

THE MINE VENTILATION SOCIETY OF SOUTH AFRICA — THE BEGINNINGS

Current membership of the The Mine Ventilation Society approaches 1 000 with members drawn from all professions with an interest in the crucial area of providing safe working conditions for the many thousands of mine employees. The society owes its beginnings to a small group of men who in 1944 had the foresight to see the need for an industry forum in which mine ventilation matters could be discussed.

BACKGROUND

Although gold mining in South Africa, in the modern sense, started in 1873 and on the Witwatersrand in 1886, little serious thought was given to ventilation until the beginning of the century.

At the turn of the century the alarming mortality rate amongst miners made the scourge of silicosis only too obvious. The vital need for ventilation was recognized. And so, based on close co-operation between employers, employees and the Government, the foundations were laid for a progressive approach towards dealing with this health hazard.

In late 1901 the Mine Managers' Association asked the Transvaal Medical Society to appoint a committee to meet members of the Association with a view to investigating and also suggesting means of preventing the high mortality rate amongst rock drillers. The meeting was held early in 1902. An investigation programme was formalized. In late 1902 the Transvaal Miners' Association independently approached the Medical Society with a similar request regarding the dreaded dust disease.

The magnitude of the problem can be seen from the reported death rate of 85 per 1 000 per annum for rock drillers during the period October 1899 — January 1902!

The investigation carried out by the Transvaal Medical Society revealed that nearly a quarter of the underground workers either had or were suspected of having 'Miner's Phthisis'. As a result, in December 1902 a Government Commission was appointed to 'enquire into and report on the disease commonly known as Miner's Phthisis'. Following exhaustive investigations, the Commission issued a report in 1903 which contained some important recommendations, including wet drilling, planned and controlled ventilation and precautions against workers entering development ends until they were free from fumes.

Thus, regulations designed to decrease dust production in underground workings were issued in 1905, but these were not enforced with any great enthusiasm. At



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Association meetings discussions on dust could be described as quite frank. For example, one hard-hitting scientist, who was also a member of the Government Mining Engineer's staff, was actually taken to task for his statement that the ventilation of the mines was poor and inefficient and that, as a result, conditions were scandalous. On the defensive against this display of extreme conservatism of some of the mining men the outspoken scientist felt compelled to make the following statement: 'I'm being accused of having recommended artificial ventilation at the ends of drives in addition to the exhaust from the drill. I have never even imagined (much less suggested) anything so drastic as this. The men at the face are of course all right; it is further back that the trouble begins'.

Nevertheless, mining engineers started to consider ventilation very seriously. Plans were made in 1906 to mechanize the ventilation of the East Rand Proprietary Mines. The relative merits of large volume flow rates as

compared with the careful distribution of air was given much thought. The first fans were commissioned in 1908. This led to a paper being presented in 1910 which created world-wide interest. This paper described the ventilation of the first fully ventilated metalliferous mine in the world — the ERPM. Not only was the mine served by main fans but many development ends were also ventilated either by blowers or by a type of air-jet.

By 1910 several other mines were seriously considering mechanical ventilation. Much thought was given to problems of humidity and dust allaying.

In 1911 systematic dust sampling was started by the New Consolidated Goldfields Group using the sugar tube as the sampling instrument.

In 1914 the Chamber of Mines established its dust sampling department. Visits were paid to each mine and each section systematically sampled. The maximum standard of dust concentration (as measured with the sugar tube) was fixed at 5 mg/m^3 . Considering the fact that 10 years prior to this, concentrations of 500 mg/m^3 – $1\,000 \text{ mg/m}^3$ were not uncommon; progress was certainly being made!

Two important events marked the year 1916: Sir Robert Kotze invented the konimeter, thus enabling dust sampling to be placed on a routine basis, and the first dust inspectors were appointed.

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Regulations were instituted in 1917 which made the appointment of dust inspectors compulsory for mines employing more than 1 000 persons. South Africa thus became the first country to put specialists in charge of dust suppression measures in the mines. So, a class of officials was created whose skill and knowledge have increased as their sphere of activity has widened over the years.

By the early 1920s legislation dealing both with dust and with silicosis was far in advance of that of older mining countries. And, to some extent the medical men and the legislators who had played such an important part in the early stages appear to have handed over to the engineers and the scientists.

From the broader aspects of good ventilation the engineer got down to details. The dust had to be found and eliminated, or at least the concentration had to be reduced. Both the usefulness and the limitations of water were realized. Therefore, more attention had now to be given to ventilation



A lack of suitable and easily available records was a burden.

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By 1923, when ventilation staff on mines seldom comprised more than one official, the Chamber of Mines Sub-Committee on Dust Sampling had already realized the importance of a forum for discussing problems and exchanging views on ventilation matters. For this purpose monthly visits to the Chamber of Mines Laboratories were arranged and became the forerunner of the many visits, lectures and meetings organized over the years for the educational benefit of Ventilation Officers. Improvement in status followed when examinations and awards of certificates (in turn, the forerunners of today's certificates) were introduced. This far-seeing policy on the part of the Chamber of Mines was later extended to include substantial support and invaluable assistance to the Mine Ventilation Society.

As the mines were getting deeper, problems of heat began to assume greater importance. The first fatal heat stroke case was recorded in 1925. To combat heat more serious consideration was given to the distribution of air. In addition to main fans, regional booster fans were used to bring about the planned distribution.

The need to continuously control dust levels, aggravated by the introduction of more intensive mining methods and the greater use of mechanization, the extension of mining operations to greater depths and higher rock temperatures and also the growing realization that environmental conditions definitely affect the accident rate and work output finally saw ventilation engineering integrated into the overall mining strategy.

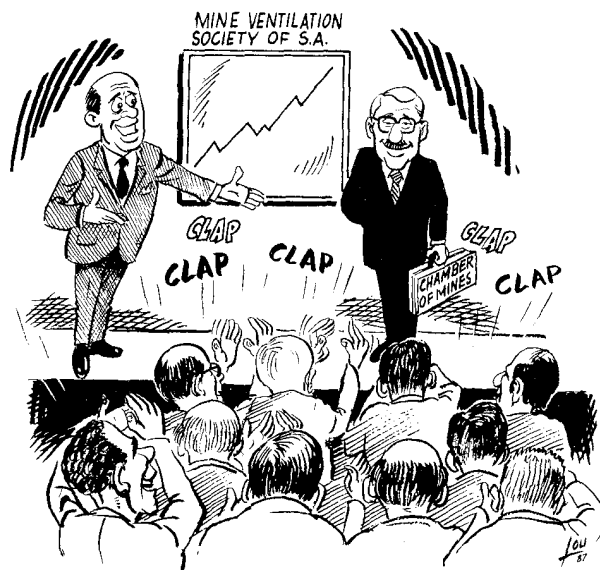
With the growing importance of ventilation engineering the numbers of ventilation officials continued to grow, and the value of forming a Ventilation Society was recognized.

NEED FOR A VENTILATION SOCIETY

Ventilation engineering embraces a wide spectrum of knowledge.

Prior to the formation of the Society, the lack of suitable and easily accessible documentary records covering the fields of knowledge, proved a source of frustration to ventilation men when confronted with solving various problems. Problem-solving proceeded in a somewhat unco-ordinated manner in that each mine or Group provided their own solutions and were unaware of similar solutions elsewhere. Some information was available but in a scattered form. Mostly, however, the ventilation official had great difficulty in obtaining information relating to his work and often had to peruse a plethora of material, much of which was worthless to him.

The need to develop and operate an appropriate documentary and bibliographical service which could record, co-ordinate and distribute information in the form of papers, reports, abstracts, led to the formation of the Mine Ventilation Society. The forerunner of the Mine Ventilation Society meetings were two quarterly meetings of ventilation officials held under the auspices of the Chamber of Mines. A coterie of gentlemen from the Chamber's Dust Department and mine officials met for a friendly game of golf after these meetings, and it appears that conversation during golf went a long way towards stimulating the formation of the Society.



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Thus it came about that on 25 November 1944 prospective members held a general meeting which was chaired by Mr. R.A.H. Flugge-de-Smidt. At this meeting a draft constitution, previously prepared by a provisional committee which included Messrs R.A.H. Flugge-de-Smidt, E.C. Polkinghorne, J. Buist, J.P. Rees and O.B. Swallow, was amended and then approved unanimously.

Mr. P. Mullineux was elected the first President with Messrs J.P. Rees and T. Drury as Vice Presidents and Mr. J. Buist as Hon. Secretary. Sixteen Council members were elected from the districts of West Rand, Central Rand, North East Rand and South East Rand.

The Society laid down as its objects:

1. To advance the science and practice of ventilation with particular reference to mine ventilation, dust control and associated problems.

2. To propagate knowledge amongst ventilation officials by the dissemination of information verbally, by means of printed matter, visits, meetings and other suitable means.
3. To hold meetings of members and interested persons or bodies, for the purpose of promoting discussion on matters relating to ventilation and dust control.
4. To promote personal contact and co-operation amongst ventilation officials and other interested persons.
5. To uphold the status and interests of the members of the Society and to consider, discuss and deal with all matters affecting the general professional interest of members.
6. To do all things compatible with the professional status of the Society which may be necessary or desirable for the attainment of the above objects.

The affairs of the Society were and are still handled by several committees. Thus, launched initially by enthusiastic pioneers with great foresight, the Mine Ventilation Society of South Africa has continued to grow and flourish. Its members have always faced their challenges with determination, ingenuity and encouragement from fellow members.

Often, leaders of the Society have looked to leaders and members of the past to provide inspiration and guidance on what course to set for the future. Each succeeding generation of members has found a solid foundation upon which to build and, fired by the enthusiasm evident in the activities of the Society, have in turn shown great enthusiasm and many have risen to great heights and earned widespread respect. This sort of interaction provides stimulation and in turn promotes further growth.

Tribute is paid to the many individuals and groups of individuals for the formation and running of the Society and also to the vital role played by the Chamber of Mines in the affairs of the Society.