the Museo de Rio Tinto for their kind attentions and for bringing me up-to-date on developments there.

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