SPOTLIGHT

on career guidance, recruitment, and educational liaison in the South African minerals industry

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In a former Spotlight article†, Dr P. J. D. Lloyd focused attention on the shortage of locally trained mining and metallurgical graduates, and indicated that the South African Institute of Mining and Metallurgy (SAIMM) has been exerting pressure to boost the intake of undergraduates in mineral disciplines.

This article reviews the recruiting activities of the South African minerals industry over the past decade, and discusses some of the programmes that are in operation at the moment, particularly those aimed at potential graduates.

Past Activities

In the late 1960s, the Chamber of Mines was having difficulty in obtaining sufficient numbers of young men to fill vacancies in the student official courses. A public relations campaign was instituted to overcome this shortage, and a Careers Office was established to administer the programme. This Office subsequently broadened its interests to encompass a wide range of activities related to career guidance, recruitment, and educational liaison.

At about the same time, the Minerals Manpower Committee of the National Institute for Metallurgy (NIM), perturbed about the supply of technologically skilled personnel, particularly graduates, began some long-term activities aimed at improving this supply.

NIM organized the first Phoenix course for teachers, held in 1974, which was modelled on a similar programme started in Britain by the Minerals Industry Manpower and Careers Unit. The management and administration of this programme were taken over by the Chamber of Mines during 1975, with support from

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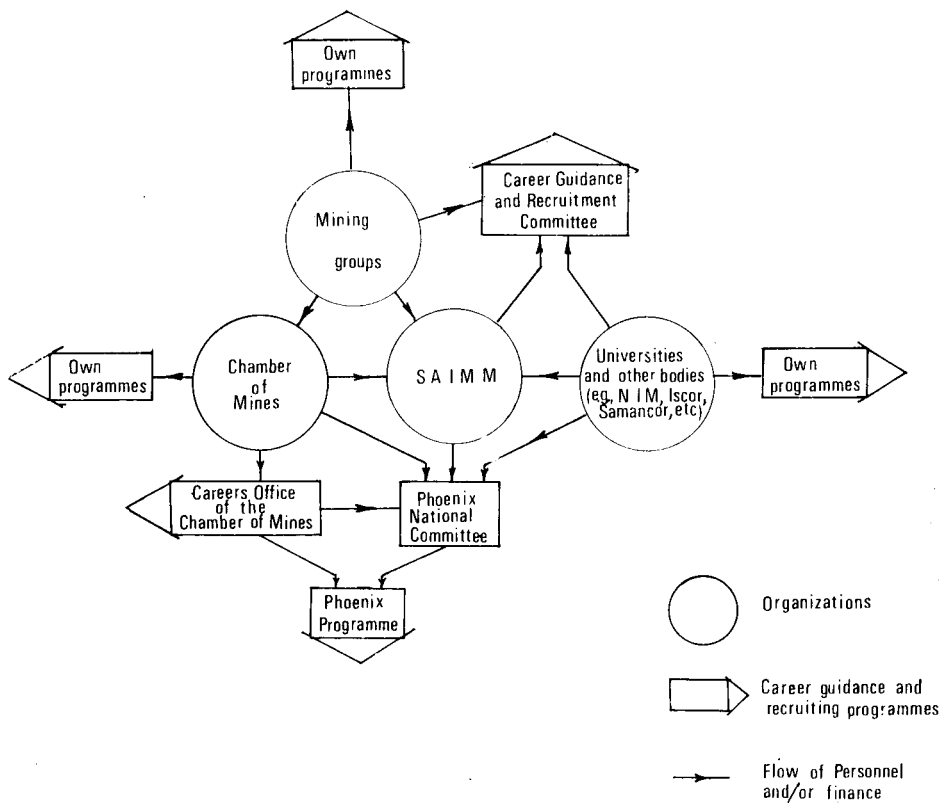

Fig. 1—Relationships between organizations and the careers guidance and recruiting programmes they run

TABLE I

NUMBER OF STUDENTS WHO HAVE ENROLLED AND GRADUATED IN MINERAL DISCIPLINES AT THE UNIVERSITY OF WITWATERSRAND AND THE UNIVERSITY OF PRETORIA FROM 1973–1980

Year	Metallurgy						Mining						Total		
	Wits.		Pretoria		Total		Wits.		Pretoria		Total				
	Enrol	Grad	Enrol	Grad	Enrol	Grad	Enrol	Grad	Enrol	Grad	Enrol	Grad	Ebrol	Grad	*
1973	17	7	5	7	22	14	29	12	4	2	33	14	55	28	
1974	25	3	10	6	35	9	38	12	11	5	49	17	84	26	
1975	34	7	20	2	54	9	36	8	13	2	49	10	103	19	
1976	36	7	26	4	62	11	26	6	20	3	46	9	108	20	36
1977	35	4	23	8	58	12	40	13	20	6	60	19	118	31	36
1978	36	11	44	13	80	24	49	9	19	9	68	18	148	42	40
1979	45	12	38	10	83	22	43	12	20	5	63	17	146	39	36
1980	41		40		81		58		37		95		176		

$$* = \frac{\text{Graduates}}{\text{Enrolments 4 years previous}} \times 100$$

the Phoenix National Committee, a body representing a wide spectrum of the South African minerals industry and operating under the auspices of the SAIMM.

The SAIMM itself has long had a direct interest in the field through its Career Guidance and Recruitment Committee, which has now merged with the Professional and Technical Training Committee to form the Training and Career Guidance Committee.

Present Activities

In addition to the above developments, many other organizations are active in the field. Fig. 1 reflects the present situation, and shows the relationships between the various organizations and the programmes that they administer.

The current activities of the following are considered here in more detail: the Careers Office of the Chamber of Mines, the Phoenix Programme, and the Training and Career Guidance Committee of the SAIMM.

The Careers Office of the Chamber of Mines

The Careers Office was established by the Chamber of Mines to provide career guidance and recruitment services for the mining industry.

At high school level, members of the Careers Office accept invitations to speak to high school groups, although, with the present policies of the education departments, this does not happen very often; they attend careers exhibitions organized by a variety of organizations, including the psychological and guidance services of the education departments, school career-guidance teachers, Rotary, Round Table, and the S.A.V.F.; and they arrange visits to mines for groups of senior pupils. An investigation is under way on the possibility of integrating these functions with those of mine personnel officers so that a great deal of career guidance for the mining industry can be carried out on a local basis. This should be of considerable benefit to the industry.

At post-school level, the Careers Office administers an extensive advertising campaign, distributing attractive careers brochures to prospective employees. Responses are carefully checked to ensure that the most effective media are used.

The possibility of using television advertisements is being investigated.

Visits to mines are arranged for specialist groups, including university staff members, university students, Defence Force trainees, and student teachers. Vacation employment is arranged for a limited number of engineering students from overseas universities, and a tour to mines in the eastern Transvaal is organized for about 120 students, who spend their vacation working on mines that are members of the Chamber.

Close liaison is maintained with bodies such as the Foundation for Education, Science and Technology, the South African Association of Teachers of Physical Science, the Psychological Guidance Services of the Provincial Departments of Education, and the Departments of Education to ensure that all possible avenues are utilized for promoting career guidance and recruitment.

The Phoenix Programme

The Phoenix Programme aims to expose teachers and pupils to various aspects of the minerals industry and, at the same time, to improve the communication links between schools, universities, and the industry. Unfor-

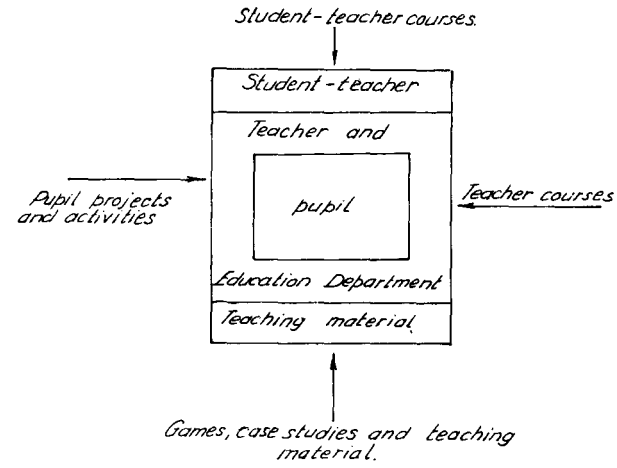

Fig. 2—The Phoenix Programme: access to the pupil through various activities

tunately, there is a strong temptation to measure the efficacy of the programme only in terms of the number of registrations for undergraduate courses in mineral disciplines at the universities. Although these numbers have grown substantially since 1974 (Table I), the activities of the Phoenix Programme are not the only factors influencing potential graduates (the numbers are still increasing despite the disappearance of two factors that were previously regarded as significant: the T.V. series 'The Villagers' and a depressed economy); nor is an increase in the number of graduates the only benefit that accrues. The Phoenix Programme is only one aspect of the overall efforts to solve the manpower problems in the industry.

School pupils in State schools are shielded by the administration, and it is difficult for outside bodies to gain direct access to pupils during school time. In addition, the dispersal of pupils after school makes the organization of extramural activities very difficult. The philosophy of the Phoenix Programme is to establish contact with the pupils through the teachers, through student teachers who will join the system at some time in the future, or through the provision of teaching material that can be used in the classroom (Fig. 2).

The primary phase of the programme is designed to establish a cadre of interested and motivated high school teachers who will then be in a position to both advise pupils on possible careers in the industry and also to provide the link to pupils for other activities in the programme. The teachers are invited to attend a six-day course based on a case study of a small mineral prospect. Participants consider management reports, prices, markets, forecasts, technologies, and other factors that typically form part of management decision-making in the minerals industry. The study is backed up by visits to local mines and processing plants. By the end of the course, the teachers should be familiar with the terminology, technology, and problems associated with the mining project under consideration.

The thirteenth course was held in June 1980, bringing the total number of teachers involved to about 250.

High school pupils were directly involved in programme activities for the first time in 1977. Pupils take part in activities ranging from a complex chemical project involving the extraction of copper from a discard material at the Rooiberg Tin Mine to day visits to mines. The pupils taking part in these projects are nominated by teachers who have attended Phoenix courses.

The physical science syllabus for South African schools has frequently been criticized for its high theoretical content and lack of applied science. One of the aims of these pupil-orientated projects is to show how a balance between the pure and applied aspects could be restored without significant changes to the syllabus.

Student teachers are also involved in case-study exercises, and, in addition to being introduced to the many interrelated factors involved in the location and development of a mineral deposit, they gain first-hand experience of the use of case-study techniques in teaching and are able to evaluate its educational potential.

During 1979, about 150 physical science, geography, and mathematics teachers, 75 student teachers, and 200 high school pupils throughout South Africa had at least one contact with some aspect of the minerals industry, the contact time ranging from 2 hours to 6 days.

To satisfy the growing demand for exercises showing how science is applied in industry, additional time is being allocated to the preparation of resource material that will enrich classroom teaching. Articles in the Earth Science Topic series are being developed to show geological applications relevant to the geography, physical science, and mathematics syllabuses. This material is being prepared in consultation with teachers, and it is hoped that it will be more relevant and useful than some publications for schools have been.

SAIMM Committee

The SAIMM Career Guidance and Recruitment Committee, which has only recently merged with another SAIMM committee, has been responsible for organizing a number of effective activities.

Articles on the minerals industry, as well as on careers in the industry, have been commissioned and published in school journals such as *Archimedes*.

A series of radio talks was broadcast, and members of the SAIMM were invited to speak at careers symposia.

The award of prizes for undergraduate achievements in mineral disciplines has also been arranged through this committee.

Future Policy

Although the activities of the industry appear to be comprehensive and extensive, they are, in fact, only peripheral, and will remain so until a national policy is established that emphasizes the role the minerals industry has played, and will continue to play, in the development and well-being of the country.

The mining industry depends for its survival on manpower with technological skills, but it is unlikely that the present educational system will be able to provide sufficient people with the necessary education and training. The industry is deeply concerned about the state of all education, particularly science education, in South Africa, and has made several suggestions that, it is felt, will lead to improvements. These include ensuring that the education of all young people in South Africa includes an appreciation of the importance of industry, especially the mining industry, to the well-being of the nation, and that commerce and industry assist in the educational decision-making process.

Through the above and other efforts, the industry has barely been able to satisfy the manpower requirements in a slack economy. The present boom conditions are placing tremendous strains on manpower resources, and it is unlikely that any short-term efforts will bear much fruit.

In order to secure a satisfactory supply of personnel in the future, the industry must concentrate on long-term plans, one of which must surely be to establish sound and mutually beneficial liaison with the educational systems, and hence with the next working generation.