

BOOK NEWS

1. Book review

● *World mineral statistics 1974 to 1978. Production: Exports: Imports.* London, H.M.S.O., Institute of Geological Sciences, 1980.

(Reviewer: R. P. King)

This edition is the third in a regular series prepared by the Institute of Geological Sciences. It is a useful compilation of statistics on the production, export, and import of fifty-eight different mineral commodities. Each mineral is listed by country, and a table is provided for the annual production, the annual imports, and the annual exports for each commodity included. However, some commodities are treated in considerably more detail; for example, aluminium and bauxite have tables under the following headings: Production of Bauxite, Production of Alumina, Production of Primary Aluminium, Exports of Bauxite, Alumina and Aluminium, Imports of Bauxite, Alumina and Aluminium.

The information presented is the latest official information available from primary sources; the compilers have not relied on data from secondary compilations. This publication will be of considerable assistance to all who are concerned with the trading of mineral commodities and their production.

2. Recent books

● *Organic spot test analysis, the history of analytical chemistry*, by E. Jungreis, L. Ben-Dor, F. Szabadvary, and A. Robinson. (Volume X of Wilson and Wilson's *Comprehensive analytical chemistry*.) New York, Elsevier, 1980. 282 pp. \$73.25.

Volume X consists of two chapters. The first, on organic spot test analysis, is complementary to a chapter on inorganic spot test procedures by P. W. West, published in Volume IA of the series. The fact that both authors of this chapter were co-workers of Fritz Feigl, the initiator of the technique, is a recommendation in itself. The second chapter comprises a brief history of analytical chemistry and provides a valuable and highly readable source of information on the early analytical work.

● *The application of mathematical statistics in analytical chemistry; mass spectrometry; ion selective electrodes*, by J. Grimshaw, P. Moritz, and W. E. van der Linden. (Volume XI of Wilson and Wilson's *Comprehensive analytical chemistry*.) New York, Elsevier, 1980. 408 pp. \$107.25.

Volume XI consists of three chapters. The first, on mathematical statistics, builds on the foundations laid down by E. C. Wood in Volume IA, and discusses important topics such as statistical testing, the law of propagation of errors, and the setting up of mathematical models in detail. The tailor-made computer programmes make this chapter, despite its high mathematical content, a very practical contribution. The second chapter, on mass spectrometry, introduces a new field into the series and it is intended to expand on more specialized aspects of the subject in a later volume. The last contribution, on ion selective electrodes, describes develop-

ments in a rapidly growing field. Enzyme electrodes were dealt with in Volume VIII and are therefore only briefly discussed in this chapter.

● *Thermal analysis. Part A, Simultaneous thermo-analytical examinations by means of the derivatograph*, by J. Paulik and F. Paulik. (Volume XII of Wilson and Wilson's *Comprehensive analytical chemistry*.) New York, Elsevier, 1981. 278 pp. \$83.00.

Volume XII of *Comprehensive Analytical Chemistry* will consist of a series of sub-volumes, or parts, each dealing with an aspect of thermal analysis. Part A describes the first practical application of the simultaneous thermoanalytical technique, its further development, and some results obtained with its use. The method was introduced 25 years ago, and the first measurements were made with an instrument called the derivatograph. The technique immediately found widespread application and yielded many valuable results. Since then, the authors have extended the applications of their measuring technique in several directions. A method has been developed for the qualitative and quantitative analysis of gaseous decomposition products – thermogas titrimetry – which can also be applied simultaneously with the TG, DTG, and DTA examinations. A dilatometric measuring technique is described that can be combined with any of the TG, DTG, DTA, or TGT examinations. Finally, the latest results on the quasi-isothermal – quasi-isobaric methods are dealt with.

● *Ionic hydration in chemistry and biophysics*, by B. E. Conway. New York, Elsevier, 768 pp. \$131.75.

Ionic hydration is not only a dominant factor in the physical chemistry of electrolyte solutions but enters into other important areas such as electrochemistry, inorganic chemistry, and biophysics. This volume, in 34 chapters, provides a comprehensive coverage of the various factors that determine ion solvation and also covers the involvement of ion hydration in ionization reactions in solution, electrode reaction equilibria and kinetics, inorganic redox chemistry, and ionic processes in biophysics and at interfaces.

● *Geological nomenclature*, edited by W. A. Visser. Hague, Martinus Nijhoff, 1980. 564 pp. U.S. \$95.00.

This unique geological dictionary provides the key to geological terminology in five different languages: English, French, German, Spanish, and Dutch. This is the second edition, the first having been published in 1959. The same outline has been followed, with generous additions: the number of entries has more than doubled (over 11 000), and the most recent terms have been included, the scope has been extended to comprise new subject areas that have developed over the past twenty years (such as plate tectonics and isotope geology), and an additional language – Spanish – has been included. The first part is thematic. It is divided into sections according to subject matter, each compiled by specialists in the field. The terms are listed in English, followed by their definition and their equivalents in other languages. They are numbered, the numbers corresponding to those in the index. The second part is composed of five indexes,

one for each language. The English index is the most elaborate, and includes double entries for terms consisting of two coordinated elements. Several practical geological tables have been incorporated for ready reference.

● *High-temperature materials: coatings and surface interactions*, edited by J. B. Newkirk. Aedermannsdorf (Switzerland), Trans Tech Publications, 1980. 314 pp. S. Fr. 78.00.

This collection includes articles on oxide scales on iron and ferrous alloys, oxidation of iron and low-alloy steels, oxidation of tantalum and tantalum alloys, diffusion coatings, silicides, and effects of molten metals on ceramics.

● *Stress corrosion cracking*, edited by J. Yahalom. Aedermannsdorf (Switzerland), Trans Tech Publications, 1980. 238 pp. S. Fr. 68.00.

This volume covers SCC theory, aluminium alloys, stainless steels, zirconium alloys, SCC models, H effects in SCC, and methods of investigation.

● *Hardening of metals*, by P. Feltham *et al.* Aedermannsdorf (Switzerland), Trans Tech Publications, 1980. 315 pp. S. Fr. 78.00.

This book presents a collection of review papers on topics of key importance in improving current understanding of the deformation behaviour of metals and alloys.

● *Mineral and coal flotation circuits. Their simulation and control*, by A. J. Lynch *et al.* New York, Elsevier, 1980. 292 pp. \$63.50.

The authors present a thorough discussion of the simulation technique using many numerical examples as illustrations. Automatic control of flotation with particular reference to sulphide minerals and coal is stressed in the text as an important factor in ensuring maximum efficiency of the operation. The concept of simulation is extended to include the optimization of automatic control systems. After a chapter on the general pattern of behaviour of sulphide minerals and coals, the mathematical modelling of flotation in general, and sulphide minerals and coal processing in particular, is discussed. Process control is dealt with first on a broad basis with respect to requirements and costs and then specifically in relation to sulphide minerals and coal. The final chapter is devoted to the principles and practice of onstream analysis as this is vitally important to flotation control.

● *Proceedings of the Thirteenth International Mineral Processing Congress, Warsaw, Poland, June 4-9, 1979*, edited by J. Laskowski. New York, Elsevier, 1980. 2114 pp. (in 2 vols.). \$268.50.

The growing need for materials and energy is accompanied by a decreasing availability of mineral raw materials. Low-grade ores usually contain minerals of economic interest disseminated through a mass of rock and, to liberate them, fine crushing and grinding are essential before separation. All the current trends in mineral processing are discussed in these proceedings, together with various aspects of the automation of mineral-processing operations. The processing of minerals without waste, involving multi-purpose treatment for

the extraction of all the mineral constituents, is also dealt with.

● *Code of practice for engineering drawing*. SABS 0111-1980. Pretoria, South African Bureau of Standards (Private Bag X191), 1980. R8,32.

This code of practice covers mechanical drawing, and includes the preparation of drawings of mechanical parts in the fields of mechanical, civil, and electrical engineering, but does not include architectural and building-construction drawing. The code is thus of particular importance to students of mechanical engineering and is also applicable to the mechanical aspects in the field of civil and electrical engineering. Many technicians and universities have accepted this code for their students. Much information of value has been included in the code, such as scales for various drawings; recognized types and thicknesses of lines and their general application; letters, figures, and symbols; methods of indicating various sectional views; the use of first-angle and third-angle projection systems; the representation of general characteristics of, for example, screw threads, springs, gears, etc.; methods of dimensioning and tolerancing, as well as machining and surface-texture symbols. The drawing code is available in either English or Afrikaans so that one can order the document in the language of one's choice.

● *Complex sulphide ores*. London, Institution of Mining and Metallurgy, 1980. £42.

The exploitation of more-complex or less-rich ores is likely to be required more and more in the future. For base metals, this implies an increasing and more comprehensive utilization of complex sulphide-ore deposits. This in turn requires the solution of a range of technoeconomic problems. This aspect of metallurgical development forms the subject of the papers in this volume, which were presented at a conference organized jointly by the Institution of Mining and Metallurgy and the Consiglio Nazionale delle Ricerche in Rome from 5th to 8th October, 1980. The papers provide starting-point reviews of the states of operating practice and current research.

3. Journals

● *Marine geophysical researches*. Boston (U.S.A.), D. Reidel Publishing Company, 4 issues p.a. \$32.50 p.a.

This journal publishes contributions that describe the sedimentary, crustal, and deeper layers underlying the marine environment. The journal is concerned with the new knowledge generated by the application of geophysical techniques. The related studies in geology, geochemistry, palaeontology, and other geosciences are of interest when the discussions contribute in a significant way to the solution of structural problems. To this end, the journal contains original research papers, research notes, preliminary papers, and papers on instrumentation methods. The journal can be divided into four main areas of interest: developments of instruments, techniques and methodology; applications of new developments with the emphasis on new results; geological interpretations based on new compilations; and topical reviews and synthesis of broad regional significance.

● *The journal of futures markets*. New York, Wiley, 4 issues p.a. \$107 p.a.

Beginning publication in 1981, this quarterly journal deals with financial futures, commodity forecasting techniques, corporate hedging strategies, tax and accounting implications of hedging, analysis of commodity trading systems, commodity portfolio optimization, regulatory philosophies, and other topics pertinent to trading in futures markets.

● *Applied catalysis*. Amsterdam, Elsevier, 6 issues p.a. Dfl. 173.00 p.a.

This international journal which is devoted to catalytic science and its applications, starts publication in 1981 and deals with the following: catalytic phenomena occurring in industrial processes or in processes in the stage of industrial development and in conditions similar to those of industrial processes; scientific aspects of preparation, activation, aging, poisoning, rejuvenation, regeneration, and start-up transient effects; methods of characterization of catalysts, when they are both scientific and of potential interest for industrial catalysts; aspects of chemical engineering relevant to the science of catalysis; and new catalytic reactions of potential practical interest.

4. NIM reports

The following reports are available free of charge from the National Institute for Metallurgy, Private Bag X3015, Randburg, 2125 South Africa.

● Report 2020

The prereluction of Mamatwan-type ores. (First issued 11th May, 1979; reissued 5th Jan., 1981).

The work described aimed at indicating the degree of upgrading that could be obtained by the thermal decomposition of some random samples of Mamatwan-type ore under reducing and oxidizing atmospheres.

Because of experimental constraints, the tests under reducing conditions had to be conducted in two parts: firstly, under a neutral atmosphere and, secondly, under a carbon monoxide atmosphere.

The initial thermal treatment at 1300°C resulted in the greatest losses in mass for the ore, ranging from 14,3 to 21,12 per cent for samples with a manganese content of between 34,1 and 46,9 per cent respectively. The treatment under the carbon monoxide atmosphere gave only a small further loss in mass. The product of these tests was stable and could not be re-oxidized by warm humid air.

Further tests under oxidizing conditions were conducted to indicate the rate of mass loss at temperatures of 800°C, 900°C, 1000°C. The losses in mass were essentially similar to those obtained previously but, as expected, the rate of loss increased as the temperature was raised.

● Report 2084

The analysis, by a fusion procedure and X-ray-fluorescence spectrometry, of silicates and slags.

A glass-disc fusion method is described for the analysis, by X-ray-fluorescence spectrometry, of slags and silicate materials. The data are corrected for detector dead time

and short-term instrumental drift. Corrections are made for matrix variations by use of the Lachange-Trail mathematical model, and the results are processed on a minicomputer, an iterative procedure being used in the solving of the simultaneous equations. As the alpha-correction coefficients of the Lachange-Trail model are not truly constant, a modified version of the model is proposed.

● Report 2085

A large-capacity sample-changer for automated gamma-ray spectroscopy.

An automatic sample-changer has been developed at the National Institute for Metallurgy for use in gamma-ray spectroscopy with a lithium-drifted germanium detector. The sample-changer features remote storage, which prevents cross-talk and reduces background. It has a capacity for 200 samples and a sample container that takes liquid or solid samples. The rotation and vibration of samples during counting ensure that powdered samples are compacted, and improve the precision and reproducibility of the counting geometry.

● Report 2089

Confidence limits for the Gastwirth median.

Although the Gastwirth median is fairly robust (resistant to effects of contamination), it does not, as far as is known, have appropriate confidence limits. It was suspected that it would have confidence limits similar to those of the median. This was borne out in this investigation, which was confined to symmetrical distributions. It is concluded that, for practical purposes, in approximately symmetrical distributions the confidence limits for the median can be assumed to approximate those for the Gastwirth median.

● Report 2094

The determination, by atomic-absorption spectrophotometry of impurities in manganese dioxide.

This report describes various methods for the determination of impurities in electrolytic manganese dioxide by atomic-absorption spectrophotometry (AAS).

The sample is dissolved in a mixture of acids, any residue being ignited and retreated with acid. Several AAS methods were applied so that the analysis required to meet the specifications could be attained. These involved conventional flame AAS, AAS with electrothermal atomization (ETA), hydride generation coupled with AAS, and cold-vapour AAS. Of the elements examined, copper, iron, zinc, and lead can be determined direct with confidence with or without corrections based on recoveries obtained from spiked solutions. Nickel can be determined direct by use of the method of standard additions, and copper, nickel, and lead by ETA with the method of standard additions. Arsenic and antimony are determined by hydride generation coupled with AAS, and mercury by cold-vapour AAS. The precision of analysis (relative standard deviation) is generally less than 0,050.

Values were obtained for aluminium, molybdenum, magnesium, sodium, copper, chromium, and cadmium, but the accuracy of these determinations has not been fully established.

BHRA conferences

ENERGY STORAGE
April 29-May 1, 1981

International Symposium on Energy Storage. In conjunction with ETSU and Science Research Council. Brighton, England

FLOW MEASUREMENT
September 9-11, 1981
(Please note change of date)

International Conference on Flow Measurement Techniques. In conjunction with CIT Fluid Engineering Unit. Coventry, England
4th International Conference on the Internal and External

PIPE PROTECTION
September 15-17, 1981

Protection of Pipes. Leeuwenhorst, Noordwijkerhout, Netherlands

WAVE ENERGY
September 23-25, 1981

2nd International Symposium on Wave and Tidal Energy. Cambridge, England

Further information can be obtained from: The Conference Organiser, BHRA Fluid Engineering, Cranfield, Bedford, MK43 OAJ, England. Telephone: (0234) 750422, telex: 825059

Forging

The ninth International Forging Conference is to be held in Düsseldorf, West Germany, from 4th to 9th May, 1981. The conference is being organized by the Verein Deutscher Eisenhüttenleute in co-operation with the Vereinigung Deutscher Freiformschmiedern, with the support of the Commission of European Communities.

The technical sessions will deal with the following:
Special Processes for the Production and Processing of Forging Ingots
Special Treatment of Steel in Molten Condition
Forging Ingot Production
Electroslag Remelting Processes
Forging Technology

Quality Features of High-stress Heavy Forgings
Creep-resistant CrMoV Steels
NiCrMoV Steel
Weldable Structural Steels
Forging Production on Heavy Open Die-forging Presses
Using Special Devices and Special Tools
Experience in Hammer Forging of Materials Difficult to Shape
Rationalization Steps in Forging Plants

Further information is obtainable from the Verein Deutscher Eisenhüttenleute (VDEh), D-4000 Düsseldorf 1, Breite Strasse 27, West Germany. Telephone: (0211) 8894-1. Telex: 8582512.

Precious metals

The Fifth International Precious Metals Conference is to be held in Providence (Rhode Island) from 1st to 5th June, 1981. The eighteen technical sessions will deal with industrial applications, economics, dental, jewelry, new developments, recovery and refining, coatings,

electroplating, mechanically bonded metals, and fabrication and production.

Enquiries should be directed to IPMI, Polytechnic Institute of New York, 333 Joy Street, Brooklyn, New York 11201, U.S.A.

Analytical chemistry

Euroanalysis IV will be held in Espoo (Finland) from 23rd to 28th August, 1981. It is being organized by The Association of Finnish Chemical Societies for the Working Party on Analytical Chemistry of The Federation of European Chemical Societies.

In addition to the general and poster sessions, special sessions will be held on the following:

- Analytical Chemistry, the Analyst, and Society.

- Mass Spectrometry in Inorganic Analysis.

Further information is obtainable from Euroanalysis IV, Association of Finnish Chemical Societies, Pohj. Hesperiankatu 3 B 10, SF-00260 Helsinki 26, Finland. Telephone: 358-0-408 022.

Company Affiliates

The following members have been admitted to the Institute as Company Affiliates.

- AECI Limited.
Amalgamated Collieries of S.A. Ltd.
Apex Mines Limited.
Associated Manganese Mines of S.A. Ltd.
Blackwood Hodge (S.A.) (Pty.) Ltd.
Black Mountain Mineral Development Co. (Pty.) Limited.
Blyvooruitzicht Gold Mining Co. Ltd.
Boart International Limited.
Bracken Mines Ltd.
Buffelsfontein Gold Mining Co. Ltd.
Compair S.A. (Pty.) Limited.
Consolidated Murchison (Tvl.) Goldfields & Development Co. Ltd.
Davy Ashmore South Africa (Pty.) Limited.
Deelkraal Gold Mining Co. Ltd.
Delfos & Atlas Copco (Pty.) Ltd.
Delmas Collieries Limited.
Doornfontein Gold Mining Co. Ltd.
Dowson & Dobson (Pty.) Ltd.
Durban Roodepoort Deep Ltd.
East Driefontein Gold Mining Co. Ltd.
East Rand Proprietary Mines Limited.
Eimco (Pty.) Limited.
Engineering Management Services Ltd.
Envirotech (Pty.) Ltd.
Free State Saaiplaas Gold Mining Co. Limited.
Gardner-Denver Company Africa (Pty.) Ltd.
Gold Fields of South Africa Limited.
The Griqualand Exploration & Finance Co. Ltd.
The Grootvlei (Pty.) Mines Ltd.
Haleys CMO (Pty.) Ltd.
Harmony Gold Mining Co. Ltd.
Hartebeesfontein Gold Mining Co. Ltd.
H. Heimscheidt Mining & Hydraulic Equipment S.A. (Pty.) Ltd.
H.L. & H. Mining (Pty.) Ltd.
Highveld Steel & Vanadium Corp. Ltd.
Hubert Davies Heavy Equipment (Pty.) Ltd.
Impala Platinum Limited.
Ingersoll Rand Company S.A. (Pty.) Ltd.
Johannesburg Consolidated Investment Co.
Kinross Mines Limited.
Kloof Gold Mining Co. Ltd.
Lenning Holdings Limited.
Leslie Gold Mines Limited.
Leco South Africa (Pty.) Limited
Libanon Gold Mining Co. Ltd.
Lonrho South Africa Limited.
Loraine Gold Mines Ltd.
Marievale Consolidated Mines Limited.
Matthey Rustenburg Refiners (Rustenburg) (Pty.) Ltd.
The Messina (Tvl.) Development Co. Ltd.
Mitchell Cotts Projects S.A. (Pty.) Ltd.
Miteç Limited.
Montan Chemicals (Pty.) Ltd.
The Northern Lime Co. Ltd.
O'Okiep Copper Co. Ltd.
Palabora Mining Co. Ltd.
Photometric Sorters.
President Steyn Gold Mining Co. Ltd.
Pretoria Portland Cement Co. Ltd.
Prieska Copper Mines (Pty.) Limited.
Rand Mines Limited.
Ranger Uranium Mines (Pty.) Limited, Australia.
The Randfontein Estates Gold Mining Company Witwatersrand Ltd.
Rooberg Minerals Development Co. Ltd.
The Robbins Co. (Africa) (Pty.) Ltd.
Rustenburg Platinum Mines Ltd. — Union Section.
Rustenburg Platinum Mines Ltd. — Rustenburg Section.
Sandvik (Proprietary) Limited.
Shaft Sinkers (Pty.) Ltd.
S.A. Cyanamid (Pty.) Ltd.
R. J. Spargo Limited.
St. Helena Gold Mines Limited.
Senmin (Pty.) Limited.
Shell South Africa (Pty.) Ltd.
Southern Prospecting (Pty.) Limited.
Steel Engineering Co. Ltd.
Stilfontein Gold Mining Co. Ltd.
T. H. Mining Supplies (Pty.) Ltd.
Transvaal Consolidated Land & Exploration Co.
Trans-Natal Coal Corporation Limited.
Tsumeb Corporation Limited.
Union Corporation Limited.
Vaal-Reefs Exploration & Mining Co. Ltd.
Venterspost Gold Mining Co. Ltd.
Vergenoeg Mining Co. (Pty.) Ltd.
Welkom Gold Mining Co. Ltd.
West Driefontein Gold Mining Co. Ltd.
Western Areas Gold Mining Co. Ltd.
Western Deep Levels Ltd.
Western Holdings Limited.
Winkelhaak Mines Limited.
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GUIDE TO THE PREPARATION OF PAPERS FOR PUBLICATION IN THE JOURNAL OF THE SOUTH AFRICAN INSTITUTE OF MINING AND METALLURGY

The following notes have been compiled to assist authors in the preparation of papers for presentation to the Institute and for publication in the *Journal*. All papers must meet the standards set by the Council of the Institute, and for this purpose all papers are referred to at least two referees appointed by the Council.

Although the worldwide readership of the *Journal* results in a preference for papers in English, the Council treats papers in Afrikaans on an equal basis, but, to meet the needs of the majority of readers, an English summary of some 500 to 750 words should be provided.

STANDARDS FOR ACCEPTANCE

To merit consideration, papers should conform to the high standards that have been established for publication over many years. Papers on research should contain matter that is new, interpretations that are novel or of new significance, and conclusions that cast a fresh light on old ideas. Descriptive papers should not be a repetition of well-known practices or ideas, but should incorporate developments that would be of real interest to technical men and of benefit to the mining and metallurgical industry.

In some cases, a well-prepared review paper can be of value and will be considered for publication. All papers, particularly research papers, no matter how technical the subject, should be written with the average reader of the *Journal* in mind, to ensure wide interest.

The amount of textbook material included in a contribution should be the minimum essential to the argument. The length of a paper is not the criterion of its worth, and it should be as brief and concise as possible consistent with the lucid presentation of the subject. Only in very exceptional circumstances should a paper exceed 15 pages of the *Journal* (15 000 words if there are no tables or diagrams). Six to ten pages is more normal.

NOTE: Papers in the *Journal* are printed in 10 point type, which is larger than the 8 point type used on this page. For special publications, Council may decide on page sizes smaller than A4 used for this *Journal*.

The text should be typewritten, double-spaced, on one side only on A4 size paper, leaving a left-hand margin of 4 cm, and should be submitted in triplicate to facilitate the work of the referees and editors.

LAYOUT AND STYLE

Orthodox sequence

Title and author's name, with author's degrees, titles, position.

Synopsis, including a brief statement of conclusions.

An Afrikaans translation of the synopsis.

Introduction.

Development of the main substance.

Conclusions, in more detail.

Acknowledgements.

References.

Title: This should be as brief as possible, yet give a good idea of the subject and character of the paper.

Style: Writing should conform to certain prescribed standards.

The Institute is guided in its requirements by:

Collins, F. H. *Authors & Printers' Dictionary*—Oxford University Press.

Hart, H. *Rules for Compositors and Readers*—Humphrey Milford (famously known as the *Oxford Rules*).

Fowler, H. W. & F. G. *The King's English*—Oxford University Press.

General: A few well-selected diagrams and illustrations are often more pertinent than an amorphous mass of text. Overstatement and dogmatism are jarring and have no place in technical writing. Be objective, and do not include irrelevant or extraneous matter. Avoid unnecessary use of capitals and hyphens; punctuation should be used sparingly and be governed by the needs of sense and diction. Sentences should be short, uninvolved, and unambiguous. Paragraphs should also be short and serve to separate basic ideas into compact groups. Quotation marks should be of the 'single' type for quotations and "double" for quoted matter within quotations.

Interpretations in the text should be marked off by parentheses (), whereas brackets [] are employed to enclose explanatory matter in the text.

Words to be printed in italics should be underlined *singly*. For small capitals they are to be underlined *double* and for large capitals *TREBLY*.

If there is any problem in producing formulae accurately by typewriter, they should be handwritten in ink.

Abbreviations and symbols are laid down in *British Standard* 1991. Abbreviations are the same for the singular and plural, e.g., cm for centimetre and centimetres, kg for kilogram and kilograms. Percentages are written in the text as per cent; the symbol % is restricted to tables. A full stop after an abbreviation is used only if there is likely to be confusion of meaning.

Metric System: The *Système International d'Unités* (SI) is to be used for expressing quantities. This is a coherent system of metric units derived from six basic units (metre, kilogram, second, ampere, kelvin, and candela), from which are derived all other units, e.g., the unit of force is the newton (N) for kilogram metre per square second (kg m/s²). Always use the standard metric abbreviations.

The comma must be used as a decimal indicator and must not be used for separating groups of digits. For ease of reading, digits should be grouped in threes counting from the decimal indicator towards the left and right. However, where there are only four digits to the left or right of the decimal indicator, there should be no grouping.

Illustrations: Drawings and diagrams are to be in black India ink and should be about 18 cm wide. When submitting graphical representations, avoid a fine grid if possible. Curves should be in heavy line to stand out. Lettering too should be bold, as a reduction in size is often involved in the printing process.

Numbering of tables should be in Roman numerals: I, II, etc., and figures in Arabic numerals: Fig. 1, Fig. 2, etc. (Always use the abbreviation for figure.) Photographs should be black and white glossy prints.

As a guide to the printer, the author should indicate by means of notes in the typescript where tables and figures, etc. are to appear in the text.

Paragraphs: A decimal system of numbering paragraphs may be used when the paper is long and complicated and there is a need for frequent reference to other parts of the paper.

Proof correction: Galley proofs are sent to authors for the correction of printers' errors and not for the purpose of making alterations and additions, which may be expensive. Should an author make alterations that are considered excessive, he may be required to pay for them. Standard symbols as laid down in *British Standard* 1219C should be used.

SYNOPSIS

It is most important that the synopsis should provide a clear outline of the contents of the paper, the results obtained, and the author's conclusions. It should be written concisely and in normal, rather than abbreviated, English, and should not exceed 250 words, except when an English summary of an Afrikaans paper is involved. While the emphasis is on brevity, this should not be laboured to the extent of leaving out important matter or impairing intelligibility. Summaries simplify the task of abstractors and therefore should present a balanced and complete picture. It is preferable to use standard rather than proprietary terms.

FOOTNOTES AND REFERENCES

Footnotes should be used only when they are indispensable. In the typescript they should appear immediately below the line to which they refer and not at the foot of the page.

References should be indicated by superscripts, thus . . .¹ . . .². Do not use the word *Bibliography*. When authors cite publications of other societies or technical and trade journals, titles should be abbreviated in accordance with the standards adopted in this *Journal*.

GENERAL

The Council will consider the publication of technical notes taking up to three pages (maximum 3000 words).

Written contributions are invited to the discussion of all papers published in the *Journal*. The editor, however, is empowered by the Council to edit all contributions. Once a paper or a note has been submitted to the Institute, that document becomes the property of the Institute, which then holds the copyright when it is published. The Institute as a body is, however, not responsible for the statements made or opinions expressed in any of its publications. Reproduction from the *Journal* is permitted provided there is full acknowledgement of the source. These points should be borne in mind by authors who submit their work to other organizations as well as to the Institute.