



**THE SOUTH AFRICAN
CHEMICAL INSTITUTE**

1912-1987

by

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Preface

The central theme of the founding objectives of the South African Chemical Institute in 1912 was to sustain and promote the status and integrity of chemistry and its practitioners. Now, 75 years on, our predecessors would be reassured to see how securely they built. Those early objectives are enshrined in our modern constitution, and the Institute, through its large membership and national character, brings its influence to bear upon every facet of the science and profession of chemistry in South Africa.

Our 75th anniversary is also an opportune time to apply the lessons of the past to the formidable challenges which face the profession and the society in which we function. This booklet turns back the pages of history and reminds us of that proud past. It also reminds us that modest beginnings undertaken with vision and zeal may yield rich dividends!

We look forward to as much incident and progress during the forthcoming 75 years.

It is a privilege to acknowledge our indebtedness to Mr Doug Gray for compiling this document — his authorship provides a happy link with our origins, since his father, Mr James Gray, was the leading figure in the founding of the Institute in 1912.

Dr J.R. Bull
President

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Introduction

The history of the South African Chemical Institute has been written on two occasions. The first account was prepared by Principal H R Raikes who was President at the time of the twenty-first anniversary in 1933 and the second was compiled for the Golden Jubilee in 1962. It appeared in the pages of "The South African Industrial Chemist" in the January 1963 issue. The authorship is uncertain but it is suspected Dr Ken Mathieson, the enthusiastic editor of this journal, was responsible.

The two aforementioned accounts have proved of considerable value in preparing this review of the history. Another important source of information was the comprehensive series of Annual Reports which have been published each year and contain a chronological account of events. It is hoped the reader will refer to them if necessary.

The birth of the Institute in 1912 happened only twenty-six years after the discovery of gold on the Witwatersrand in 1886. The general infrastructure for the gold mining industry was very new and still developing. The chemist population was small throughout the country and training facilities were still being established. James Gray, who is reputed to have been the driving force behind the founding of the Institute, was born in Cape Town in 1882, his father having settled there after leaving his job as a ship's engineer in a vessel ferrying troops to the Zulu war. In 1889, when his father moved to the Witwatersrand to the newly developed gold mines (a Rand Pioneer), James was sent to relatives in Glasgow for his education. When he returned, a qualified Associate of the Institute of Chemistry from the Glasgow Technical College in 1902, he went to the Witwatersrand but could not get a job as a chemist and had to work as a mine surveyor. After a while he was employed in Heymann's Laboratories as an Analytical and Consulting Chemist but started his own business about 1910. One can imagine, at that time, there was almost an obsession to have the chemical profession recognised as there was no way the public could distinguish the unqualified practitioner from the qualified. This therefore was one of the main objectives of the Association of Analytical Chemists when founded.

As a general rule, unless there is a particular relevance to the text, names are not mentioned in this account and the reader is referred to the Annual Report for the year in question if he requires further information.

Formation and Membership

In 1912 the only South African organisation embracing the interests of chemists was the Chemical, Metallurgical and Mining Society of South Africa (now the S A Institute of Mining and Metallurgy) which had been formed in 1895. This Society had been responsible for valuable work in the advancement of the chemistry and metallurgy of the gold mining industry. The Cape

Chemical Society had existed since 1906 but its activities were confined primarily to Cape Town and its environs. The Chemical Metallurgical and Mining Society existed for the advancement of chemical knowledge, and though an attempt was made in 1911 to widen its scope to include matters of a professional nature affecting chemists, this endeavour was unsuccessful as its Constitution was not sufficiently flexible. It was a cosmopolitan body embracing many interests not necessarily of a chemical nature and consequently the interest of chemists could not receive the sympathetic attention required. In existence also in 1911 was the S A Association for the Advancement of Science (S.A.A.S.). This was a multi-disciplinary association of scientists, established in 1901, and though there existed a section within this body for chemists, its nature precluded its selection by chemists as a home for their discipline. As a result of discussion among chemists of the day it was decided to form a body, truly representative of chemists, which would protect their professional interests, within the Union of South Africa.

During November 1911 Mr James Gray addressed a circular letter to as many practising chemists in the Union as possible (at that time it was estimated there were not more than 100 chemists in South Africa who would be entitled to membership of a professional society). The reply was so satisfactory that a meeting was held in Johannesburg on 26 January 1912 at which it was decided to form the S A Association of Analytical Chemists. In those days the facilities for training chemists were few and the result was the majority of chemists had obtained their training overseas. The industries which employed chemists were limited and many a well trained and efficient chemist had to find employment in any assay office where the need for a great knowledge of chemistry was much less than it is today. The S A Association of Analytical Chemists was founded with a total of 22 members, but this number grew quite rapidly and at the end of June 1914 there were 39 members.

The basic model for the Association was the Institute of Chemistry of Great Britain and Ireland. It is interesting to note that the Australian Chemical Institute was founded in 1917 and the Canadian Chemical Institute in 1919. In James Gray's Presidential Address in June 1923 he mentioned that the American Institute of Chemistry was in the process of formation. The Association changed its name to the South African Chemical Institute during 1921 and this was done as the title "Analytical Chemists" rather restricted the scope and objectives of the Society.

Throughout the years the Institute has been concerned with the status of the chemist in the eyes of the community and the lack of understanding of the functions of a chemist. Highlighted at the Annual General Meeting on 6 July 1918 was critical comment of the text of an advertisement for the Department of Agriculture, "practical proficiency in general analytical work is the main qualification required, and a high standard of theoretical knowledge is not essential". Also there were strong objections to the pharmacist being titled

"chemist and druggist" and in this respect the Institute made representations against the use of the latter term in place of the former in the Medical, Dental and Pharmacy Bill brought to Parliament in 1925, but without avail. In 1987 this matter is still unresolved but in the present climate the protests are less vehement.

There was much talk, even in the very earliest days, of the Institute bringing a private members Bill to Parliament for protection of the chemical profession by registration, but inevitably the cost of such action was a stumbling block. It is noted in 1924 that discussions were held with Mr Patrick Duncan, who was then Minister of the Interior, regarding a private Bill at the time of revision of the Medical, Dental and Pharmacy Bill. However the cost of such a Bill would have been £3 000 which was not available. It is interesting to note that later Sir Patrick Duncan was the first South African Governor-General. In 1926 the Institute investigated the possibility of petitioning His Majesty the King with a view to obtaining a Royal Charter. However Council was informed this petition could not be received. Throughout the years the question of registration of chemists has been discussed by the Council of the Institute and in 1945 a Draft Chemical Bill was drawn up. The matter did not progress further but still occupied the interest of Council until 1951 when the Institute aligned itself with AS & TS who were considering a Bill for Society registration. This led to a referendum on registration when members voted on the compulsory registration of the individual. There was a total poll of 59 per cent, 144 being in favour and 384 against.

The matter was shelved for a while until 1971 when the Joint Council of Scientific Societies (JCSS) raised the question of the registration of scientists on an individual basis. However the Council of the Institute was of the opinion that the possibility of registration of scientific societies should be investigated.

The JCSS was formed in the 1960s as a body which could look after the interests of scientists in general. The Institute has been a member since the Society's inception, and has also represented the interests of a number of smaller bodies.

In 1976 a poll conducted by the JCSS proved an overwhelming majority of members of the affiliated Societies were in favour of professional registration and, based on this, draft legislation was prepared. Eventually in 1982 the law for the registration of natural scientists was passed by Parliament and the South African Council for Natural Scientists (SACNAS) was established as from 1 September 1982. It could be claimed that the objective of registration established by the founders of the Institute had at last been achieved.

Membership of the Institute with voting rights (corporate membership) up to 1963 was available to those with a three year degree in chemistry or equivalent qualification. In 1963 this was changed and, except in special circumstances,

only those with honours degrees in chemistry, or the equivalent as adjudged by Council, or under special circumstances, could become corporate members. Chemical engineers were thus not admissible as corporate members as they had not been given adequate training in chemistry. Membership had reached a peak in 1964 at 1 166 members, but began to decline quite dramatically and in 1966 was 999 and by 1971 had fallen to 868. Thereafter it recovered slowly. It seems quite clear that this drop in membership arose from the formation of the S A Institution of Chemical Engineers in January 1964. Many chemical engineers had found their chemical home in the Institute and it is not surprising that on formation of a society catering for their own discipline they resigned from the Institute.

Council was aware of the loss of members and in 1971 was particularly anxious that chemical technicians who were receiving their qualifications from the local Technikon should become members of the Institute. In 1971 the Constitution was altered to admit these candidates and to give them reasonable hope of progression to corporate membership. Subsequently the membership regulations have been revised to regularise the situation regarding chemical technicians.

In 1973 a clause was established in the Constitution to allow companies to take part in activities of the Institute. Two grades of membership were established, namely company and patron membership. As at July 1986 there were 4 patron members and 40 company members. The support of these companies has been of great assistance to the Institute.

It had been realised for some considerable time that only a small portion of the chemists in South Africa were members of the Institute, and it was decided to ask the Human Sciences Research Council (HSRC) whether use could be made of their mailing lists, which were adjudged to be the most comprehensive available, to send a letter to all chemists inviting them to join the S A Chemical Institute. This was done during 1980 and in the next two years there was an increase of 167 members. It can be assumed that some of the increase was due to this "advertising campaign".

Association with the AS & TS

Until 1920 all the meetings of the Institute were held at the S A School of Mines and Technology Building. From then, with the formation of the Associated Scientific and Technical Societies of South Africa (AS&TS), the meetings were held at the Scientific and Technical Club, 100 Fox Street, Johannesburg. The Institute was one of the ten societies which were foundation members of the new body. An assessment was raised by the AS & TS on all constituent societies to run the club and this practice has continued throughout the years, though the nominal amount has increased considerably.

In the early days the levy charged was added to members' subscriptions as a separate amount and a smaller levy was debited to those living outside the Witwatersrand area. Though this differential has fallen away, members living outside the Witwatersrand have always paid a lower subscription than Witwatersrand members.

The services provided by the AS & TS have been extended to provide full secretarial services and from these the Institute has benefited and continues to do so.

In 1937 the AS & TS moved to new premises in Kelvin House at the corner of Marshall and Hollard Streets. This move was made possible by the generosity of the Chamber of Mines. In 1962 the building was renovated and reconstructed, being recommissioned in 1963. The Institute contributed financially towards the refurbishing.

Throughout the years a number of Institute members have served as President of the AS & TS, the first being Dr J McCrae in 1927. The Institute has benefited from its association with this body of technical societies whose total membership at the end of June 1985 numbered 42 139. One benefit in the early days was when, in 1924, the Government issued the broadcasting licence for Johannesburg to the AS & TS, no financial responsibilities being placed on constituent societies or their members. During the year following fortnightly broadcast talks were given by members of the Institute and the opportunity was taken to bring knowledge of the functions and ability of chemists before the public. Without doubt the Institute and the chemical profession gained from this source of publicity.

Local sections and conventions

Of the total of 36 members and associates whose names appear on the first membership list (September 1913) of the S A Association of Analytical Chemists (now the S A Chemical Institute), 11 were resident in other provinces than the Transvaal. The national character was established right at the beginning. In 1912 travel was dependent on the railway system and generally quite slow. It was not practical for Council members resident outside Johannesburg to attend Council meetings which were held 8 or 10 times a year and there was a provision in the By-laws which reads as follows: "Members of Council residing more than 50 miles from Johannesburg shall be at liberty to appoint alternates, who must themselves be resident within a radius of 50 miles from Johannesburg."

Dr Juritz who was the third President in 1914-15 was resident in Cape Town. He opened his Presidential address with the following words: "The honour

you have bestowed on me a year ago in electing me as President in spite of my residing many hundreds of miles distant from the headquarters of this Association . . ." This set the scenario for federal development. Other Presidents who followed him, Jamieson 1915-1916 and Denison 1916-1917 were resident in Natal.

In 1918 it was reported that the enlargement of Council to obtain better representation of Members resident at a distance from the headquarters was considered by Council but after considerable discussion it was decided this was impracticable. As a result of this discussion it was hoped that members outside Johannesburg would shortly form local sections on the same lines as obtained in Johannesburg. Johannesburg members had since 1914 held general meetings on a monthly basis for the purpose of discussing chemical and allied matters.

In 1922 the possibility of the formation of a Section in Cape Town was discussed. The possibility of amalgamation with the Cape Chemical Society was investigated but was not fruitful. About the same time a section of the Institute of Great Britain and Ireland was formed in Cape Town. As this was done without reference to other members of the Institute resident elsewhere in South Africa, Council was very concerned.

The Natal Section was formed in 1927 under the chairmanship of Mr Blewett of Knyochs. Subsequently, during March 1929, an afternoon visit was held at the Government laboratories in Pretoria, and, in the evening, papers were delivered by Pretoria members of the Institute under the chairmanship of a Pretoria member. Following on this the inaugural meeting of the Pretoria Section was held on 15 November 1930 and 50 members of the Institute attended including a contingent from Johannesburg. The principle of rebates paid by Council to Sections was inaugurated in the following year to enable them to operate and meet out-of-pocket expenses.

The 21st Annual General Meeting was held in Polley's Hotel in Pretoria and Principal H R Raikes of the University of the Witwatersrand presented the 21st Presidential address.

At this time the Natal Section was flourishing and by recruiting members had done much to improve the finances of the Institute.

During 1934 a Local Section was formed in the Eastern Province and the Johannesburg Section was formally constituted in September 1934, though it had been functioning actively throughout the years. In 1942 the Johannesburg Section became known as the Southern Transvaal Section.

Consultants had advised Council during 1942 that for development of the Institute it should be reorganised on federal lines and more autonomy should be

given to the Local Sections. Shortly after this, at the instigation of Mr J E Worsdale, a Local Section was founded in the Western Province under the chairmanship of Mr H J Koch.

The Local Sections were responsible for organising all the Institute activities in their areas. As the years passed they retained financial receipts for all their activities of a local character and had complete autonomy in their own administration. Profits accrued from activities of a national character, which includes conventions, go to the general funds of the Institute.

The first Convention of the Institute was held in Johannesburg in June 1947 and was organised by Mr C F Lindemann. These Conventions were organised by the various Sections on a rotational basis and held annually until the 24th Annual Convention in Durban in 1975. Usually July was the chosen month but, due to the rainy season in the Cape being in July, the Cape Conventions took place in February. Subsequently the dates of other national events, such as the IUPAC Symposia, have clashed with the Convention dates, and in recent years the Convention has not been held on an annual basis. As a general rule Conventions are now held bi-annually. The word Annual has been dropped from the Convention title.

In 1958 a Vaal River Section was formed. This was the outcome of a Section Convention held in Vereeniging previously and the new Section comprised the industrial complex in the Vaal River basin. Many of the interests of this Section were in the field of chemical engineering and its life did not survive the drift of chemical engineers away from the Institute in the early 1960s when the SA Institution of Chemical Engineers was formed.

It has been realised for a number of years that the name of the Pretoria Section did not properly describe its sphere of influence and interests and the name was changed to the Northern Transvaal Section recently, in 1985.

Chemistry is a very diverse subject and its practice covers many different disciplines. "Splinter" groups specializing in chemical technologies are active and as a result of discussions with members of a number of these groups it became evident that they would be interested in operating under the umbrella of the Chemical Institute. To meet this need the necessary adjustments to the Constitution and By-laws were made and rules were drawn up for the "Conduct of Subject Sections". Two Subject Sections are now within the Institute, their interests covering the subjects Chromatography and Mass Spectrometry.

The Chairmen of all Local Sections and Subject Sections are "ex officio" members of Council. Thus the Sections have a voice in Council and their presence emphasises the federal nature of the Institute and also keeps Council

and the other Sections well informed of the Institute's activities in other parts of the Republic.

Meetings

In the Report of Council dated June 1915 there is a note that "the Johannesburg members of the Association have agreed to meet monthly for the purpose of discussing chemical and allied matters, and the meetings so far have been well attended and the subjects discussed of great interest. This also affords an opportunity of social contact, which cannot fail to be of great value to the Members and to the Association."

These meetings continued through the years and the titles of papers delivered are listed in the Annual Reports from 1915 - 1916 onwards. Many of the papers delivered at these meetings were published in the Journal which first appeared in 1918.

Miss M G Brandwijk (now Dr M G Breyer) joined the Institute in 1925 as an Associate, becoming its first woman member, and on 23 February 1926 had the distinction of being the first of her sex to deliver a paper to the Institute. Dr Breyer has become well-known for her work on the chemical constituents and pharmacological action of plants. When she arrived in South Africa she had a degree from the University of Utrecht in Holland but also had qualified as a pharmacist. Council in its wisdom would only admit her to the Associate grade of membership. However she soon remedied this situation and graduated as a Doctor of Science in chemistry at the University of the Witwatersrand in 1935.

The first lecture in Afrikaans was given during 1931 by Mr D J R van Wijk, BA MSc of the Division of Chemistry, Department of Agriculture, Pretoria. Mr Van Wijk had already contributed to the Institute with lectures in English and the records show that he had delivered two papers at the Institute's monthly meeting on 29 April 1924.

It is interesting to note that Institute members, during 1924 and 1925, had given a series of eleven fortnightly radio talks on chemical subjects on the new radio (wireless in those days) station JB. The broadcasting licence for Johannesburg had been issued by the Government to the Associated Societies.

Monthly meetings continued in Johannesburg for many years though even in 1921 there were rumblings of poor attendances. As the Local Sections were formed they adopted their own lecture programmes and these have continued through the years depending on the area and the enthusiasm of members. In the Southern Transvaal the monthly meetings have been replaced by symposia, seminars, mini-courses and significant events such as medal presentations. The

programmes of the Sections are reviewed in the Annual Reports which are issued to members yearly. However the spread and growth of the urban areas has tended to militate against the holding of regular monthly meetings.

Publications of the Institute

Office Bearers for the first year of operation of the S A Association of Analytical Chemists were appointed at the Council meeting held at the School of Mines in Johannesburg on 5 June 1912. The review of the year followed from July 1912 to June 1913 is given in the Proceedings published in September 1913. This publication includes the Minutes of the First Annual General Meeting held on 23 June 1913, Dr J McCrae's Presidential Address and the Annual Report and Accounts for the period under review. Publication of the Proceedings as a separate document appears to have continued until 1946 coinciding with the appearance of the "S A Industrial Chemist" in 1947.

To advertise the work of the Association the Proceedings of 1913 - 1914 were issued to all who might be likely to be interested in its work and aims and the following year an extra 500 copies were printed for general distribution. Also it was reported that advertisements were published to defray the costs of these extra copies. The cost of printing and postage of the Proceedings for the year ending 1916 was £17.11.3 which seems very modest by today's standards.

The Proceedings for 1914 - 1915 contain details of an Appointments Register, which had been established, and a report to Council by a sub-committee giving statistical information concerning legal standards for foodstuffs, and particularly dairy products, in various parts of the Union of South Africa. Later in 1916 - 1917 the Proceedings contained a sub-committee report on "The Duties and Responsibilities of Government Analysts". In this report salaries were reviewed on a comparative basis and representations were made to improve the lot of government chemists. The report was circulated widely with the Proceedings and as a result members of the Association appeared before a Public Service Commission of Enquiry in 1919.

The first issue of the Journal of the Association appeared early in 1918 and contained an interim report of activities during the last half of 1917. The Journal was issued at the request of the members outside the Witwatersrand to help them to keep in touch with activities. At that time in view of the financial situation it was decided to issue the Journal twice a year and that each issue would contain about 20 pages. During the year the Association arranged a number of publication exchanges which continue to the present day. A five yearly index for the Journal was issued in 1922.

In 1924 to stimulate interest in the Journal, Mr W Buchanan Gray donated £5

for the best essay on "The Advancement of Status of the Chemist" to be published in the Journal. Only one entry was received and the prize money was donated to Institute funds.

A commemorative publication of the Journal was issued in October 1933 containing all the addresses delivered during the 21st Anniversary Celebrations. At this time the Journal was criticised by those who doubted its value, but members of the Natal Section insisted it was the only means of keeping contact between members.

In 1935 African Explosives and Chemical Industries Limited offered a donation of £5 to be awarded annually to the presenter of the best contribution to the Proceedings from any of the Sections. This was the first time a prize had been offered for a paper presented by a member of the Institute.

During the years consideration has been given to the circulation of newsletters on a regular basis to keep members informed of the day to day activities within the Institute. Annual Reports and Journals do not really cater for this and the news they contain is usually outdated. In 1938-1939 the matter of issuing a monthly newsletter was raised but apparently nobody with sufficient enthusiasm was available to prepare a suitable document. However, for a while, one appeared in 1942 under the editorship of Mr H D Barnes. Newsletters have appeared over the years from time to time since then. Over the past four years, since 1982, regular newsletters have been sent out but these are the result of the dedication of the President in office at the time.

Since 1947 the spread of news about activities in the Institute was improved by a publication received by members in addition to the "Journal" namely, "The S A Industrial Chemist". This publication was followed in later years first by "Chemical Processing" and then by "ChemSA". The Institute is indebted to the succession of Consulting Editors who have had difficulty in maintaining the normal quota of hair on their heads in keeping the news pages of these journals full.

"The S A Industrial Chemist" first appeared in 1947 under the editorship of Dr K A Murray. This was a news magazine which, apart from papers of a general nature, carried news of the Institute. In view of the introduction of this new publication the Journal appeared in a new format in 1948 and was restricted to research papers. Dr Murray was Editor for both the Journal and "The S A Industrial Chemist" until 1952 when the two publications became separate entities with separate editorial boards co-ordinated by the Publications Committee. At this stage Dr Mackenzie took over responsibility for the Journal and Dr Murray continued as Editor of "The S A Industrial Chemist" until 1956 when he handed over to Dr Ken Mathieson.

In 1960, as a service to chemists, a list of current research work being conducted in South Africa was published in the Journal. This was welcomed by readers.

Sales of the Journal and a limited amount of prestige advertising supported its publishing costs. Any shortfall was taken from the funds accumulated by the Institute. At the same time the Institute received a small share of the profits of "The S A Industrial Chemist" which was published independently. Up to 1961 this share averaged about R1 000 per annum but the amount started dropping until a loss of R1 570 was incurred in 1965. This loss was attributed to the employment of a paid part-time Editor as an interim measure to assist in the publication. Coupled with the loss in advertising revenue the additional cost contributed to the deficit and, as a remedy, it was recommended that a full-time editor be employed. At the same time Council obtained the title "S A Industrial Chemist" from the owners Messrs L S Gray & Co (Pty) Ltd. Employment of a full-time Editor led to an improvement in standards, but not sufficient advertising was collected to justify publication on this basis. The loss for the year ending May 1966 on the publication was R7 560.

So that publication of a news Journal could be continued Council, in collaboration with the S A Institution of Chemical Engineers, negotiated with Thomson Newspapers (Pty) Ltd and agreed to sell them the title "S A Industrial Chemist" for a payment of R750. It was agreed that this title would be consolidated with "Chemical Processing" which would be issued quarterly to all members of the Institute and be the official news publication.

With the losses incurred by "The S A Industrial Chemist", the publication account including the Journal was unacceptably high. However in 1967 a donation of R500 was received from the Department of Education, Arts and Sciences towards publication costs of the Journal. In the following year the Department of Cultural Affairs increased this donation to R1 500 and in the eight years to 1975 the donations received from Government toward the publishing of the Journal were R15 619. Based on the 1968 donation it was decided to publish three issues of the Journal each year and this gave authors the chance of having their papers published more speedily than in the past.

"Chemical Processing" continued to publish to the satisfaction of all concerned. After starting as a quarterly publication it was decided to publish bi-monthly, though at the time Thomson Newspapers were doubtful that the advertising revenue justified the frequency.

In 1969 it was reported that the Journal was abstracted by Chemical Abstracts and its contents listed in Chemical Titles, Current Contents, Index Chemicus

and Current Chemical Papers. During 1970 nineteen papers presented at the 1969 IUPAC symposium which was held in Johannesburg, were the subject of a special issue of the Journal. Also at this time the Institute concluded an agreement with University Microfilms (USA) for the reproduction of all issues of the Journal on microfilm.

The cost of publication of the Journal continued to be a fairly heavy drain on the Institute's resources, but this was reduced considerably by the generous donations from the Department of Cultural Affairs and from the S A Chemical Foundation who, in the years from 1972 to 1975, contributed R4 200. As from 1972 the dates of publication were altered to February, June and September and in October 1972 a special edition was issued containing the papers delivered at the Symposium on the Analytical Chemistry of the Platinum Group Metals. Consideration was also given to ways and means of making the publication more attractive to authors.

At this time "Chemical Processing" appeared for the first time in the international metric A4 size. However general dissatisfaction was being expressed at the management policy of this publication and the small financial returns received and, after discussions with the S A Institution of Chemical Engineers, it was decided it would be in the best interests of the Institute's membership to terminate the agreement when it ended on 30 September 1974.

An agreement was entered into with Keeble-Prins to publish a new journal to replace "Chemical Processing" and the first issue appeared in November 1974 under the title "ChemSA". The Institute's partners in this venture were the S A Institution of Chemical Engineers and The Transvaal Chemical Manufacturers Association. Keeble-Prins had agreed that the three associations were the owners of the publication. "Chemical Abstracts" and "Current Contents" accepted the magazine for their abstracting and indexing services.

The Foundation for Education, Science and Technology (FEST), had established the Bureau for Scientific Publications and agreed to publish the Institute's journal under the title "South African Journal of Chemistry" and the first issue appeared during 1977. This relieved the Institute of the whole cost of publication but it was agreed the Bureau would distribute copies to all registered members for which the Institute would pay a determined amount for each member. It was intended that the Journal should be published on a quarterly basis, and the Institute retained full responsibility, through its editor and editorial committee, for the content, refereeing and editing of all papers accepted for publication.

To encourage contributions to "ChemSA" a prize of R100, the Mischa Mroost Prize, was established for the best paper published on a chemical subject. The

first presentation was made for a paper published in the February 1977 issue of "ChemSA". One of the problems with "ChemSA" was the excessive number of printing errors which appeared in the published text. This problem was the subject of correspondence between the Publications Committee and the publishers and has remained an issue of concern.

Publication of the Journal proceeded satisfactorily except that, with staff problems at the Bureau, publication was not so rapid as could be expected in the early stages. The support by authors was not up to expectation and ways and means were sought to improve the position. A promotional campaign was started in 1980 whereby the Journal was sent to a number of chemistry departments of several overseas universities, and this elicited favourable comments from some recipients. In 1982 a total of 44 papers (182 pages) were published in the Journal, partly due to excellent support received for a special issue devoted to the Diamond Jubilee of the University of the Witwatersrand. It was obvious that special issues of this nature were advantageous as the number of papers published in previous years were as follows: 30 (1980) and 29 (1981). In 1984 the Journal published 41 papers in 198 pages. One issue was largely devoted to papers dedicated to the 50th Anniversary of Mintek. Its citation record for 1983 as published by the Institute of Scientific Information showed an impact factor of 0,534 and a ranking of 41 out of 69 journals on general chemistry. An even more successful year was 1985 when 47 papers were published with 214 pages. The impact factor had improved to 0,778 and its ranking to 31 out of 67 journals.

In 1986 "ChemSA" continued to publish papers in general chemistry as well as news about the Institute. The time had come to re-negotiate the agreement with the publisher. The S A Institution of Chemical Engineers had decided to withdraw from the joint publication. No decision has been made by Council at the time of writing and this aspect is part of history to be included in the next instalment.

Education

The Institute has been interested in chemical education since its inception as the S A Association of Analytical Chemists. The following account traces the educational aspects of its activities through the years.

In 1914 the Constitution was altered so that Mine Assayers could join as Associates and the original rules were changed to allow the Associate grade to accommodate them. Associates could only achieve voting rights if they were admitted as Members. Mine Assayers were an important group of people doing chemical work and it was acknowledged that the Association should recognise them and admit them into the organisation even though their train-

ing did not qualify them for corporate membership.

In 1916 it was reported that Council was actively engaged in discussion with the Department of Mines and Industries regarding the motivation of a certificate of competency for assayers. Subsequently, in 1917, the Association was advised that the Government had promulgated new Regulations under the Mines Act to make provision for the certification of Assayers on the lines laid down in the Association's recommendations. The regulations required that all Chief Assayers performing certain work under the Mining Regulations must be in possession of a certificate of competency and by 1918 over 100 of these certificates had been issued.

The movement to start the formation of a University on the Rand began in 1916-17 and on invitation the Association appointed a representative to the Witwatersrand University Committee.

During 1924 the Constitution was changed to allow for the admission of student members.

The Institute's examination for membership was introduced in 1929 and Council obtained the co-operation of the Witwatersrand Technical College to provide progressive classes in chemistry, physics and mathematics. It was only in 1938 that the first candidate presented himself for the examination. Unfortunately he was unsuccessful. This route for obtaining full corporate membership of the Institute was not used for a long time and it was only in 1965 that a candidate was successful in the examination. The next examination entry was in 1970 and the exams were held on an annual basis until 1977. With the establishment of the Higher National Diploma by the Colleges for Higher Technical Education (Technikons) in 1978 the Council reassessed the position and decided to withdraw its own qualifying examination and to admit candidates with the Higher National Diploma qualification as corporate members. During the currency of the qualifying examination 42 candidates wrote the examination and 21 passed.

The Southern Transvaal Section of the Institute was constituted in 1942 and took over from the Johannesburg Section which had been operating since 1934. In 1955 the Section decided to run what was called a "Summer School" on Gas Chromatography. This was very successful as it was well attended and evidently met a need among the chemical community. A charge was made for attendance and this proved a useful source of revenue to the Institute's funds. Since 1960 these schools have had to be deferred to the winter months, due to the lack of available accommodation. They are now known as "winter schools" and the schools are an annual event and with a number of other events, such as workshops, symposia and mini-courses, form part of the Sec-

tion's annual programme. There is a definite need for these functions as evidenced by the attendances. The fees charged for attendance are on a 'break even' basis on an estimated attendance but their popularity is such that normally a profit is made. In recent years the other Sections have been running similar events and the result is that their finances are generally flourishing.

In 1926 the Institute was invited to nominate two members to serve on the South African committee of the International Union of Pure and Applied Chemistry (IUPAC). Institute members have served on the committee since that date and at present there are four members nominated for a two-year term and these members include the President and the Chairman of the Education Committee. Chemical education is an important part of IUPAC's interests and all publications produced are available to the Institute's members. Also regular conferences are held in various countries of the world and these are open to members. Apart from its directly educational activities IUPAC organises international conferences and symposia. Three of these have been held in South Africa under the auspices of the CSIR. The Institute has been active in the organisation and has helped with the financing of these functions. Those referred to are the following:

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| 1969 | International Symposium on the Chemical Control of the Human Environment. |
| 1982 | 13th International Symposium on the Chemistry of Natural Products. |
| 1985 | 6th International Symposium on Mycotoxins and Phytotoxins. |

In addition to these symposia the Institute provided manpower on the organising committee and some of the finance for the First and Second International Symposia on "Analytical Chemistry in the Exploration, Mining and Processing of Materials". These were held under the aegis of IUPAC respectively in 1976 and 1986.

Throughout the years members of the Institute have served on the committees of various bodies such as the Department of Education, Arts and Science and have collaborated with other societies in discussing the deficiencies in education from matriculation to university level.

In 1963 the Education Committee set itself the task of drafting a chemistry syllabus for high schools and compilation and publication of a brochure, for distribution to school children, setting out the advantages of chemistry as a

career. Also among the other objectives were to hold a Convention for gifted scholars from schools throughout the country and to give financial support for a chemistry exhibit housed in the Museum of Science in Pretoria. The various projects would require finance and an appeal was made to industry for the necessary funds. AECI Limited made a generous donation of R2 000. It was reported the following year that a bilingual brochure on chemistry as a career had been published as a special issue of "Archimedes" and approximately 14 000 copies had been distributed. The brochure had also been bound as an Institute publication entitled "Your Place in the New World of Chemistry". The cost of the brochure was taken from the Education Fund.

The High School Chemistry syllabus drawn up by the committee was accepted by the Joint Matriculation Board, during 1965, for implementation in 1969. The Committee subsequently undertook the preparation of a teacher's guide for the Joint Matriculation Board.

It was decided the Convention for gifted scholars would not be pursued as a Congress of a similar nature was being organised by the Foundation for Education, Science and Technology (FEST).

The Institute has maintained its contact with the Convention for gifted scholars as organised by FEST. Its members have assisted in this function and in 1974 a prize was donated (one year's subscription to "The Scientific American") to each of the girl finalists in the 11th National Science week examination run by FEST.

The Institute's interest in encouraging young people to study chemistry as a subject at school and at university has been supported by the Transvaal Chemical Manufacturers Association (TCMA) who have worked in association with the Institute on a number of projects. In 1968 the TCMA established the S A Chemical Foundation to enable it to provide a source of funds for sponsoring worthwhile projects and to enable chemical industry to fulfil its role as a major force in the South African economy. Funding of the Foundation is from levies raised on employers in the chemical industry. As one of its activities the Information Centre on the Chemical Industry was established in Johannesburg.

As the objectives of the TCMA are very similar to those of the S A Chemical Institute the Foundation has encouraged the Institute by financing a number of its undertakings. In particular a reissue of the brochure "Your Career in Chemistry" and the advertisement and article on a career in chemistry in the annual publication "Opportunities for Matriculants" can be mentioned. For a number of years the S A Chemical Foundation has funded a series of demonstration lectures to matriculants in different centres of the Republic. In

some instances eminent overseas speakers have been brought out to give these lectures but many local speakers have been used. The Institute has been active in organising these lectures.

For many years the Institute has felt it required a Liaison Officer to establish greater interest in chemistry as a career subject among school children. The problem was mainly financial as the activity cannot be operated on a part-time basis. Discussions on this subject started with the TCMA and the S A Institute of Chemical Engineers in 1982. The project was investigated by a consultant and found feasible. Funds became available in 1986 and an educational liaison officer was appointed and the Institute is committed to an outlay of R3 000 per year on this project for a three-year trial period.

Another project undertaken by the Institute was initiated by the Southern Transvaal Section Committee in 1976. It was proposed that consideration be given to providing a co-ordinated training programme for laboratory workers in the Chemical Industry. Many of these are not matriculated but perform basic laboratory procedures. A syllabus was proposed and the matter was discussed with several chemical companies who expressed their enthusiasm. Due to problems in running the course privately in industry the whole matter was referred to the Department of Education and Training. It was received enthusiastically but progress was very slow. However, in 1984, the Institute was advised that the proposals had been accepted and that a course would be instituted in May 1984.

From time to time the Institute in association with the S A Institute of Physics has sought closer contact with science teachers at schools. As a result in 1976, a fairly close liaison was developed with the S A Association of Teachers of Physical Science. Since then members of the Institute have participated in workshops held by this body.

The Institute holds meetings with chemistry teachers at Universities and Technikon and members attend national symposia on education subjects. When the De Lange Report appeared the relevant sections were summarised for members in an article in "ChemSA". Comments on the report were sent to the authorities concerned.

Concern had been expressed at the diminishing role of practical work in school chemistry and the Institute supported Dr P Lynch when he appealed in 1974 to schools and universities to provide information. Dr Lynch published a comprehensive report entitled "The nature, purpose and organisation of practical work in high school and universities in the Republic of South Africa". This report appeared in 1979 and the Institute shared the cost of publication with Dr Lynch.

At the request of the S A Chemical Foundation the Institute investigated ways and means of introducing the "Best Chemistry Teacher Award" in 1977. It consisted of an inscribed bronze medal and a R200 cash prize. The award was presented in two successive years but due to administrative difficulties and lack of support from teachers has been discontinued.

The Honours and Awards of the Institute

At a Special General Meeting on 28 May 1929 the grade of Honorary Member of the Institute was introduced and later that year Mr James Gray became the first Honorary Member. In 1933 to mark the occasion of the twenty first anniversary Dr John McCrae, the first President of the Institute, was made an Honorary Member. Honorary Membership was the first honour bestowed by the Institute and it is granted for services to the Institute and the profession of chemistry.

The Gold Medal of the Institute is the premier award and is given to persons whose contributions in the field of chemistry or chemical technology are considered to be of outstanding merit. This was not the first award to be instituted but is the most important and was first proposed in Council in 1965. The medal was designed by Prof J Fassler. Prof F L Warren was the first recipient of the Gold Medal which was awarded during the proceedings of the 20th Annual Convention in Durban in July 1967.

The "Raikes Medal" is an annual award to a chemist for original work showing outstanding promise, provided the work was done in the Republic of South Africa and published in a reputable journal. Candidates must be under 35 years of age on 31 December in the year the award is made. The medal is struck in gold, the cost being borne by the Southern Transvaal Section of the Institute. The medal was instituted in 1960 and the first award was made to Mr P C Haarhoff.

Principal H R Raikes, after whom the award is named, was Principal of the University of the Witwatersrand for 26 years from 1928 to 1954 and Vice Chancellor from 1948 to 1954. He had been trained as a chemist and served the Institute as President in the twenty-first anniversary year in 1933. Later, in 1948, he was President of AS & TS.

In 1961 it was announced that African Explosives and Chemical Industries Ltd (now AECI Limited) had agreed to support the annual presentation of a gold medal to be known as the AECI Award for the most meritorious work published in the Institute's Journal. This is accompanied by a monetary prize of R100. Dr P R Enslin was presented with the medal as senior author of a paper published in conjunction with Messrs L A P Anderson and W T de Kock at a function held on 18 June 1963. The co-authors received certificates of merit.

The award is made, in strict rotation, to papers within the following disciplines: Analytical, Physical, Organic and Inorganic Chemistry.

When Dr James Moir died in 1929 the James Moir Memorial Fund was established. Dr Moir had been President twice, the first term in 1915 and the second in 1924. His death was a great loss to the Institute as he was one of its most active members. He had been awarded the South African Medal by the S A Association for the Advancement of Science in 1919 and the medal of the Chemical, Metallurgical and Mining Society in 1921. Also he was co-editor of The S A Assayers textbook, "Rand Assay Practice", published about 1923. It was only fitting that these societies with whom he was involved should be invited by the Institute to contribute to a Memorial Fund in his honour. By 31 May 1930, when the fund closed, £800 had been collected and this was invested in a building society and the S A Chemical Institute acted as trustee. At first the Memorial took the form of a book prize for the best essay submitted to an adjudicating committee on an annual basis. It is interesting to note the first winner of the prize was Mr P E Rousseau. However the essay competition was not well supported and Council altered the competition to cover the best thesis in chemistry, chemical engineering, industrial chemistry or metallurgy submitted for the M.Sc. degree. This also, however, was not well supported and in 1949 it was decided to use the funds accumulated in the memorial fund for out of pocket expenses for promoting a memorial lecture. The first memorial lecture was delivered by Dr J McRae, and this was very appropriate as he was the President of the Institute in its first year of existence.

In 1982 Council decided, with the approval of the other three participating Societies, to dispense with the lecture as, due to escalation of costs, the interest earned by the fund was hardly sufficient to cover the cost of promoting the lecture. The Institute agreed to manage the Memorial Fund independently and to perpetuate a worthy memorial. Consequently it was decided to award bronze medals, known as the James Moir Medals, to the top students in B.Sc (Hons) and the Higher National Diploma at each University and Technikon in the Republic. Only those with a minimum pass mark of 75% are considered. The award was first made in 1985. Six candidates received the medal, four at Universities and two at Technikon.

The "Mischa Mroost Award" was established in 1977 to perpetuate the memory of Mischa Mroost who was an Honorary Member and President of the Institute in 1968-1969. He spent many years on the Council of the Institute and some of those years as Honorary Secretary/Treasurer. The award takes the form of a cash prize of R100 awarded to the author of the best paper published in "ChemSA" during each year.

The Hendrik van Eck Medal was established in 1982 to afford recognition to

prominent persons to whom it would be inappropriate to award the Institute's Gold Medal. Dr Van Eck was President of the Institute during 1939-40. He was awarded the Gold Medal in 1969 and had an important and prominent position in the business world in South Africa. The medal is awarded to a member of the Institute who has made an exceptional contribution to the business world and/or to the community as a whole in the Republic of South Africa.

It is not awarded on a regular basis but only when an appropriate person is nominated. The first two recipients were Dr A E Rupert (1983) and Dr N Stutterheim (1984). An historic occasion was the striking of the first medal at the S A Mint in Pretoria when the function was filmed on SABC-TV and shown on the news service that evening.

Council Meetings

Originally when the Institute was formed eight or ten Council Meetings were held each year in Johannesburg and Council members living outside a radius of 50 miles of Johannesburg were able to nominate residents within 50 miles of Johannesburg as alternates to sit on Council in their stead.

In the year 1935-1936 the General Purposes Committee was established to lessen the burden on Council. Also formed were a Finance Committee, Publications Committee and an Applications and Appointments Register Committee. The frequency of Council Meetings was then reduced in number.

Today only two Council Meetings are held each year in February and July. No alternates serve on Council and Council members from the Sections and Section Chairmen are expected to attend, their travel expenses being paid by the Institute. The Executive Committee (replacing the General Purposes Committee) and a number of sub-committees look after the day to day business, Council being required to make the major decisions regarding the policy of the Institute and the allocation of finances. In view of the increasing importance of the Sections operating outside Johannesburg and Pretoria members of Council from these Sections are appointed to the Executive Committee and travelling expenses for attending meetings are refunded by Council if requested.

Use of both Official Languages

From the inception in 1912 documentation from the Institute was in English due no doubt to the problems associated with issuing it in two languages. Proceedings however were conducted in either official language according to choice.

On this basis the Annual Reports and Accounts were always published in

English until those for the year ending June 1963 when they were published in Afrikaans. However from 1968 the Annual Report appeared in both official languages but from 1972 the decision was taken that the Reports would be published either in English or Afrikaans alternately.

This also is the policy in the publication of Council and Executive Committee minutes, and these are published alternately in Afrikaans and English. Subcommittee minutes are published in the language of choice and either language may be used during Institute meetings.

For many years published papers in the Institute's journals and magazines have been in the language of choice.

Seymour Memorial Library

Major L I Seymour, a consulting engineer of Messrs Eckstein & Co., was elected President of the SA Association of Engineers for 1899 - 1900 and presided at the meeting held on 30 August 1899, the last meeting held before 1902 due to the intervention of the South African War.

After his death at Zand River in June 1900 a fund was started in Cape Town, where many of the prominent Rand Engineers were residing during the course of the war, entitled the "Seymour Memorial Fund".

The Seymour Memorial Library supported by this fund was first housed in Plein Square adjacent to the School of Mines where the early meetings of the Institute (The SA Association of Analytical Chemists in those days) were held. When the University of the Witwatersrand was established it was proposed that the library should be moved to Milner Park but there was a considerable protest from members of the AS & TS (recently formed in 1920) in view of the inaccessibility to members of the new site. Eventually the library was handed over to the Johannesburg Public Library in 1927.

In the year ended June 1920 Dr J McCrae was elected as the Institute's representative on the Seymour Memorial Library Committee and the following year Mr James Gray became the representative. The Institute regularly made a donation to the Seymour Library Committee until the Library was taken over by the Johannesburg Public Library. Since then the Institute has had a long association with the Public Library and for many years provided a representative on the Consultative Committee.

Salary Surveys

The first Salary Survey was conducted during the year 1934 - 1935 and 200

members responded. The next survey reported was held in 1963 and the results were published in the "S A Industrial Chemist".

Salary surveys are now conducted on an annual basis following the establishment of a Manpower Committee in 1975 and the results have been published regularly in "ChemSA". Through the years the surveys have become more comprehensive and a useful source of data has been established.

The Institute Coat of Arms

In 1938 Council decided on the design of a seal to be used on all Institute documents. This was the first time the Institute was able to use an emblem and its use continued until May 1973 when Council was advised by the Bureau of Heraldry that its application to register a coat of arms had been successful. The coat of arms was designed by Dr W A Woebber of the University of the Witwatersrand and bears the motto *Per scientiam ad futura*.

The cost of the coat of arms was supported generously by a grant of R100 from the Associated Scientific and Technical Societies.

The coat of arms now appears on all the Institute's stationery and is displayed prominently with those of the other associated societies in Kelvin House.

Chemical Companies' Golf Day

Certain chemical companies inaugurated a golf day in 1981, and competition being for the "Ethylene Trophy". After running it themselves for two years they invited the S A Chemical Institute, as an independent body, to run it on their behalf. The Institute has been responsible for this competition since 1983 and has run it annually as a public relations exercise.

Occupational Safety

In 1982 Council agreed that the Institute should become a member of ASOSH (Association of Societies of Occupational Safety and Health) and has been represented in the activities of this Association. Since that date, the Institute has also been represented on SCOTSH the TCMA Sub-committee for Toxic Substances, Safety, Industrial Health and Environmental Control.

A Chemical Safety Committee (formerly Chemical Hazards Committee) has been established and both the Southern Transvaal and Northern Transvaal Section Committees have run seminars on Safety in the Chemical Laboratory. The Natal Section also has held a number of lectures at their monthly meetings on air pollution and occupational safety.

Chemex/Filtex Symposia and Exhibitions

In October 1980 the Institute participated in the Chemex/Filtex exhibition in conjunction with the Transvaal Chemical Manufacturers Association and the S A Institution of Chemical Engineers. On the basis that manpower was supplied for the organising committee, the three organisations were entitled to a share in the profits.

The proceedings consisted of a one day symposium and an exhibition lasting a week. Subsequently other exhibitions and seminars were held during 1983 and 1986 and these have proved a useful supplement to the Institute's funds.