

SAISI
SAICE



G R O U N D P R O F I L E R O N D R O F I E L

Nº 10
OCTOBER 1976

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NEWSLETTER OF THE DIVISION OF GEOTECHNICAL ENGINEERING.

SOUTH AFRICAN INSTITUTION OF CIVIL ENGINEERS.

CORRESPONDENCE

The Editor
"Ground Profile"

Your report on the joint AEG - Geotechnical Division meeting on the proposed draft on standardized core logging was indeed an extremely critical one.

This "no punches pulled" form of reporting makes entertaining reading and even the most hardened cynic must have chuckled at the thought of "a committee of rugged individualists, each eager to propagate his own special chestnut in the bank".

Where such criticism is based on technical opinion and not on technical fact, the dividing line between objective criticism and unkind comment is certainly tenuous. Members of any future committees, should they be so unfortunate as to be individualists, must certainly be rugged if they are prepared to face judgement by so caustic a pen.

May I take you to task for printing in the last three paragraphs of your report certain comments and suggestions which may have been constructive had you submitted them to the Core Logging Committee within the time permitted for comment.

A substantial number of written contributions were received by the Core Logging Committee, with a particularly strong representation from the Cape. A great amount of valuable constructive criticism and comment (and encouragement) was received. These comments, together with those presented verbally at the meeting, were considered by the Committee and the paper has been considerably revised. The Committee is very grateful for the great assistance so received.

It is recognised that no standard can be set for core logging and the paper has therefore been entitled "A guide to core logging for rock engineering". Core logging preferences may be likened to preferences in grilled steak - some like it well done and some prefer it rare. To suggest either of the extremes to a man from the other wing is likely to result in outright rejection. The adoption of other existing systems or standards is impossible for precisely the reason that they are invariably written for one of the extremes and with specific regional requirements in mind. A centre course, while encouraging attack from both wings, has the greatest probability of general acceptance.

Terminology has been a particular bone of contention. Familiarity with a particular usage, of a set of terms, appears to breed contempt for any other (possibly equally valid) form of usage. By a large majority, the meeting motivated the use of the term "discontinuity" as the "sack name" to include all discontinuities in a rock mass including fractures and joints. This is consistent with the definitions as proposed by the ISRM Commission on Terminology and the following definitions are therefore accepted:

- discontinuity surface - Any surface across which some property for a rock mass is discontinuous. This includes fracture surfaces, weakness planes and bedding planes, but the term should not be restricted only to mechanical continuity.
- fracture - The general term for any mechanical discontinuity in the rock; it therefore is the collective term for joints, faults, cracks, etc..

- joint - A break of geological origin in the continuity of rock occurring either singly, or more frequently in a set or system, but not attended by a visible movement parallel to the surface of discontinuity.
- filling - Generally the material occupying the space between fracture surfaces, in joints, faults and other rock discontinuities. The filling material may be clay, gouge, various natural cementing agents or alteration products of the adjacent rock.

Other relatively major changes to the paper include:

- (i) omission of all references to the possible use of the descriptive system for the possible description of rock exposures other than cores; and
- (ii) the exclusion of the description of discontinuity surface extent or waviness.

It is only after the promulgation of a system such as this (which has been tried by the various members of the committee) that it can be tried by others. Only through a process of trial, modification and compromise can it become useful, universally understood and used.

A. MACG. ROBERTSON
for Core Logging Committee.

Committee on Filter Fabrics

Over the past few years filter fabrics have been playing an increasing role in the construction industry. There is a great need for standard information about the various applications and properties of the numerous filter fabrics available.

In early August, during a meeting at the NITRR the problem was discussed. The meeting was attended by representatives from the road authorities, SAR & H, Water Affairs, the construction industry and filter fabric suppliers. A sub-committee of the highways materials committee has now been formed to set in motion an investigation aimed at defining the problem in more detail and to detail what direction an investigation should take.

A questionnaire has been sent to contractors, road authorities, the SAR & H, Water Affairs and large city municipalities. It is hoped that these bodies will co-operate and assist the committee by completing and returning the questionnaire.

The NITRR has been of great assistance and this is appreciated by the committee.

JOHN SAVAGE

CHAIRMAN'S REPORT FOR 1976

MEMBERSHIP

The membership of the division as of the 22nd June, 1976 was four hundred and ninety-six; this reflects an increase of fifteen over the 1975 membership.

ACTIVITIES

Conferences, Courses and Meetings

Volume II of the Proceedings for the 6th Regional Conference has been completed and distributed. The Organizing Committee under the able chairmanship of George Donaldson has completed its task and the committee is due to be disbanded following its next meeting. They are to be congratulated on a successful conference which realized a small profit on reasonable registration fees. The assistance of all those who assisted with the various conference activities is sincerely appreciated.

A three day course on Earth Pressures was organized jointly by Messrs. Wilson and Gregg and Professors Sparks and Knight. This was held at the University of Cape Town from the 28th to the 30th April and was aimed at the general engineer wishing to familiarize himself with current earth pressure theory and practice. A questionnaire which was sent out after the course indicated that it was well received and appreciated by the fifty delegates who attended. The organizers and their helpers are congratulated and thanked for this successful course.

A three day "Short Course on Foundation Analysis" was organized by Mike Gowan and held at the University of the Witwatersrand in May. It was attended by thirty-one Engineers, Engineering Geologists and Technicians who report a very fruitful course. Congratulations and thanks, again, to Mike Gowan and those who assisted him.

Two evening meetings have been held. The first was a Mini Symposium on Slimes Dams held at Kelvin House on the 27th April in conjunction with the Johannesburg Branch. This meeting was extremely well attended by about one hundred and twenty people. Four speakers spoke on various aspects of slimes dams. The second meeting took place at Kelvin House on the 24th May. This was a joint meeting with the Association of Engineering Geologists. The Standardized Core Logging Committee presented their preliminary proposals. These proposals proved controversial and the discussion was lively.

Two site visits have been successfully arranged by Harold Weber; the first to the Geldenhuys Interchange and the second to a large horizontal jacking operation. Both visits engendered a great deal of interest and the number of participants had to be limited. Thanks are due to Harold Weber and the relevant contractors and authorities who assisted in these successful visits.

Conferences, Courses and Meetings; Arranged or Planned

A five day symposium - Exploration for Rock Engineering - is being arranged for the 1st to 5th November, 1976. This symposium is being jointly sponsored by this Division and the S.A. National Group of the International Society of Rock Mechanics and will be held at the University of the Witwatersrand, Johannesburg. The Division is, in part, sponsoring the attendance of Dr. Nick Barton of the Norwegian Geotechnical Institute to the symposium. Prior to the symposium he will give talks at divisional meetings in Cape Town and Durban. A series of five case history presentations will be made at the evening meetings during the symposium period. These will be open to all division members.

Members of the division, under the direction of Tony Willimas, are participating in the technical contributions to the Soil Science Conference to be held in Johannesburg in January 1977.

Harold Weber is organizing a three day course on the Geotechnical Processes of Consolidation. This is tentatively scheduled for Durban in February, 1977.

Gary Jones is organizing a course on Deep Sounding to be held in Durban at a time still to be decided in 1977. *

Professor J.E. Jennings is the chairman of the committee set up to organize the next International Conference on Partially Saturated Soils to be held in Johannesburg in 1978.

The division has undertaken to give a three afternoon course of lectures on topics of interest during the 6th Quinquennial Convention in 1978.

Persons interested in assisting with the arrangements for these conferences, courses or meetings are invited to contact the secretary.

A forum on Engineering Problems Associated with Lavas in the Pretoria and Witwatersrand Complex Area will follow this meeting. Six speakers are scheduled to contribute.

Special Sub-committees

(a) Registration of Engineering Geologists

A Joint Committee with representatives from this division, AEG, ISRM and SANEG has been formed under the chairmanship of Andy Robertson with the object of ensuring that should registration be achieved for Engineering Geologists, this be in a format best suited to the interests of the Public, the Geotechnical Fraternity, Engineers and Engineering Geologists in general.

(b) Training of Engineering Geologists

Following the passing of a resolution at the 6th Regional Conference urging the establishment of suitable training facilities in South Africa for Engineering Geologists, an appropriate sub-committee was formed under Joe de Beer. Appropriate letters were written under the signature of the President of SAICE to the relevant authorities. The response has been encouraging and an appropriate course may be started at at least one University in 1977. George Donaldson serves on this committee to provide guidance on engineering aspects of the proposed courses.

(c) Code of Practice for Men Working in Large Diameter Boreholes

A Committee to re-draft the above code of practice, under the able chairmanship of Tony Williams, has nearly completed its task. This rather large committee includes representatives from a wide range of interested organizations.

(d) Draft TRH 10

A Committee under the guidance of Les Wilson has reviewed the Draft TRH 10. The division has reservations as to the purpose and effectiveness of this draft. These reservations have been communicated to the relevant authorities.

INTERNATIONAL SOCIETY OF SOIL MECHANICS AND FOUNDATION ENGINEERING

The Divisional Committee has been in continued contact with the Executive of the ISSMFE to try and ensure an alternative venue for the next Executive Meeting and the next International Conference. The Committee has not been successful in effecting either of these changes.

The Japanese organizing committee has made tremendous efforts to ensure our attendance and present indications are that their efforts are successful.

Five papers are being submitted by members of this division for presentation at the conference.

Nominations for the Vice President for Africa for the period 1977 to 1981 have been called for. The Divisional Committee has nominated Professor Blight. We sincerely hope that the other national groups in Africa will join us in supporting this worthy candidate.

PUBLICATIONS

(a) Ground Profile

Jack Caldwell continues to raise interest, laughter and hackles in regular issues of Ground Profile. We are indeed indebted to him for a lively low-budget journal. Our increased membership is, no doubt, in large measure attributed to the fact that Ground Profile is a tangible benefit to members of this division.

(b) S.A. Geotechnical Bibliography

Messrs. Williams and Donaldson have undertaken to complete a bibliography of publications of South African geotechnics or by South African geotechnical engineers. Work is in progress.

FINANCIAL

It is a pleasure to report that our financial situation is sound.†

SECRETARIAL

The Divisional Committee undertakes a large volume of work, of which a great proportion is handled by the Secretary - Fritz Wagener. The smooth running and substantial achievement of the division during this past year are a tribute to Fritz Wagener's capabilities and enthusiasm.

GENERAL

I wish to record my appreciation of the great amount of work done by each member of the present committee and wish the next committee a successful 1977.

A. MACG. ROBERTSON - CHAIRMAN

† The treasurer's report was presented. In essence, a surplus of more than R5 000 is held in an interest paying account. Further details may be obtained from the Secretary. - Editor.

SYMPOSIUM - EXPLORATION FOR ROCK ENGINEERING

Registration is still open for this symposium. Persons who wish to attend should contact the Secretary at Johannesburg 22-2751.

PRELIMINARY PROGRAMME

MONDAY 1ST NOVEMBER - MORNING SESSION

OPENING CHAIRMAN: A. MacG. Robertson

Keynote Address N.G.W. COOK Methods of acquiring and utilizing geotechnical data in the design and construction of workings in rock.

CHAIRMAN: R.J. Hopley RAPPORTEUR: T. Giddings

DRILLING TECHNIQUES

Main paper J.M. WEAVER Exploratory drilling for rock engineering.

Contributory papers W.F. HARTLEY and R.J. BALL Large diameter drilling in rock.

M.V. BARR and G. HOCKING Borehole structural logging employing a pneumatically inflatable impression packer.

TESTING IN BOREHOLES

Main paper A.M. VAN SCHALKWYK Rock engineering testing in exploratory boreholes.

Contributory papers C.M. ORR, K. TRAXLER and E. BENZINGER An integral sampling technique of jointed rock masses.
H.J. OLIVIER Determination of RQD from petro-scope observations.

MONDAY 1ST NOVEMBER - AFTERNOON SESSION

CHAIRMAN: A.B.A. Brink RAPPORTEUR: C. Orr

CORE LOGGING

Main paper AEG COMMITTEE ON CORE LOGGING A guide to core logging for rock engineering.

Contributory papers T.C. PAGE, C.M. ORR and E.R. MAGNI A borehole log for engineering purposes.

D.A. HOUGHTON CSIR geomechanics core log for rock engineering.

MONDAY 1ST NOVEMBER - EVENING CASE HISTORY - JOHANNESBURG

CHAIRMAN: B.W. Graber

J.B. BOWCOCK, J. BOYD, E. HOEK and J. SHARP
Drakensberg Pumped Storage Scheme.

TUESDAY 2ND NOVEMBER - MORNING SESSION

CHAIRMAN: A.A. Wilson RAPPOORTEUR: T.N. Cookcroft

ROCK MASS CLASSIFICATIONS

Main paper Z.T. BIENIAWSKI Rock mass classifications in rock engineering.

Contributory papers N. BARTON Recent experiences with the Q-System of tunnel support design.

D.H. LAUBSCHER and H.W. TAYLOR The importance of Geomechanics Classification of jointed rock masses in mining operations.

D.A. HOUGHTON The role of rock quality indices in the assessment of rock masses.

H.J. OLIVIER Importance of rock durability in the engineering classification of Karoo rock masses for tunnelling.

TUESDAY 2ND NOVEMBER - AFTERNOON SESSION

CHAIRMAN: W.D. Ortlepp RAPPOORTEUR: G. Denkhaus

IN-SITU STRESS MEASUREMENT

Main paper H.A.D. KIRSTEN Selected aspects of rock stress measurements in South Africa.

Contributory papers W.L. VAN HEERDEN Practical application of the CSIR triaxial strain cell for rock stress measurements.

J.A. DE WET, C. GROBBELAAR and W.J. LE ROUX Optimization of in-situ stress measurements.

H. CAHNBLEY A critical assessment of stress measurement in sedimentary rock.

TUESDAY 2ND NOVEMBER - EVENING CASE HISTORY - JOHANNESBURG

CHAIRMAN: F.G. Hill

H. WAGNER Underground Mining Problems

TUESDAY 2ND NOVEMBER - EVENING CASE HISTORY - PRETORIA

CHAIRMAN: J.P. Kriel

E.R.P. CHUNNETT Ruacana Hydro-electric Scheme

WEDNESDAY 3RD NOVEMBER - MORNING SESSION

CHAIRMAN: *J.B. Bowcock* RAPPOREUR: *T.R. Stacey*

IN-SITU ROCK MASS PROPERTY TESTS

- Main paper W.L. VAN HEERDEN In-situ rock mass property tests.
- Contributory papers B.W. DARRACOTT and C.M. ORR Geophysics and rock engineering.
- H.A.D. KIRSTEN Determination of rock mass elastic moduli by back analysis.
- P.C. GRAHAM Rock exploration for machine manufacturers.
- B.A. CHAPPELL and B. TONGE Design parameters for Aberdeen, Hong Kong.

WEDNESDAY 3RD NOVEMBER - AFTERNOON SESSION

CHAIRMAN: *Z.T. Bieniawski* RAPPOREUR: *A.A. Wilson*

PRINCIPLES OF ROCK INSTRUMENTATION

- Main paper A. MACG. ROBERTSON Principles of rock instrumentation.
- Contributory papers C. GROBBELAAR, C.J. FILMALTER and F.J. DE LANGE An assemblage of evidence on the injudicious use of structural instrumentation.
- Two further papers to be confirmed.

WEDNESDAY 3RD NOVEMBER - EVENING CASE HISTORY - JOHANNESBURG

CHAIRMAN: *M. Mitchell*

P.A. LOUDON and T.N. COCKCROFT Du Toitskloof Tunnel

THURSDAY 4TH NOVEMBER - MORNING SESSION

CHAIRMAN: *S.G. Tough* RAPPOREUR: *B.A. Chappell*

INSTRUMENTATION OF CIVIL STRUCTURES

- Main paper B.C. KIDD Instrumentation of underground civil structures
- Contributory papers A.P. TYRRELL Ground instrumentation for the Channel Tunnel Project.
- P.H. DAVIES Instrumentation in tunnels to assist in economic lining.

THURSDAY 4TH NOVEMBER - AFTERNOON SESSION

CHAIRMAN: *M.G.D. Salamon*

RAPPOREUR: *K.I. Orowitz*

INSTRUMENTATION OF MINING STRUCTURES

- Main paper W.D. ORTLEPP Instrumentation of mining structures
- Contributory R.K. DUNHAM A rock mechanics investigation into
papers room and pillar mining at Impala Platinum Mines.
- F. BUDAVARI Principles concerning in-situ
measurements

THURSDAY 4TH NOVEMBER - EVENING CASE HISTORY - PRETORIA

CHAIRMAN: *J. Horne*

Z.T. BIENIAWSKI Elandsberg Pumped Storage Scheme

FRIDAY 5TH NOVEMBER - MORNING SESSION

CHAIRMAN: *F. Budavari* RAPPOREUR: *A.A.B. Williams*

INSTRUMENTATION OF SURFACE EXCAVATIONS

- Main paper J.E.B. JENNINGS Monitoring of surface excavations
and structures.
- Contributory J.L. BERZAL Monitoring of movement in a slope
paper excavated in volcanic rock.

RESEARCH AND DEVELOPMENT NEEDS

- Main paper O.K.H. STEFFEN Research and development needs in
rock exploration.

FRIDAY 5th NOVEMBER - AFTERNOON SESSION

CHAIRMAN: *C. Fairhurst* RAPPOREUR: *A. Tyrrell*

GENERAL DISCUSSION SESSION

PANEL

CLOSURE CHAIRMAN: *A. MacG. Robertson*

CONFERENCE SUMMARY

J.E.B. JENNINGS

COCKTAIL PARTY 16h30

Note: Papers have been promised by C. FAIRHURST, L. MULLER, and H. VOORT and are not as yet included in the above programme.

The last 5 - 10 minutes of each session will be devoted to the Rapporteur's review.

7th CONGRESS OF THE SOIL SCIENCE SOCIETY OF SOUTHERN AFRICA

The Soil Science Society of Southern Africa will hold its next biennial Congress at the University of Pretoria as part of the Agricultural Congress '77. Non-members of the Society are invited to take part during the last two days, i.e. 13 and 14 January, 1977.

Geotechnical Engineers, in particular, will be interested by the papers to be presented on these two days. Indeed, the meeting on Thursday the 13th is a joint meeting with the S.A.I.C.E. and A.E.G.

The program for the two days in question is as follows:

THURSDAY 13th JANUARY:

SOIL CLASSIFICATION AND LAND-USE

Chairmen: Dr. R.F. Loxton
G. Donaldson

The Soil Profile:

Morphological criteria and their interpretation in terms of soil behaviour and land quality.	J.J.N. Lambrechts (Critique: B.J. van Niekerk)
Engineering objectives of soil profile investigations	F. Wagener
Physical criteria and their interpretation in terms of soil behaviour and land quality	J.L. Hutson (Critique: K.J. Gardiner)
The description and interpretation of the soil profile for engineering purposes	A.A.B. Williams
Chemical criteria and their interpretation in terms of soil behaviour and land quality	Prof. J. le Roux (Critique: R.W. Fitzpatrick)
Field and laboratory testing for engineering purposes	P. Stone (Critique: H. Weber)

Soil Classification:

Soil classification for agricultural purposes; the Binomial System, background principles and criteria	Prof. J.M. de Villiers
Soil classification for engineering purposes	G.A. Jones
Interpretation of pedological data for engineering purposes	Prof. H.J. von M. Harmse
Preparation of engineering soil maps	Dr. T. Partridge
Interpretation of engineering soil maps	M.F. Mitchell
Collection, compilation and storage of pedological data	J.F. Eloff (Critique: Dr. E. Verster)
Collection, compilation and storage of engineering soil data	A.B.A. Brink

FRIDAY 14th JANUARY:

URBAN DEVELOPMENT IN RELATION TO LAND-USE

Chairman: Dr. M.C.F. du Plessis

The land development process	Prof. E.W.N. Mallows
The township proclamation process OR Township proclamation: the decision making process	J.S.H. Gildenhuys
Soil and foundation conditions in relation to urban development	G. Donaldson
The position of agriculture in the competition for land	A.C. Venn
The scene in Natal with regard to inter- disciplinary co-operation in town and regional planning	A. Little
The P.W.V.: An attempt at inter-disciplinary co-operation in communications planning in the Transvaal	Dr. P.W.B. Kruger

The registration fee is R5 per day. Application for registration should be made to: The Secretary, SSSSA - Congress
P.O. Box 1821, PRETORIA, 0001

INDIAN NATIONAL SYMPOSIUM ON EXPANSIVE SOILS

Prof. Satyanarayana of the Harcourt Butler Technological Institute, Kanpur - 2 (India) has recently sent the Divisional Committee news of the First National Symposium on Expansive Soils; in addition, he invites the submission of papers (Five hundred word Summaries before 20 December, 1976, confirmation of acceptance 28 February, 1977, final manuscripts 30 May 1977).

The Symposium will be held during December 22nd to 24th, 1977. The themes of papers to be presented are: Expansive Soils - Properties and Behaviour; Theoretical Studies; Structural Performance; Interaction of Soil and Structure; Flow, Shear Strength and Environmental Studies, Soil Modification and Stabilisation.

BIBLIOGRAPHY ON SOUTH AFRICAN PUBLICATIONS
ON GEOTECHNICAL ENGINEERING (1967-1976)

A Sub-Committee of the Geotechnical Division has set out to compile a list of all geotechnical papers by South African authors for the period 1967 to 1976. The last such Bibliography (1947-1966) was published by Mr. B.A. Kantey in the Trans. S.Afr. Instn Civ. Engrs, April 1967.

PLEASE SPARE A FEW MINUTES OF YOUR TIME and fill in what you can on the form below and return it to me, when I shall do the work of filling in the detail.

Senior engineers, geologists or allied scientists in a firm or any group of working people are urged to exhort all concerned to give thought to submitting details. These bibliographies are very useful as a reference to any past work in a field where one may be encountering a problem for the first time. This new bibliography, covering the last ten years, will be published and made available.

All assistance is appreciated.

TONY WILLIAMS

BIBLIOGRAPHY OF GEOTECHNICAL PUBLICATIONS BY SOUTH AFRICAN AUTHORS (1967 - 1976)

AUTHOR'S NAME	DATE OF PUBLICATION	TITLE OF PAPER	JOURNAL OR PROCEEDINGS

Name
Address
.....
.....

Return to: A.A.B. Williams
c/o NBRI, P.O. Box 395
PRETORIA, 0001.

SITE INVESTIGATIONS BY WATER AFFAIRS

On the 19th July, 1976 at an AEG meeting, Monty van Schalkwyk, head of the Engineering Geology Division at the Department of Water Affairs, presented a talk on the role of the Engineering Geologist in Dam Site Investigation.

Monty covered the full spectrum of dam site investigation techniques, ranging from the preliminary investigation stage, through the design, construction, operation and maintenance stage. He covered all aspects of the engineering geologist's role from the office study, field mapping, geo-physical surveys, drilling, joint surveys, borehole tests, rock mechanics testing, inspection of excavations to observation of dam performances and control of grouting.

He pointed out that the high priority requirements for a dam site geological investigation include:

- i. A study of permeability.
- ii. stratigraphy - concentrating on the failure potential by rupture, sliding or settlement and slaking,
- iii. construction materials.

Monty showed several slides to illustrate the parameters discussed and he revealed some interesting growth statistics which outline the development of engineering geology in South Africa over the past ten years.

In 1965 his engineering geology department was established with a staff of one. Today it has a staff of fifteen engineering geologists assisted by eight technicians. At least fifty per cent of the engineering geologists employed have a master's or a higher degree.

Further, Monty revealed that his department investigated or worked on some eighty to a hundred dams per year; this means that each engineering geologist must work on or control three to five dam site investigations at any one time.

Any engineer who has worked on eighty dams during his entire career could reasonably be classified as an expert in that field. Monty's department is handling that number of site investigations in just one year!

JOHN WEAVER

PERSONALITY PROFILE: HEINIE RAUCH

The year: 1947. A young sixteen year old's dreams are rudely jerked back to reality by the boisterous presence of many hardy ex-servicemen in the first year Civil Engineering class at the University of the Witwatersrand. Young Heinie Rauch ably weathered that first major storm in his life and was thereby well equipped to tackle future tasks with vigour and determination.

His natural interest in trains and model railways began in childhood and was gently activated by an observant neighbour, Mr. Marshall Clark, then SAR Resident Engineer, Germiston, and later General Manager of the SAR. He led Heinie, the son of a medical family, to choose a career in engineering.

Heinie joined the SAR in December, 1950 and spent his first years on construction, in the Research Section and on maintenance. It was Leslie Wilson, presently of Ninham Shand, who encouraged Heinie to take over from him in the field of Soil Mechanics.

Heinie thus returned to Wits during 1956 and completed the prescribed courses for the MSc with Soil Mechanics as his major and Advanced Structural Engineering as his secondary subject. After submitting his thesis he was awarded this higher degree in 1958. With his appointment as District Engineer (Soil Mechanics) in April 1963 the Geotechnical Section emerged as a separate entity within the Chief Civil Engineer's Office. Since then Heinie has gradually been building the geotechnical discipline in this organization.

In January 1971 he was appointed to the Bridge Office as Design Engineer Bridges and vacated the Soils chair to Peter Allen, now with Soil Tec Durban. In April 1972 he felt an urge to return to the field of Geotechnical Engineering. This was not then possible within the SAR so he resigned and joined a firm of consultants as their Geotechnical Engineer. A year later, during the course of which Peter Allen resigned, Heinie decided to take up again the position of Geotechnical Engineer in the SAR because of the particularly wide and interesting field of activity available in this discipline. At present, under the title of Foundation Engineer, he is responsible for Geotechnical Engineering in all its facets, Pavement Engineering and Materials.

The Chief Civil Engineer is responsible for spending around R300m annually and the Foundation Section's involvement runs to R40m - R50m. The organization of this section has been expanded to deal with this sort of involvement.

Heinie's love of his profession brought involvement in the activities of the Institute. He was on the Soil Mechanics divisional committee from 1964 - 1967, being chairman during 1966. 1965 saw him as a junior member of council. He was also an honorary technical editor of the Transactions between 1959 - 1967 and has contributed to the Transactions. Since 1959 his name has become familiar to all final year Civil Engineering students at his Alma Mater as he has been External Examiner in Soil Mechanics these past 17 years.

Anyone journeying past their Germiston home will realise that Heinie and Elmine have a common love for more than just each other. Their love for nature is manifested by a beautiful garden nurtured by tender hands. Elmine Vorster, also from a medical family, married Heinie in 1953 and has been a tremendous helpmate, sharing all his interests, among others his work, gardening and a love of music; Heinie is a violinist while Elmine is the family's pianist and has a clear soprano voice.

A keen tennis player, Heinie is able to run his own mens doubles team with his three sons, the eldest of whom is in his second year of study towards the Civil Engineering degree. The second eldest is a first year BCom (law) student while the youngest is still at high school with strong indications of a medical temperament.

SYMPOSIUM - EXPLORATION FOR ROCK ENGINEERING - EVENING CASE HISTORIES

DATE 1976	VENUE	TITLE OF CASE HISTORY	CASE HISTORY LEADER
1/11	Kelvin House Johannesburg	Drakensberg Pump Storage Scheme	Mr. J. Bowcock
2/11	Boulevard Hotel Pretoria	Ruacana Hydroelectric Scheme	Mr. E. Chunnnett
2/11	Kelvin House Johannesburg	Underground Mining Problems	Dr. H. Wagner Mr. D. Ortlepp
3/11	Kelvin House Johannesburg	Du Toits Kloof Tunnel	Dr. P. Loudon Mr. T. Cockcroft
4/11	Boulevard Hotel Pretoria	Elandsberg Pump Storage Scheme	Dr. Z.T. Bieniawski

NOTE: All interested persons are invited to attend these meetings, regardless of whether or not they are registered for the Symposium.

ATTENDANCE AT THE TOKYO CONFERENCE

We wish to remind you that the 9th International Conference on Soil Mechanics and Foundation Engineering will be held in Tokyo from July 11 to July 15th 1977. Those who wish to attend should please complete the tear off strip below and post to Mr. F. Wagener, Secretary Geotechnical Division, 901 Europa House, 32 Plein Street, Johannesburg.

NAME: Prof.Dr.Mr.Mrs. Miss.
Last or family First or Given

MAILING ADDRESS:.....
.....
.....

THE PROBABILITY OF MY ATTENDING THE CONFERENCE IS ABOUT:

100% 75% 50% 25% (Tick the appropriate percentage)

ACCOMPANIED BY: