

Engineering Heritage with Reference to Mining

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SUMMARY The conflict that is arising between government heritage legislation and mining engineering is explained. The nature of engineering heritage is explored with reference to mining traditions to show that present heritage legislation often is actually destroying real heritage. It is also often poor historical method and results in a failure to properly interpret relics. It is argued that engineers should be involved in the assessment and management of relics associated with their heritage.

1 INTRODUCTION

Something called "heritage" has become important in recent government legislation such as the Australian Heritage Commission Act 1975, and will, it seems be a continuing factor in government decision making in regard to both public and private development. This trend reflects a number of international conventions and recommendations some of which Australia is a signatory to. Government decisions relating to land use and planning are therefore going to be increasingly influenced by the philosophies embodied in the "heritage" legislation of the Federal and State governments.

In spite of this trend it is significant that involvement in industrial history as a public activity is being left largely to public servants and retired people and not those involved in the ongoing practice of engineering. The contributions in a recent conference of the Victorian National Estate Committee, entitled "No future without a Past", reflected this situation. While this lack of involvement may be partly due to the time constraints of people such as practising engineers, there may be more fundamental reasons.

One reason for the general failure of engineers to be involved in the history of their profession is, I believe, a failure on their part to perceive it as relevant or important. Prof Whitmore speaks of "the essential link between past and present" and when speaking about engineering heritage, identifies engineers' biographies, documentation and structures as the essential elements of that heritage (Whitmore, 1982). Because these elements so often remain uninterpreted and unappreciated, they fail to excite engineers or anyone else for that matter. There is almost an irresolvable situation because without the participation of engineers, the interpretation of relics is hardly possible but without such a presentation of the significance of surviving engineering relics, general professional engineering involvement is unlikely.

A further reason is a basic mistrust by engineers of government moves to curb development and present day engineering projects on the pretext of the existence of something regarded as significant in engineering heritage terms. The relationship between "heritage" preservation and development is an area which has not been explored properly but is essential to resolve if practising engineers are to relate to what is called their heritage.

A recent discussion paper in Victoria, "A Future for the Past" stated that "The misconception that conservation and development are irreconcilable will have to be broken down, and opposition from some parts of the community to heritage conservation countered" (National Estate Committee, 1984). This can hardly give engineers comfort particularly as the paper does not discuss what may be meant by this statement. Another recent failure in this regard is the otherwise excellent paper "Value and meaning in cultural resources" by Lipe (1984). In fact most discussions on the value of cultural heritage and its relationship to development fail because there is no genuine attempt to grapple with the true nature of heritage. Nowhere is that more evident than in mining engineering.

2 MINING HERITAGE CONFLICT

Between 1850 and 1900 Victoria was a major gold mining area. It ceased to be so when other places such as Kalgoorlie and South Africa became more financially attractive and Victoria was left without the resources to continue development and overcome the technical problems of mining. Those resources exist today elsewhere in Australia, and are only being half-heartedly applied to Victoria because the State Government is denying access to many of Victoria's known goldfields and most prospective areas.

Entire old gold mining areas in the Alpine area, the goldfields of Chiltern, Steiglitz, Warrandyte, Kinglake, Harrietville and Mallacoota and portions of many others, have all come under the control of the National Parks Service who manage under the guidance of the National Park Advisory Council. This Council has representatives from groups such as the Conservation Council of Victoria and people with an interest in conservation but no one with any commitment to mining. Although legally possible, the Victorian government will not allow prospecting and mining on these goldfields.

Recent recommendations of the Land Conservation Council of Victoria delineated land as Historic Areas on the basis of the existing evidence of past mining. These areas have been given to the National Parks Service to manage under the primary recommendations that the areas be used to:-

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of their history,

(b) protect the historic integrity of the locality, and, in particular, specific sites that contain relics of equipment, construction works, and artefacts associated with gold and tin mining and early settlement (LCC, 1983).

Exploration and mining are allowed in the area where they do not conflict with the primary recommendations. For all practical purposes this is a ban on mining as what is meant by the "historic integrity" of the area will certainly be disturbed if mining is commenced.

The Cox Eldorado Dredge is the last of its kind left in Victoria. It ceased work in 1956 when the gold bearing material the dredge was mining sunk below the reach of the dredge's buckets and since then it has sat idle. The companies attempts to move the dredge have been thwarted by a Historic Building Preservation Order placed on it. Recently the dredge sank through lack of maintenance.

Maldon, a gold mining town in north central Victoria is being recommended as a historic town for preservation where mining should be prohibited particularly in the vicinity of sites of major historical, environmental or educational interest (Jacob Lewis Vines, 1977). This includes most of the important goldmining areas about the town. Walhalla another historic goldmining town is proposed to be "preserved" not only without mining, but without people.

The stated assumption underlying all these projects is that people will be better able to understand their history, by stopping mining on the goldfields. But will they and what sort of understanding will the deserted landscapes produce?

This situation has developed because of the emphasis of most legislation to date has been retention of places which are seen to be culturally significant. According to the Burra Charter adopted by Australia ICOMOS, that means sites, areas, buildings or other works, groups of buildings or other works together with pertinent contents and surroundings which have aesthetic, historic, scientific or social value for past, present or future generations (Australia ICOMOS, 1982). The thrust of the charter is toward the conservation of architectural places, many of which occupy our cities and towns. There is no doubt that the character of urban environments is largely determined by the buildings they possess and that that character should provide security and habitability (Chamberlain, 1979). Buildings, bridges and roads are part of everyone's experience and can be appreciated to some extent by all. Because of their very nature the conservation of such structures can often be accommodated in development plans by adoption, adaptation or relocation of the new structures. The issue in these instances is whether or not the additional cost is warranted.

Industrial sites are not within everyone's experience and can not be so easily treated. Mining sites are particularly awkward because they are located on the existence of a natural resource. Every miner knows the truth of the old Cornish adage which refers to orebodies "where she be, there she be". Ore is where it is found and the miner has to cope with all the difficulties that that may entail which nowadays are not just natural inconveniences, but the decisions of planners made before the discovery of the orebody. Where gold is concerned, orebodies will often be found in close proximity to previous mining enterprises, so that exploration and development may involve the same land, shafts and drives as the earlier operations.

If the aim is to preserve mining heritage, it is essential to appreciate what mining heritage actually is. Only then will preservation have any hope of success and the apparent conflict with development have any chance of resolution.

3 MINING RELICS AND THE LANDSCAPE

The most impressive historic mining landscape in Australia is to be found north of Creswick in central Victoria. The south-easterly view from Clove Hill is along the line of the Berry Lead, the richest deep lead ever mined in Australia and indeed the world. The sinuous line of the lead and its branches is easily detected by the massive white dumps which fill the landscape. The millions of tonnes of quartz, mullock and slum which was all brought to the surface from the underground leads up shafts in one tonne hand trucks, is a testimony to the most rigorous industry.

But for all their impressiveness, these dumps tell us nothing of the people who worked the mines, they say very little about the technology that was used by them and they present a false impression of what the area would have been like during the 1880's when mining was at its peak. There they sit, silent as a graveyard on a forgotten battlefield. They simply present the visitor with questions about their existence; why are they there, who put them there and how did they do it? For the answers one has to look elsewhere.

Photographs of these mines during the 1880's give some impression of the surface workings of the mines. From these it is possible to imagine some of the activity; the hissing of steam, the motion of the pumping gear, the ring of bells from the brace, and the rumbling of the ore trucks and the rakes in the puddling machines. But this appreciation of mining atmosphere is not possible without familiarity with the equipment pictured and it still does not provide an understanding of the impetus for such work.

Written records of the era give descriptions of the methods used by the miners. Drawings of the equipment exist and give an indication of the sophistication of the whole operation. With careful research it is possible to piece together the lives of some of the mining people of last century. The most tangible cultural evidence of Victoria's mining heritage are the collections of relics and models in our museums particularly those of the Museum of Victoria. Victoria's museum and libraries in spite of comparatively poor funding, offer by far the best resource for understanding the technical origins and development of mining in Victoria during last century. But the models, statistics and drawings can beg the same questions as the relics.

An understanding of the personal histories of miners and the technical details of mining can give only an indication of the traditions of the people who owned mines and worked in them. The traditions which brought the mines into existence and by which they were operated are still to be seen in much of the mining industry. These traditions are our heritage and without appreciating them, the existence of the massive dumps north of Creswick can never be understood.

4 MINING TRADITIONS

It is evident from the mining industry, both past and present, that miners are people of vision and incurable optimism. These qualities drove the miners

of the last century into the impenetrable bush of Tasmania, the snows of Kiandra, the tropics of the Palmer River and the deserts of the Northern Territory and Western Australia. Isolation and deprivation were endured repeatedly for the hope of gold. Today mining companies spend millions of dollars on exploration seeking deposits which they have very little chance of finding.

Deep lead mining in Victoria was in water-logged gravels and the mining method was hazardous and labour intensive and ceased to be employed when most deep lead mines closed shortly before World War I. The deep leads of Creswick lie beneath basalt. Drilling through the basalt cap could detect the wash dirt but before gold could be proved to exist in payable quantities, expensive shafts had to be sunk and mining begun (Canavan, 1982). Ultimately success could only be gauged by mining because although comparatively rich, the amount of gold per unit volume of wash dirt was highly variable. Mining with all the attendant expenses had to be begun largely on hope.

Persistence of miners is evidenced by the repeated sinking of shafts in search of gold. In the deep leads the constant enemy was water. The Berry No 1 for example had to pump water from their shaft for a number of years before the wash dirt was dry enough to mine (Davey, 1983). Following the disaster at the New Australasian in 1883, laws were introduced which required mines to be dewatered and when they ceased mining their pumping operation had to be carried on by neighbouring mines. Today mining companies display persistence by embarking on projects with more than 10 years lead time.

Innovation has always been common in mining. Mines are often in isolated circumstances and problems which may never have been faced by others must be solved with facilities immediately to hand. So new ideas are tried. The industry has always attracted people from varied backgrounds so that methods and systems common in other fields are often used. Deep lead mining had its share of innovation. The system of blocking out and mining was developed from the Ballarat field, and during the 1880's the Berry leads saw the use of shields and compressed air for shaft sinking in the water-logged ground. By 1901 freezing was being used to assist shaft sinking at the nearby Ascot Deep Lead Company and the Berry Consuls Extended used electricity for lighting in 1902 (McGeorge, 1966).

Independence and freedom are features of miners. This was commented upon by the 1854-5 Royal Commission into the Goldfields which carefully accounted for it when making its recommendations (Victoria, 1855). Part of this freedom is the right to mine what is discovered and when that right is removed, so is the incentive for exploration. The tribute system and the Miners' Right are two provisions which recognise the individuality of miners. One of the aims of the Prospectors' and Miners' Association of Victoria is "to ensure the rights, privileges, and heritage of all persons to fossick, prospect, explore and mine...are maintained."

Some traditions are not so evident today. European miners were often religious people no doubt as a result of their community and the dangers they faced. This characteristic seems to have waned as it has in the rest of society. The capacity for extended hours of hard physical work has likewise diminished although the digger's concept of the "Aussie battler" is still alive in some sections of Australian society.

The link between present day miners and those of our past is not only one of interest, it is one of commonality. The approach to life and work have a similar basis. While today some attitudes have been modified to cope with the changed values of society, the essential principles of prospecting and mining remain the same. The miners' heritage therefore is not to be found in the relics but in the traditions of the mining industry which are illustrated by historical records and kept alive by working mines, miners and their associations.

The qualities of vision, optimism, persistence, innovation, independence and freedom are part of our heritage and essential elements in our society. But much of the legislation related to heritage would effectively outlaw mining, thus destroying one expression of these qualities. In fact one recent assessment of the international small-scale mining industry said of Australian governments that they had "begrudged their heritage" by abandoning the industry (Wels, 1983).

To some extent the Historical Area concept of the Government of Victoria can be viewed by miners as being similar to the shepherding claim owners of the past, who had no intention of working their ground, but held it in the hope that rich finds on neighbouring claims would enable the claim to be sold at a profit. But it is worse than that. The anti-mining policy of land controlling bodies such as the National Parks Service means that the land has been permanently withdrawn from mining inspite of their paternalistic banter about preserving heritage. The fact is that much of the heritage legislation and planning which is being applied in Victoria is incompatible with the heritage which is supposedly being preserved. Nowhere is this more clear than in mining and naturally engineers for whom heritage is a living experience, do not want to be involved with what is in effect a destruction of it.

The situation is well expressed by Raymond Polin, Professor of History at the Sorbonne: "Everybody tries to influence his own history, the history of his group, the history of his time. And if certain men are incapable of any positive action, they try to insert their passivity into the history of their group, so that its history will be their own history" (Polin, 1976).

In this very succinct statement Polin describes the situation where people of action find themselves controlled by passive people, intent on curbing history making activity and by taking responsibility for historic relics, are seen to possess history. This is precisely what is happening in the matter of heritage legislation in Victoria. At the "No Future without a Past" conference it was proposed by Miles Lewis that items of heritage should be assessed in respect of preservation by experts in the historical field and their assessment should be final (Lewis, 1981).

But the passivity of historians, conservationists and archaeologists can not rule society if it is to survive. Many urban Australians have sadly lost sight of the fact that their way of life is dependent on industry and where the mining industry is concerned that relies on the preservation of its traditions of activity and freedom.

It is good to record our past and preserve what best illustrates the traditions and activities of the past and the traditions that we have inherited. But

if preserving and recording the past becomes the controlling factor in society it is clear that nothing has been learned from the history which is being recorded. The intention by such groups as the Land Conservation Council of Victoria that people will appreciate their history from static relics and landforms is illogical and false. In fact even the historical process itself is being abused in such an event.

6 THE HISTORICAL PROCESS

History in a simple form may be past events and these can be commemorated by monuments. But recorded events are perceived happenings and that perception varies from person to person and age to age. History then is not what is written about but what is written and that is a perception of events of a person or group of people at a particular time. Past events must be perceived to some extent at least in the light of present experience and in this sense History involves a form of self understanding and self interpretation. It is dynamic and relative not static and absolute; it is an open system not an entity, a process and not a product.

What miners inherit from the past is part of the historical process, dynamic in character and it must be seen to retain that character if it is to be relevant to mining relics and present day society. Uninterpreted events and relics may be a fascination to people with good imaginations, but as such they can only be an interesting diversion. Relics, other than those associated with specific events, must be interpreted in the light of living traditions if they are to have meaning. The same living traditions which give significance to relics are indispensable to the way all people of action perceive themselves and their actions.

The preservation of real historical significance of a site or city is therefore denied if action is forbidden. Where mining is concerned an operating mine is a far better demonstration of our heritage than a few rusty relics because it embodies many of the traditions or the principles of action, which were once associated with the relics. The significance and value of the relics are more obvious to people who appreciate the living traditions of an ongoing industry.

7 ENGINEERS AND PRESERVATION

It has been demonstrated by Harold Burstyn that when dealing with technology, general historians do not often understand technical details and cannot therefore appreciate the full significance of events and present a plausible history (Burstyn, 1979). He goes on to say that inventions in a vacuum are not convincing as they generally occur in a historical continuum. To account for both technical detail and in socio-industrial traditions it is necessary for professional engineers to be involved in the interpretation and assessment of relics if they are to be presented realistically and convincingly.

The protection of relics needs to be handled carefully if people of action are not going to be disinherited and money wasted. The preservation, recycling or demolition of sites, buildings and relics therefore should not occur only on the basis of the historians' 'expert' assessment, but also on the assessment of the proposed development in the light of the traditions and requirements of the community. People of action, that is people involved in the ongoing industry who make history and bear our heritage must be part of the assessment process if it is to have reliability and reality. Such

people should also be included in the management of sites and relics that are intended to relate to our heritage.

The issue for society and government policy makers is whether or not our engineering and in particular our mining heritage is of value to people today. If attempts to preserve it involve a ban on present-day activity, it is in fact not heritage which is being preserved but a memory and probably a false one at that. Mines, their dumps and associated relics then become memorials to part of our history which we do not understand and with which we do not want to be associated. The consequences for our society of following such a path are far reaching because it would be turning its back on enterprise, ingenuity, vision, self-sufficiency and hard work.

If engineering heritage is worth preserving, Australian governments are going to have to change many of their policies. The present concentration on land control in favour of the protection, preservation and presentation of many historic documents and relics which are often housed in poorly funded museums, demonstrates a lack of genuine commitment to our heritage. This lack of commitment is also evident in their failure to include the bearers of heritage in heritage policy making. Legislation under the title of heritage has often become little more than an avenue of power for the anti-development and anti-mining sentiments of society's passive people. In this environment engineers must own their heritage with pride and understanding and without sentimentality.

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