

ISSN 2050-0432



Historical Group

NEWSLETTER and SUMMARY OF PAPERS

Editor: Dr Anna Simmons

No. 83 Winter 2023

Registered Charity No. 207890

COMMITTEE

Chairman: **Prof. John W Nicholson**
52 Buckingham Road, Hampton, Middlesex,
TW12 3JG
[e-mail: jwnicholson01@gmail.com]

Secretary: **Dr Peter J T Morris**
5 Helford Way, Upminster, Essex RM14 1RJ
[e-mail: doctor@peterjtmorris.plus.com]

**Membership
Secretary:** **Prof Bill P Griffith**
48 Milton Road, London SW14 8JR
[e-mail: w

Newsletter **Dr Anna Simmons**

]

ROYAL SOCIETY OF CHEMISTRY HISTORICAL GROUP NEWS

Letter from the New Chair

I am delighted to be taking over as Chair of the Historical Group from the beginning of 2023. The history of chemistry has long been an interest of mine, and I have been involved with the RSC Historical Group since 1981, when I first attended a symposium as a PhD student. I am not a proper historian of chemistry, though – I don't even have an O-level in history! But I can trace a glimmering of interest in chemical history back to my sixth form days, when I put a cover on one of my A-level books claiming it was a treatise on the philosopher's stone.

I became properly interested in the history of chemistry as an undergraduate at Kingston Polytechnic. I have been able to continue this interest ever since in one form or another, and over the years have managed to publish around fifteen papers on historical topics. My main interests are in chemistry and

contact the meeting organizer, Peter Morris, on
doctor@peterjtmorris.plus.com . Keep an eye on the monthly e-alert sent by

and edited essays on Galileo in 1990. He became keenly interested in the development of science in Canada. As early as 1974 he published *A Curious Field-*

, The Journal of the Society for the History of Alchemy and Chemistry, vol. 69, issue 3, August 2022

Elena Serrano, Joris Mercelis and Annette Lykknes, “ ‘I am not a Lady, I am a Scientist’: Chemistry, Women, and Gender in the Enlightenment and the Era of Professional Science”.

Francesca Antonelli, “Becoming Visible. Marie-Anne Paulze-Lavoisier and the Campaign for the ‘New Chemistry’ (1770s-1790s)”.

Elena Serrano, “Patriotic Women: Chemistry and Gender in the Eighteenth-Century Spanish World”.

Annette Lykknes, “Enabling Circumstances: Women Chemical Engineers at the Norwegian Institute of Technology, 1910–1943”.

Joris Mercelis, “ ‘Men Don’t Like to Work Under a Woman’: Female Chemists in the Photographic Manufacturing Industry, *ca.* 1918–1950”.

, The Journal of the Society for the History of Alchemy and Chemistry, vol. 69, issue 4, November 2022

Ute Frietsch, “Robert Fludd’s Visual and Artisanal Episteme: A Case Study of Fludd’s Interaction with his Engraver, His Printer-Publisher, and His *Amanuenses*”.

Anna Simmons and William H. Brock, “Robert Warington and Heinrich Will: Friendship and Co-operation in Chemistry in Nineteenth Century Britain and Germany”.

Sarah N. Hijmans, “The Tantalum Metals (1801-1866): Nineteenth-Century Analytical Chemistry and the Identification of Chemical Elements”.

Essay Review

Helge Kragh, “Biographical Histories of Chemistry”.

details on how to access the collection, what is available, and where they will be situated, will follow.

BOOKS FOR DONATION

Prof. William H. Brock has had to give up academic work and wishes to dispose of around 300 books to a younger active scholar. Additions to

This is the colour reaction that underpins the Folin and Wu method for blood glucose analysis, which we believe was employed by Banting and Best when they monitored the effectiveness of their insulin preparations on dog “volunteers” prior to treating young Leonard Thompson [1]. In the Betachek device, the test chemicals are applied to a translucent film which enables the colour to be read from the opposite side to the blood. LEDs are



prefer laboratory testing so they can discuss the results with their patients, including changes to their self-management plans. Details for these over-the-counter tests are sparse, but we believe they are based on lateral flow principles (similar to those presently used for coronavirus self-testing) with the haemoglobin and glycated haemoglobin “spots” being compared by photometric reflectance [17].

RSC Members have free access to an excellent review of the recent history of electrochemical glucose sensors: H. Teymourian and A. Barfidokht, *Chem. Soc. Rev.*, 2020, 49, 7671. Available at:

<https://pubs.rsc.org/en/content/articlelanding/2020/cs/d0cs00304b/unauth>.

Alan Dronsfield and Pete Ellis
(Pete Ellis is a retired medical practitioner based in New Zealand)

Calculating Chemistry: How it Used to be Done, a Witness Account

Introduction

Today, chemists do most of their calculating with a pocket calculator or on a personal computer. In the latter case, Microsoft Excel provides a wide range of easy-to-use mathematical functions that can be used in a quite complex way without any programming (*i.e.* writing of computer code) by the user, only the typing in of formulae into a spreadsheet; Excel also has intuitive graphing facilities. More powerful general-purpose tools are MathWorks'

illustrate aspects of the computational technique rather than to reflect a specific scientific problem). The student using mathematical tables would read off logarithms (to the base 10) as indicated by the ringed entries in Figure 1, and adjust the whole number to the left of the decimal point; then, he or she would do the necessary addition and subtraction, and look up the antilogarithm of the difference to get the final result – see “box”. ($\text{Antilog}_{10} x \neq 10^x$.)

Calculating of $1.5 \times 1130 \times 0.3035/2.122$ using logarithms to the base 10

$$\log 1.5 = 0.1761$$

$$\log 1130 = 0.0531 + 3 = 3.0531$$

$$\log 0.3035 = 0.4814 + 0.0007 - 1 = \bar{1}.4821$$

Add the above to give

then looked up the antilogarithm of 0.1833 to give $! = 1.525$. Slide rules likewise had additional scales (S, ST, and T in Figure 2) to help with trigonometry; thus “15” on scale S corresponds, within the accuracy of eye estimation and adjusting the decimal point, to $\sin 15^\circ$ on scale D (accurate to four figures, $\sin 15^\circ = 0.2588$).

CONTENTS

Logarithms	page 2, 3
Anti-logarithms	4, 5
Log. sines	6, 7
Log. cosines	8, 9
Log. tangents	10, 11
Log. cosecants	12, 13
Log. secants	14, 15
Natural sines	16, 17
Natural cosines	18, 19
Natural cotangents	20, 21
Natural secants	22, 23
Natural cosecants	24, 25
Squares	26, 27
Square roots	28, 29
Reciprocals	30, 31
Napier's analogies	32-35
e^x	36, 37
e^{-x}	38, 39
$\sinh x$	40
$\cosh x$	41
Radians and degrees	42
Seven-figure logarithms	43
Weights and measures	44
Conversion tables	45, 46
Formulae	47-49

Fig. 3: table of contents of mathematical tables [



Fig. 4: a FACIT machine manufactured in Sweden *ca*

<https://www.wolfram.com/mathematica> (both accessed 10 November 2022). These company and product names are trade-marks, as are Microsoft and Excel.

2. C. Godfrey and A.W. Siddons, *Four-figure Tables* (Cambridge, England: Cambridge University Press, new ed., corrected reprint, 1962). Godfrey and Siddons' tables dated back to 1913, and had an even more venerable competitor in the tables of Frank Castle (first published in 1908).

3. On a slide rule, length is used as the analogue for numbers. In the early days of electronic computing, "analog(ue) computers" used voltages and currents as the analogues of the numbers. They were capable of some tasks that digital computers then were not capable of (Wikipedia, "Analog computer":

https://en.wikipedia.org/wiki/Analog_computer), accessed 9 November 2022. All electronic computers and calculators referred to in this article are digital.

4. The need for such calculations came from equations such as pV



In 1914, Alton finally started working, being appointed works chemist at the

also strongly disapproved of motorboats. But, at least in the early years, the logs also give examples of Alton's dry humour, as well as of a self-awareness of his inexperience in the type of sailing needed on the Broads, and a recognition of the fact that his brothers, who seem to have been more relaxed about the sailing, perceived him as a stickler for correctness and detail (a trait shown in abundance in his work). As might be expected,

2. *Bibliographical Register of Christ's College 1505-1905, and of the Earlier Foundation, God's House, 1448-1505*, Vol. II 1666-1905, Compiled by John Peile at the University Press (1913).
3. Unless otherwise specified, all the information in this paragraph comes from documentation supplied by Mrs Alison Lainchbury, Librarian and Archivist at The Leys School.

Perillán has apparently not practised as a scientist with senior responsibility, by which the reviewer means relying on his or her own scientific judgement when serious m

dangers of loss are inherent in this material, and training in keeping personal archives to track a career could be part of scientific training, (or general academic training for that matter.) Therefore, researchers may also come up against the problem of there being no archives – so some organisations have proactively begun to fill those gaps, creating collections through specific projects.

Various examples of creating archives which look at women in science and medicine were shared and a checklist of archival material to begin research from a university viewpoint provided. Other useful sources highlighted included The British Library National Life Stories: <https://www.bl.uk/voices-of-science/about-the-project> and The Royal Society of Chemistry's

their skin yellow and their hair green, they were colloquially known as 'canaries' and shunned by society.

Female employment boomed after 1915, when a major military defeat prompted new manufacturing legislation. Influenced by government posters glamorizing the work involved, around a million women eventually signed up, even though Trades Union hostility ensured that wages remained low. Arguably, this unprecedented female involvement in the War effort played a greater role in winning the vote than all the previous suffrage activity.

Manufacturing munitions is intrinsically a dangerous task. Despite safety precautions, a few city-based factories exploded in fatal disasters that destroyed surrounding homes. In contrast, Britain's largest plant was constructed on the Scottish-English border near Gretna Green in an isolated spot. This purpose-

the occasion of its 150th anniversary. David Allen, RSC Librarian, arranged for the crystals, along with Humphrey's 'Form of Recommendation' for joining the Chemical Society, to be displayed at the meeting on 13 October 2022. Edith Humphrey was also noteworthy for apparently being

The next SHAC webinar will be live on Zoom on Thursday 19 January 2023 beginning at 5.00pm GMT (6.00pm CET, 12 noon EST, 9.00am PST). The format will be a talk of twenty to thirty minutes, followed by a moderated discussion of half an hour. Anyone, member of SHAC or not, may attend with registration via Eventbrite. Please check www.ambix.org and SHAC social media for updates on speakers and subjects.!

International Conference on the History of Chemistry

The 13th International Conference on History of Chemistry (13ICHC) organized by the EuChemS Working Party on the History of Chemistry (WPHC) will be held in Vilnius, Lithuania, on 23-27 May 2023. For further information on the conference please visit: <https://www.ichc2023vilnius.chgf.vu.lt/>

The timescale for the conference is as follows:

Revised deadline for submitting proposals for the conference: 9 January 2023

Notification of acceptance: January 2023

Provisional programme: Early February 2023

Final programme: April 2023

Grants to support attendance at ICHC13 in Vilnius, May 2023

Applicants are invited to apply for grants under a Special Award Scheme from the Society for the History of Alchemy and Chemistry (SHAC) to support attendance of early-career scholars and independent scholars at the 13th International Conference on the History of Chemistry in Vilnius, Lithuania, on 23 May to 27 May 2023. Awards of up to £400 will be made as a contribution towards the cost of travel, accommodation, and registration fees for those giving a paper at the conference. Applicants must be members of the Society for the History of Alchem

accomm sHis () -14 (b)-s (6 c)-1 (a) -1 (n) -2 (t) 2 (a) 351 (t) 3s () - 3560 (5) 2 () 3E5sHo- 41 0 0 41 0 0 Tm /TT3 1 Tf 38 218.- 41e0 0Q q9 the 2eora