

# SPOTLIGHT

## on the Phoenix Programme



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South Africa ranks among the top three mineral-producing countries in the world, and yet the country's teaching and student population have a very limited knowledge of the mining and metallurgical industry. This is probably one of the major reasons why so few scholars elect to study mining-related disciplines at local universities, or to consider a career in the industry.

### Initiation of Programme

The Phoenix Programme was started in 1974 by the Minerals Manpower Committee of the National Institute for Metallurgy (now Mintek), in conjunction with the Minerals Industry Manpower and Careers Unit (MIMCU) of the United Kingdom, which had developed a parallel programme for Britain. The programme, which was later expanded to encompass the total spectrum of the mining industry, was taken over by the Chamber of Mines of South Africa, with financial support and assistance from The South African Institute of Mining and Metallurgy and members of the National Phoenix Committee. Current members are AECI, E.L. Bateman, Shell, Council for Mineral Technology, Envirotech, Iscor, Ferro-alloy Producers' Association, and Rio Tinto.

The average science or geography teacher at high school works with approximately 400 to 500 students per year, and has the opportunity to inform these scholars about the importance of the industry to the country, and the

career opportunities that are available. The prime objective of the Phoenix Programme is to expose teachers, student teachers, and scholars to mining and mineral-processing activities, and to the engineers who design, control, and maintain these operations. Teachers and student teachers are regarded as being ideally placed to influence school children in their choice of career.

### Phoenix Activities

The majority of Phoenix activities and projects that are offered involve 'hands on' project work, and the technical input for courses is provided by Chamber staff, and by staff on mines and at various university departments of mining and metallurgy. The courses are designed to improve the communication links between schools, universities, and industry. Teachers are invited to attend courses lasting 5 to 7 days and based on case studies of particular mineral prospects. These courses take them through all aspects of the minerals industry, and the literature that is provided contains information from geological and mining reports, price and market forecasts, and other reports and articles of interest that typically form part of management decision-making in the minerals industry.

It is often difficult for outside bodies to gain access to pupils during term time. As a result, it was important that Phoenix should build up a pool of motivated teachers (who had previously attended Phoenix Courses), who could identify the correct type of scholar to attend a minerals-industry course. The physical-science syllabus

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Transvaal school teachers visit Black Mountain Mineral Development Company during their 1984 north-western Cape tour

for South African schools has frequently been criticized for its highly theoretical content and lack of relevance to the industrial environment. It was this factor that led Phoenix staff to develop curriculum material that related high-school science and geography to mining and mineral processing. There is an increasing demand from teachers for this type of material, which has been well received in schools.

Phoenix operates within the school environment and must be seen as an ongoing process to enhance the image of the industry with the school-going and teaching population.

In addition to the above, close liaison is maintained with bodies such as the Foundation for Education, Science and Technology, the South African Association of Teachers of Physical Science, and other organizations that are concerned about increasing the numbers of scholars who pursue engineering as a career. Phoenix staff also attend careers exhibitions and give minerals-oriented talks at high schools, and answer numerous requests from teachers and scholars who require literature from the minerals industry for teaching and assignment purposes.

To date there have been 52 minerals-industry courses for 865 teachers and student teachers, and 875 scholars have participated in 42 scholar projects. The operation of the Phoenix Programme is very similar to successful programmes in the U.S.A., Canada, the United Kingdom, and Australia. Close contact is maintained with

the Minerals Industry Manpower and Careers Unit in London.

### Phoenix Programme

The Phoenix Programme is a long-term image-building programme, and should not be confused with the short-term recruitment programmes that operate within individual mining houses. As Phoenix is an umbrella body representing the whole of the minerals industry, it has the advantage that it can co-ordinate and move into many areas that are traditionally closed to individual companies. Phoenix has been very successful in developing and distributing schools-minerals industry curriculum material.

Although Phoenix courses are conducted in most of the major centres, it is difficult to quantify their effect in terms of enrolment numbers at universities. Nevertheless, there has been a steady increase in registrations in mining engineering and metallurgy since 1974, and this can be attributed partially to the activities of the Phoenix Programme.

In order to maintain and secure a satisfactory supply of suitably qualified engineering personnel in future, the mining industry should concentrate on long-term plans, one of which is to maintain a sound and mutually beneficial liaison with education departments and the school-going population.

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## Small mines

Much interest in the development of small mines has been evident in the past few years, with junior companies taking the bull by the horns and moving in where larger companies found it uneconomic to tread or, indeed, where large companies are foresighted enough to see the advantage of smaller operations. Examples of small mines are to be found from Europe to Australia, in the Americas, and in Africa. This shows clearly that the old-time entrepreneur may now have retired, but his flair and endeavour are still very much in evidence, even if carried on different shoulders.

It has often been shown that there are cases where the philosophy of mining big to reduce unit costs, and to accept a higher dilution rate as a result, just does not work in these circumstances. It can even lead to ruin. The more selective, low-overhead operation can often successfully develop the deposit concerned and come out on top at the end of the day.

The interest in small mines and the worldwide need for them are high. High interest rates, volatile metal prices, and lower demand make large-scale mine development a greater financial risk than at any other time in history. A symposium, entitled 'Small Mine Economics and Development' is therefore being held in London from 23rd to 26th March, 1987. This Symposium will provide the ideal international forum for a discussion of the technology and economics of mining operations from the smallest of mines to the fairly large 10 000-ton-per-day mine.

It is clear that the interest will be high. The first meeting in Mexico was attended by delegates from 34 countries.

In Finland, the second symposium was again attended by delegates from 34 nations—from The Netherlands to Yugoslavia, Czechoslovakia to the Ivory Coast, Nicaragua to Canada, South Africa to New Zealand, and Jordan to China.

The technical sessions will be held at Imperial College in Kensington, a short distance in either direction from Heathrow airport or London's famous West End. The programme committee is calling for papers and the following topics will be included, covering both hard-rock and coal mines:

- Economic geology and reserves estimation
- Financing options for the small and medium-sized mine operation
- Advantages and disadvantages of in-house engineering, design, and construction
- The use of computers for the smaller mine
- Case studies for the start-up and expansion of small to medium mines
- Technology for lower costs and higher profitability.

This Symposium is designed for managers of large companies that have small and medium mines, as well as for operations and engineering personnel from mines of that size. For further details, contact

SMED—The Small Mine Economics and Development Conference  
31 Theobalds Road,  
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