

SGT NEWS

Can you solve the riddle of the missing name?

A distinguished glass artist of the past might, or might not, have had a middle initial. Do you know the truth about Frederick Carder?

The Society of Glass Technology has a long list of distinguished members, leaders in their fields of glassmaking, glass science and glass technology. Frederick Carder is prominent in being a considerable artist who acquired glassmaking skills, founded the successful Steuben division of Corning Glass Works and led a team of craftsmen in the production of some of the finest pieces of engraved crystal of the 20th Century.

Frederick Carder was made a Fellow of the Society in 1938 having joined in 1918. In 1881 he began his career as an artist with Stevens and Williams, glass manufacturers in Brierley Hill, later joined by his brother George. He won many medals, prizes and certificates for his work and by 1891 was teaching art at Wordsley Institute.

Industrial unrest at the start of the 20th Century led to much uncertainty, and Mr Carder took up an invitation to start a factory in Corning. By 9 March 1903 Steuben Glassworks had been incorporated with Frederick Carder as one of the subscribers. American Unions resisted the introduction of former Stourbridge glass makers, but this did not deter Mr Carder and Steuben Glassworks soon became established.

He formally retired in 1934 but continued to work and exhibit into his 90s. A

celebration of his 100th birthday was being prepared by the Society at the time of his death in December 1963, and was published in the June 1964 issue of *Glass Technology*.

Query

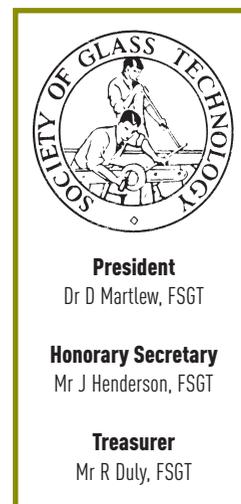
Recently the SGT received this query:

I am writing to ask a favor for a problem that I have been working on. Although Frederick Carder appears not to have written his signature with a middle name or a middle initial, many letters that he received were addressed to Frederick C Carder or, less often, to Frederick R Carder. I have been trying to determine what his full name was, and so far have found no middle name for him in the official English records.

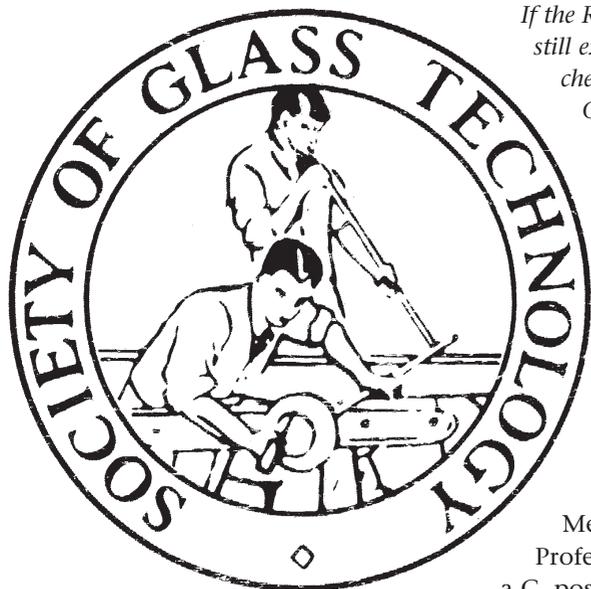
Yesterday I saw a letter that had been sent to Mr Carder by Professor WES Turner on March 6, 1941, that was typed on SGT stationery. It was written regarding Mr Carder's recent naming as a Fellow of the Society, and began with the following sentence: "Ever so many thanks for the signature safely received on the slip intended for insertion in the Roll of Fellows." Incidentally, another letter from Prof Turner was addressed to Frederick R Carder.



Frederick Carder: did he have a middle name and if so, what was it?



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If the Roll of Fellows for that time still exists in your files, please check the signature on Mr Carder's "slip" for the appearance of a middle name or initial. It seems that on this very special occasion he would have signed with his full name. Notice his peculiar (to me, at least) rendering of the letter "k".

Edward A Bush

The Record of Membership compiled by Professor Roy Newton revealed a C, possibly Caleb after Mr Carder's father, but the Roll of

Fellows showed no conclusive proof. John Henderson, chair of the Board of Fellows could only find suggestions that it was Caleb. A picture of Mr Carder taken in 1942 with his signature was also no help, but the middle part of his signature could have had room for a spare letter within the flourish. We reported this to Ed Bush and he came back with the following:

What you found, together with Prof Turner's letters to Mr Carder, is typical of what I have been finding elsewhere: (1) His name on the Society's Record of Membership is Frederick C Carder; (2) When Turner sent the Fellowship Diploma to to him on April 21, 1941, the letter was addressed to FR Carder, FSGT; (3) When Mr Carder wrote his signature for the Roll of Fellows, it was without a middle name or initial. I wonder what name was on the Fellowship Diploma.

You can see my dilemma. I was interested in your comment that his letter k could be mistaken for a middle initial. Prior to 1910 the loop of his k was very exaggerated, and even more likely to be mistaken for an R or perhaps a C. This is the explanation I am trying to develop, but I must be as sure as possible that he never actually signed with a middle initial. If I sort this out and write an article on the subject, I'll send you a copy.

If you have access to PV Gardner's "The Glass of Frederick Carder", note that on page 358, Note 35, he wrote that Carder told him (with "profane emphasis") that he did not have a middle initial.

Ed Bush

Can any of our readers help with this mystery? ■

Borate Glasses, Crystals and Melts

Papers from the Fifth Borate Glasses, Crystals and Melts: New Techniques and Applications conference, held in Trento, Italy on 12-14 July 2005, have been collected into a proceedings volume. Most of the papers have been peer reviewed and published in either Glass Technology or Physics and Chemistry of Glasses. There are some additional papers from the meeting such as the review dedicating the conference to Professor Werner Vogel and abstracts of papers not submitted for publication.

Werner Vogel was born, and received his schooling, in the region of the town of Hof and, after World War II, was one of the first students at the newly reopened Friedrich Schiller University in Jena. After leaving the University he joined VEB Jenaer Glaswerk Schott & Gen., as head of the chemistry laboratory, and it was during his time at Jenaer Glaswerk that he began his now famous electron microscopy studies of phase separation in glasses, which included both borate and borosilicate systems.

His blossoming international reputation led to his returning to the Friedrich Schiller University, first as a visiting lecturer and eventually, in 1966, to his being invited to establish the Otto Schott Institute and become its director, a position from which he retired in 1990. Werner Vogel's great friendship with the late Norbert Kreidl resulted in the continuing series of Otto Schott Colloquia, which initially presented a unique forum for the interaction between glass scientists from Eastern Europe and the former Soviet Union, on the one hand, and Western Europe and the USA on the other. Werner Vogel is thus honoured, both for his

seminal work on phase separation in B_2O_3 -containing glasses and for his unique contribution to the reunification of the international glass science community.

The Society of Glass Technology has published all of the most recent Borates conferences:

- **Borates II. Borate Glasses, Crystals & Melts** Proceedings of the Second Conference, 22-25 July 1996, Abingdon, UK
ISBN 0-900682-23-X £40.00 (£20.00 SGT members)
- **Borates III. Borate Glasses, Crystals & Melts** Proceedings of the Third Conference, 4-9 July 1999, Sofia, Bulgaria
ISBN 0-900682-31-0 £60.00 (£40.00 SGT members)
- **Borates IV. Borate Glasses, Crystals & Melts** Proceedings of the Fourth Conference, 14-18 July 2002, Cedar Rapids, Iowa, USA
ISBN 0-900682-43-4 £60.00 (£40.00 SGT members)
- **Borates V. Borate Glasses, Crystals & Melts** Proceedings of the Fifth Conference, 10-14 July 2005, Trento, Italy
ISBN 0-900682-57-4 £80.00 (£50.00 SGT members)

The first Borates conference was held at Alfred University, New York in June 1977. The proceedings featured a major review of borate glasses by DL Griscom and was published by Plenum Press in 1978.

The sixth conference will be held in Japan on 17-22 August 2008. The local organising committee is run by Norimasa Umesaki of Japan Synchrotron Radiation Research Institute (JASRI), Hyogo, Japan. ■



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Society of Glass Technology committees serve specialist interests

Technical committees and special interest groups within SGT cover specific production topics in all areas of glassmaking.

Specialist subjects are served by the Society of Glass Technology Technical Committees and Special Interest Groups, supported by links into related national and international bodies including Standards Organisations. Technical Committees have a formal remit to monitor particular areas of technical interest and to communicate the latest developments.

In March 2007 the Glass Batch Furnace and Refractories Committee changed its name to the Melting Technical Committee. The Committee Chairman is Chris Windle.

Last year, this Technical Committee held four business meetings and also organised the successful and well-attended first Furnace Solutions conference. The conference was supported by considerable sponsorship and the CD of the day's papers was made available by DSF. Based on this success Furnace Solutions 2 was planned for June 14, 2007 and was accompanied by a much-requested social evening.

Aside from the annual conference and based on the mission of the committee, technical topics associated with glass melting will be reviewed and uploaded onto the website.

Analysis and Properties Committee

The Analysis and Properties Technical Committee organises round robin testing of candidate materials for certified reference materials and acts as a BSI committee. Its main business in 2006 included:

- Agreement by BSI to publish BS2975 Part II (Chemical Analysis of Glass-Making Sands – Part 2 Methods for chemical analysis) and BS3108 Parts I and II

(Limestone and dolomite for glass making – Part 1 Specification, methods for sampling and physical testing and Sampling and analysis of glass making limestone and dolomite - Part 2: Methods for chemical analysis)

- Completion of cullet testing work in association with WRAP
- Near completion of the development of a new potash feldspar certified reference material (BCS376/1 and SGT Feldspar-1).
- Commencement of the development of a new Sand CRM. (BCS516)

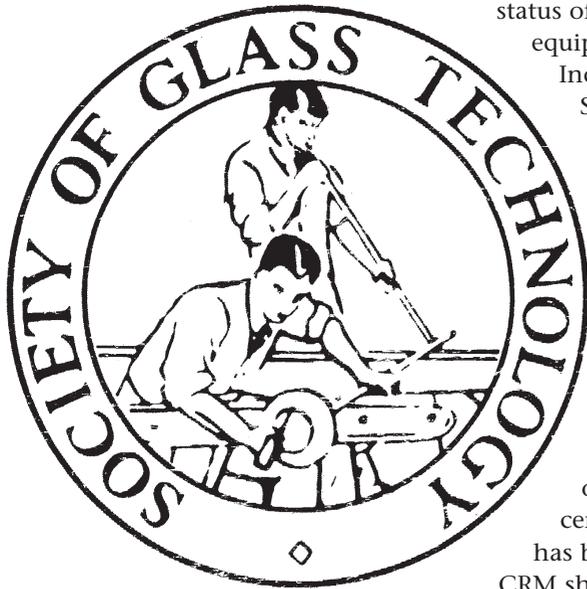
Newcomers to the Committee include Tanya Moran (WBB) and Jean Mayher (Guardian Glass). Official links with CERAM have been restored via Barbara Reeve and Karen Johnson. The Committee chair has passed from Alan Reynolds to Stuart Jamieson.

Following publication of BS2975 Part I in December 2005 BSI agreed to support the publication of Part II and to issue BS3108 Parts I and II at the same time. Publication was due in May.

Closer links have been forged with the ICG TC2 committee, many members having volunteered to participate in our latest CRM characterisation work. We continue to keep abreast of work being done in the ceramics area and this will be further strengthened with direct representation on our committee by CERAM.

Our work in support of a new cullet sampling strategy has been completed in association with WRAP. Members are particularly interested in the availability and

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status of automatic cullet sorting equipment based on Laser Induced Breakdown Spectroscopy (LIBS) or Laser Induced Plasma Spectroscopy (LIPS). Work is being done to gain a better understanding of the opportunities/limitations of applying the technique to cullet sorting operations. The characterisation of a new feldspar potash certified reference material has been concluded; the new CRM should shortly be available. The Committee has reviewed SGT's current standard materials catalogue, revised and improved long term storage arrangements and audited the current stock.

This year the Committee aims to review BS2649 Parts 1 and 3 (Methods for analysis of glass – Part 1 Glasses of the soda–lime–magnesia–silica type and Part 3 glasses of the potassium oxide–lead oxide–silicon dioxide type); to investigate further the applicability of LIBS/LIPS to cullet sorting; and to generate a new sand CRM. A new Committee website is planned

to help consultation with overseas members of SGT.

Basic Science and Technology Committee

The Basic Science and Technology Committee is interested in research at Universities and in industry. It judges the annual Oldfield Award for the best undergraduate final year project, and organises the scientific sessions and New Researchers' Forum at SGT annual meetings. In 2006 the Committee was active in organising the academic programme for the ESG meeting in Sunderland.

Special Interest Groups

Special Interest Groups aim to stimulate activity in particular fields as the need becomes apparent. They arrange meetings, coordinate research activities and report their findings in SGT publications.

Examples are:

- Glasses for Opto-Electronics
- Glass Information
- Stress Measurement in Glasses
- Glass Heritage and History

One of the most active is the Glass Heritage and History SIG, which promotes investigation and understanding of past glassmaking. A day of visits and presentations is being organised for the Derby SGT Annual Meeting in September. ■

Glass-to-metal seals

by Ian Donald

Although many new innovations have been made in the commercial exploitation of glass-to-metal seals and the science underpinning these systems is now more understood, many of the topics covered in Partridge's original monograph on glass-to-metal seals are still relevant today. This is particularly true in the areas of underlying technology, including metal and glass preparation prior to sealing, and certain aspects of stress analysis. The original monograph continues to provide an excellent introduction to the general area of glass-to-metal systems, as well as providing an historical overview of the early work and technology in this area.

The primary purpose of this new monograph is to provide a thorough review of glass-to-metal seals, with particular reference to the more recent developments in the scientific, technical and commercial fields. Current applications for glass-to-metal seals are extraordinarily diverse, ranging from the humble, taken-for-granted light bulb to complex aerospace and military components

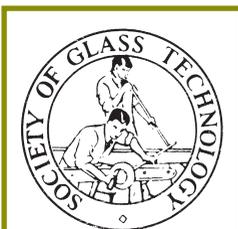
developed within the past few years. New applications also continue to emerge where the unique properties of these systems can be exploited. It is also the purpose of this monograph to highlight new and emerging fields which are benefiting from the application of glass-to-metal seal and related technologies. In this respect, the scope of the monograph has been broadened to include the related topic of glass-to-metal coatings. In addition, the more recent and highly versatile glass-ceramic-to-metal systems are reviewed. Some of the newer ceramic-to-metal, glass-to-glass, glass-to-ceramic and ceramic-to-ceramic systems are also covered briefly, areas very much in their infancy in 1949.

Published April 2007, 234 mm x 156 mm, 338 pages with colour and black and white illustrations,

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Paperback £35 (£25 SGT members)

Prices include surface postage, air mail extra and available on request. ■



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