

## THE CHEMICAL NEWS, 1859-1932

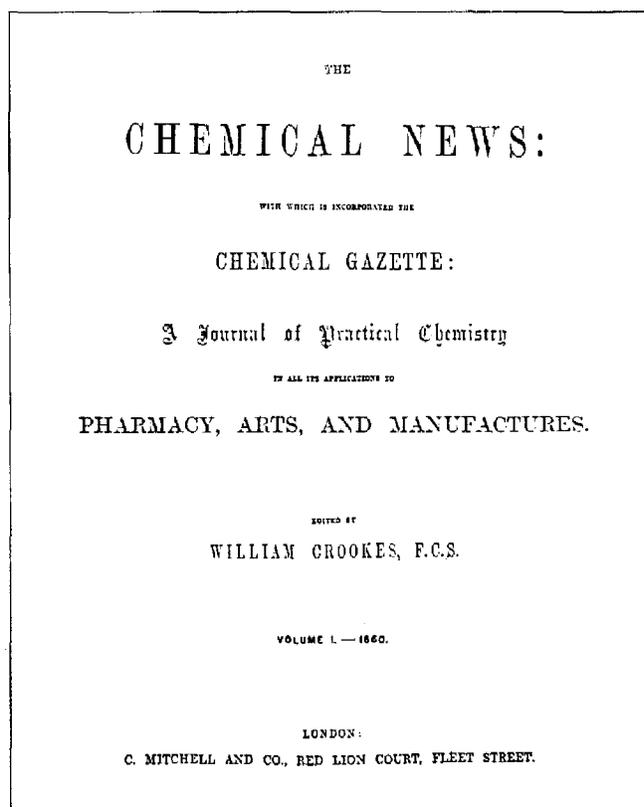
William H. Brock, University of Leicester

*The Chemical News and Journal of Physical Science (With Which is Incorporated the Chemical Gazette)*. A Journal of Practical Chemistry in All Its Applications to Pharmacy, Arts and Manufactures, was first published on Saturday, 10 December 1859, price 3d. What was distinctly new about the periodical was its weekly character and, as such, together with the weekly general organ *Scientific Opinion* (founded November 1868, collapsed 1870), it paved the way for Norman Lockyer's *Nature*, which began in November 1869, exactly ten years later. The last issue of *Chemical News*, the 1781st issue, appeared in October 1932, thus completing almost 70 years of continuous service to the chemical community.

As the subtitle, "with which is incorporated the *Chemical Gazette*" implies, *Chemical News* was not the first commercial chemical journal in English. Commercial journals, published for the profit of editors and proprietors, are to be distinguished from the publications of chemical societies like the Chemical Society of London which had issued irregular *Memoirs* and *Proceedings* between 1841 and 1848, and which since 1848 had issued a regular *Quarterly Journal* printed by London's leading science printer, Richard Taylor.

Unlike the French and Germans with the 18th-century established periodicals, Crells' *Chemisches Journal* (f. 1778) and Lavoisier's *Annales de chimie* (f. 1789), Britain had, apart from an ephemeral artisan's journal, *The Chemist* (2 Vols. 1824-5, edited by Thomas Hodgkin), no special chemical journal until the mysterious Charles and James Watt launched the monthly medically- and pharmaceutically-oriented *Chemist; or Reporter of Chemical Discoveries and Improvements* in January 1840. With some tantalizing breaks in continuity, this journal lasted until 1858 (1). Until the 1840s, therefore, both British and Continental chemical news was published in general commercial journals, such as *Nicholson's Journal* (which had collapsed in 1814), Thomson's *Annals of Philosophy* (which collapsed in 1826) and in the long-surviving *Philosophical Magazine*, which since 1822 had been owned, published, printed and edited by Richard Taylor.

The Watts' *Chemist*, which seems to have been aimed at a readership of pharmacists, chemical analysts, chemical manufacturers and inventors (2), was almost immediately challenged by *The Annals of Chymistry and Pharmacy* (1842-3) (3), but, unable to compete with Watts, this closed in February 1843. A greater challenge was Jacob Bell's *Pharmaceutical Journal* (f. 1841), which quickly became the house organ of the Pharmaceutical Society which was established in 1841. Both these journals were opposed in their turn from 1846 by an offshoot of the *Medical Times* (1839-85) called the *Pharmaceutical Times*, which was edited by the genial Bohemian journalist, Gustav Strauss. The *Medical Times* itself had been



founded by T. P. Healey to criticize Wakley's *Lancet* (4). Not surprisingly, therefore, like so many Victorian commercial medical journals, *The Chemist*, *Pharmaceutical Journal* and *Pharmaceutical Times* were extremely quarrelsome organs and served more as factional weapons of propaganda than as journals containing serious chemical, medical and pharmaceutical information. They make entertaining reading and are important sources for the social historian of science; but for serious chemistry, the historian, like the 19th-century chemist, must look to Taylor's *Philosophical Magazine* and its sister publication, *The Chemical Gazette*.

With the tremendous expansion of organic chemistry in the 1830s, and with William Francis, Taylor's illegitimate son, who was educated at Berlin and with Liebig at Giessen, producing large numbers of translated chemistry papers for the journal, *Philosophical Magazine* simply could not cope. Hence, in 1842, Francis, together with Henry Croft (who soon migrated to Toronto to be its university's first Professor of Chemistry), founded the serious and important bimonthly, *Chemical Gazette*. This was published and printed by Taylor.

The *Chemical Gazette, or Journal of Practical Chemistry in all its Applications to Pharmacy* was very much the 25-year old Francis's pride and joy. Unfortunately, on his father's death in December 1858, Francis found, on inheriting the printing house, that he simply could not cope with editing three high-quality science journals like the *Chemical Gazette*, the

*Philosophical Magazine* and the equally important *Annals of Natural History*, as well as running a printing house which printed 90% of the transactions of London's learned societies together with the examination papers of the University of London and the textbooks of many large London publishing houses. And so it came about that in November 1859, Francis sold the copyright of the *Chemical Gazette* to the 27-year old William Crookes, whom he would have known through their mutual interest in photography and their joint membership in the convivial "B Club", composed largely of Liebig's and Hofmann's former British pupils.

Crookes (1832-1919) was, like Norman Lockyer, the founder-editor of *Nature*, both a scientist of considerable originality and a journalist with sound commercial sense. Like Lockyer, he never held an academic appointment (his one attempt to exploit his editorship of *Chemical News* to obtain a Chair at the Royal Veterinary College in 1860 was unsuccessful), so his journalism, analytical consultancy work, and many commercial ventures were his only means of support.

During the mid-1850s, when the technical development of photography was almost entirely in the hands of chemists, Crookes had served as editor of a number of photographic journals in Liverpool and London. Indeed, an agreement with the new weekly *Photographic News* in 1858 to give them first refusal of any articles he wrote on photography for two years, meant that Crookes was initially prevented from covering photography personally in *Chemical News*. Otherwise his target audience, including the medical profession, was pretty universal (5):

While Chemistry, in all its various branches, Scientific and Analytical, Technical, or in its relations to Agriculture will ... form the principal subject treated of, the Medical Profession will not fail to find recorded in its pages, every new discovery relating to Toxicology, Materia Medica and Pharmacy.

On purchasing the copyright of the *Chemical Gazette* from Francis and arranging for Taylor and Francis to print his first issue, Crookes bought space in *The Athenaeum* to announce his intentions (6):

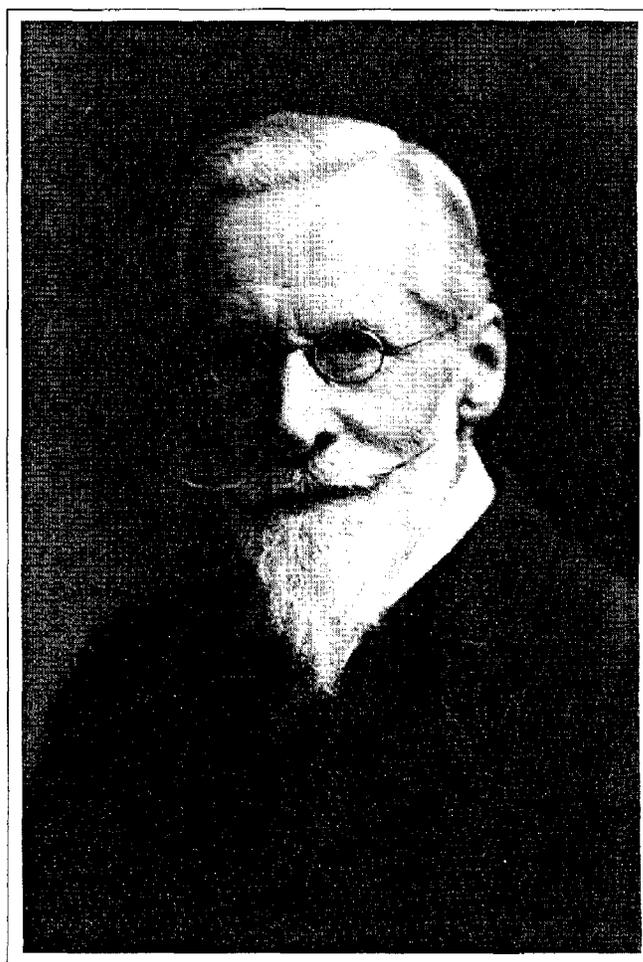
A New Scientific Periodical on Saturday next, the 10th December, 1859, Will be Published, price Three pence, No. 1 of

#### THE CHEMICAL NEWS

A Weekly Journal Devoted to Every Branch of Chemical Science and an Advocate of the interest of the Chemist & Chemical Manufacture (6).

Barring the failed mechanics' *Chemist* of 1824-1825, all previous chemical journals had been monthlies. Could Crookes find enough chemical news to sustain 24 columns of small type

per week (i.e., 12 pages of double columns)? He evidently had little difficulty and, in fact, one of the characteristics of *Chemical News* was its trick of serialization, which was both necessary for variety of coverage and to sustain interest from week to week. We may read Faraday, Frankland, Hofmann, Odling, Pasteur, Wurtz and, of course, Crookes himself, in parts like a Dickens novel. To these serials Crookes added the customary reports of scientific meetings at the Chemical Society, Pharmaceutical Society and other societies, frequently giving information of discussions, which are not available elsewhere, from his own shorthand notes. There were also abstracts of articles from foreign journals, the coverage of French literature being particularly strong because of Crookes' friendship with L'abbé Moigno, editor of *Cosmos*. Although Crookes tried to remain neutral editorially, correspondence columns were often lively and fueled by fractional differences over, for example, membership of the Chemical Society or, in the 1890s, the issue of Dewar versus Ramsay as President of the Society. The journal also noticed books and listed chemical patents.



William Crookes (1832-1919)

Once this balance had been found, Crookes made little adjustment to the weekly formula. *Chemical News* shows virtually no change until 1920. In particular, he continued the *Chemical Gazette's* practice of including reports on toxicology, materia medica and pharmacy, saying that these features were specifically aimed at the medical reader (7).

By the end of the first year (1860), some financial details published by Crookes' biographer, Fournier D'Albe, show that *Chemical News* was just about breaking even, with a profit of little over £1 per week on weekly sales of 870 copies (8). Clearly, to make a half-yearly profit of £50, of £100 per annum, Crookes needed to double his sales. With this in mind, in January 1861, Crookes raised the price to 4d (where it stayed until 1920), and went into partnership with the publishers Griffin & Bohn and the printers, Reid and Pardon, the agreement being that he should be paid three and one-half guineas per week. This partnership did not work out, and after a complicated series of financial maneuvers and squabbling with his partners, Crookes found himself sole owner again by the end of 1862. We can judge that this was a difficult period for the journal financially, for although Faraday had allowed Crookes to print his Christmas Lectures on the Candle in 1861, in 1862 Crookes had to decline Frankland's Royal Institution Juvenile Lectures (9):

I should in the first place have to pay the shorthand writer 2 guineas for taking down each lecture. The wood engravings with which the course should be illustrated (to make it uniform with the previous ones by Drs. Faraday and Tyndall) would not average less than 20/- each Lecture. If you corrected the Proofs, I should have to pay the printer just double for composition, as they find it cheaper to reset the lectures in type from your altered proof than to alter the original type. That was on the former occasion an additional expense of 10/- to 40/- each. Lastly, there would be your own honorarium, which for four and one-half pages each lecture would be £14-5s. For the course of six (lectures) I should therefore have to pay

Shorthand writer	12 - 12 - 0
Engraver	6 - 0 - 0
Extra composition	10 - 10 - 0
Dr. F.	14 - 5 - 0
	£ 43 - 7 - 0

which would be more than double the amount the three previous Xmas courses of Lectures have cost each.

However, after this financial hump at the beginning of the 1860s, and despite some electrifying competition from John Cargill Brough's *Laboratory* in 1867, which forced Crookes to improve the quality of his paper and type, and the pirating of copy by an American *Chemical News* issued in New York (1867-70), he was eventually able to make a financial success of it. Indeed, by 1900, according to D'Albe, Crookes was

making an income of £400 per year, and already by 1869 Crookes spoke of a sales run of 10,000 copies per week, including America. Proudly issuing its six monthly index, Crookes called his journal the "*Jahresberichte* of Chemistry" (10).

The New York edition of *Chemical News* is interesting since it led to the establishment of America's first independent chemical journal. The reprint edition had included a small supplementary insert entitled "The American Chemist". Crookes refused to do a deal with its publishers, Charles F. and William H. Chandler, and insisted that their republication should cease. He then made his own arrangements to have *Chemical News* distributed throughout the American continent. Not put out, the Chandlers launched the *American Chemist* as an independent monthly publication. Charles Chandler (1836-1925) was an important figure in the foundation of the American Chemical Society (ACS) in 1876. Given his publishing activities, it was natural that the new society's early transactions and proceedings should appear in the *American Chemist* which, however, Chandler abandoned in 1877 when the ACS began its own *Proceedings* (and from 1879, its own journal as well).

Although the formula of the contents changed little until the 1920s, one can, of course, detect shifts in emphasis. Crookes himself noted how (11):

... in the early numbers of *Chemical News* many semi-popular expositions of scientific subjects were included, so that chemistry and physics might become less of a mystery to numbers who readily would have devoted themselves to the study of science, but whom circumstances debarred from following their true bent.

Like the important weekly *English Mechanic*, which had begun in 1865, therefore, Crookes found a market amongst the intelligent artisan movement for whom the Department of Science and Art were providing classes and an examination system, and, of course, their teachers. Since this audience was interested in textbooks, they were regularly reviewed, often very critically. For example, the text of John Buckminster, who worked tirelessly for the Department of Science and Art, was dismissed as full of "bad grammar, confused statements, bad chemistry and false chemistry" (12). Texts by Frankland, Hofmann and Williamson, on the other hand, received high praise. Given this new student audience, it can be no accident that the discussions of "quantivalence", that is valency, found in the *English Mechanic* in the mid-1860s are also found in *Chemical News*, where "valence" and "valency" are first used from 1866 (13). The importance of education is perhaps best seen in the student issues which Crookes began annually from 1863 (an idea which he took from *The Lancet*) (14). This is a most useful source of historical information concerning the way chemistry teaching slowly transformed from private to institutional teaching and for its demonstration of the continu-

ing importance of hospital posts for chemists.

In sum, Crookes brilliantly overcame the (15):

... difficulty of catering at once for the purely scientific reader, the practical chemist, and a still larger class of reader who, with but imperfect knowledge of the science, [sought] only for information which may be turned to account commercially.

A monographic treatment of *Chemical News* would have to discuss other changes of tone and the changing focus of interest in food adulteration, water analysis, chemical professionalization and debates over the endowment of research. What though, briefly, of its scientific content? There was, of course, fairly full coverage of the developments in chemistry: the historian can watch the way in which bracket type formulae continued in use until the 1870s - the first graphic or structural formula did not appear until 1871 and the benzene hexagon not until 1879 - and the way in which Crookes aided the standardization of nomenclature by adopting the Chemical Society's recommendations from 1880 onwards.

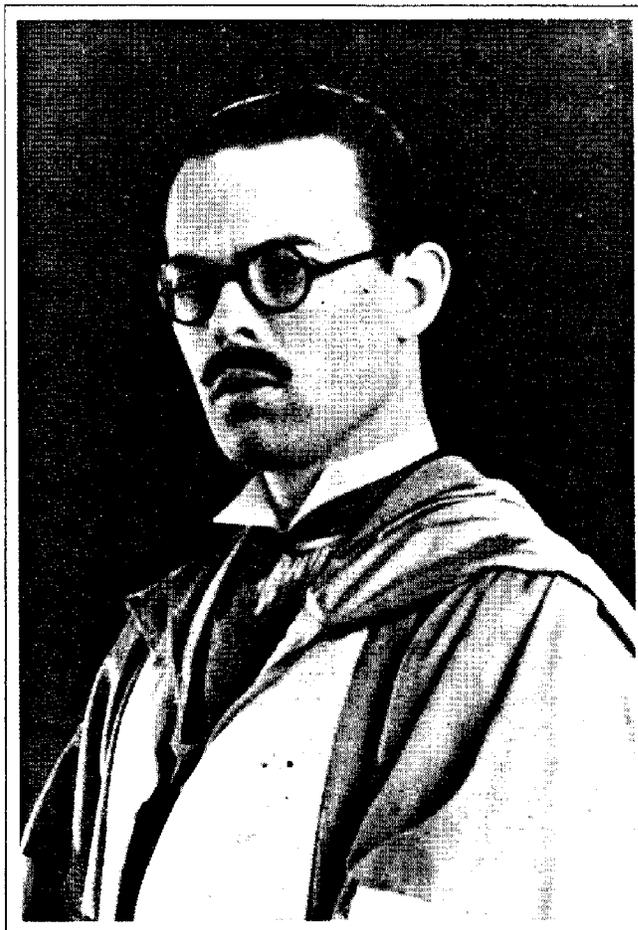
However, given that the journal was edited by William Crookes, the journal was an important vehicle for what may be termed "metachemistry". There is a strong interest in the nature of the elements and their periodicity. Historians of chemistry recall that Newland's speculative papers on "the law of octaves" first appeared in *Chemical News*, as did many other speculative papers on the evolution of elements and on Prout's hypothesis (16). And when Crookes' interests shifted to radioactivity, the journal provided an important vehicle for research on radiochemistry. Much speculative nonsense was published by Crookes on these subjects, but his aim was obviously a good one - to encourage ideas about the ultimate nature of matter. This tradition continued after his death in 1919 with contributions during the 1920s from the school-teacher, F. H. Loring.

If metachemistry was the journal's most obvious feature as far as pure science was concerned, the journal is also interesting and significant as a source for the social history of chemistry. A few random examples may be chosen.

\* The absence of a pension system or benevolent fund for destitute chemists led to frequent appeals to readers to help the widows and children of minor chemical figures; for example, for the Chemical Society's librarian and editor, Henry Watts, and for the former editor of *The Chemist and Druggist and Laboratory*, John Cargill Brough.

\* Correspondence in the 1860s often drew attention to the scandal of purchased degrees from German universities. Similarly, readers were warned of chemical confidence tricksters who pretended to be the pupils or friends of eminent German teachers and who, by this means, borrowed or stole money from their English pupils.

\* The journal reveals the extent to which A. W. Hofmann was revered in Britain, following his return to Berlin in 1865.



H. C. Blood Ryan

In 1870, considerable publicity was given to Hofmann's appeal to British chemists for supplies of disinfectants to help in the Franco-Prussian war.

\* It is a measure of the importance of analytical chemistry to Victorian chemists that advertisements for training courses at the Wiesbaden school of analytical chemistry run by Fresenius and his sons appeared regularly in the journal.

\* *Chemical News* also reveals the continuing survival of alchemical speculations and aspirations. In 1865, there were rises in the price of bismuth which were attributed to a revival of alchemical experimentation. Although Crookes himself dismissed the possibility of alchemical transmutation, as befitted a metachemist, he was obviously interested in Stephen H. Emmens' pressure process for the transmutation of Mexican silver coins into gold, which received great publicity in 1897. Emmens was even allowed to advertise in the journal.

What caused this once thriving journal to collapse in 1932? By 1902 Crookes was 70 years old, and although he oversaw the journal until the day he died in 1919, from about 1906 onwards, the effective editor was Crookes' private laboratory

assistant, James H. Gardiner, who had become his research assistant when Charles Gimmingham left in 1882. Gardiner became full editor on Crookes' death, until 1924, when he was succeeded by John F. G. Druce (1894-1950), chemistry master at Battersea Grammar School, and one of the last schoolteachers to do original chemistry research. Druce was also a pioneer historian of science and narrowly missed the discovery of rhenium in 1925.

Druce was probably sole editor from 1924 until 1930. During this period, *Chemical News* became much more of a secondary channel of chemical communication than a primary research journal. Although Gardiner had already changed the subtitle to reflect the fact that the journal no longer spoke for pharmacy and was more a "journal of theoretical and practical chemistry and physics in their application to engineering and manufactures", the competition from the monthly *Chemical Age* (f. 1919) and the Society of Chemical Industry's weekly *Chemistry and Industry Journal* from 1923 on, effectively shut off the receipt of primary industrial articles, as well as articles from the scintillating pen of the prolific Henry Edward Armstrong.

Nevertheless, the journal might still have survived as a general weekly review of science (along the lines of the monthly *Discovery*, founded in 1920) but for the disastrous appointment of a new editor in 1930. He was the splendidly named and honored:

H. C. Blood Ryan, M.A., D.Sc., LL.D., Vice President and Hon. Foreign Secretary of the European Branch of the Muslim Association for the Advancement of Science, Patron and Fellow of the British Radio Institution, Chairman of the National Institute of Criminology, Director of Research of the College of Pestology, etc.

He was also the founder of the misleadingly-titled Faculty of International Science in Gordon Square in the heart of the University of London.

Who exactly Ryan was is difficult to discover, though he is known to students of Nazi Germany as a "fellow traveler of the right" who translated Göring's speeches and who blamed Hitler's rise to power on Franz von Papen. He was a journalist in the 1930s and early 1940s (17). His degrees were clearly phony and he was exposed in *Nature* during the week that the final unusual 32-page issue (instead of 16 pages) of *Chemical News*, dated October 1932, appeared.

The previous issue, Friday 23 September 1932, had announced on its cover:

Owing to the complete reorganization of the policy of *Chemical News* this journal will be issued MONTHLY until further notice, the next issue being dated October 1932.

This October issue carried no printed message of demise and no reference to the scandal surrounding its editor. However, a

typed message tipped between the pages (a rare example is preserved in the Royal Institution's copy) announced:

This is the only issue which will appear monthly. Publication as a weekly will resume on 25 November No. 3782. The strong Editorial Board of this journal will continue to function as hitherto.

It was not to be. On 25 October 1932, *Chemical News, Ltd.* was wound up. Dr. Blood Ryan had led the Company into bankruptcy (18). In this ignoble manner ended one of the great international organs of chemical communication.

#### References and Notes

1. The second and third series, volumes 1-4 (1849-53), and volumes 1-6 (1854-58) were subtitled *A Monthly Journal ... of Chemistry Applied to the Arts ... and Medicine*.
2. "Advertisement", *The Chemist*, **1840**, 1, up.
3. Weekly for volume 1, then monthly for volume 2, Nos. 1-2 only.
4. Healey first issued a pharmaceutical supplement, (*Pharmaceutical Repository*) to the *Medical Times* on 31 May 1846. This was split off as *The Pharmaceutical Times. A Journal of Chemistry Applied to the Arts, Agriculture and Manufactures*, 5 September 1846-4 November 1848. It was then renamed *The Chemical Times and Journal of Pharmacy, Manufactures, Agriculture and the Industrial Arts*. Vols. 4-5, 11 November 1848-17 November 1849. The *Medical Times* merged with the *London Medical Gazette* in 1862 to form the *Medical Times and Gazette*.
5. Anon., "The Chemical News", *Chem. News*, **1861**, 3, 1-2.
6. E. E. Fournier D'Albe, *The Life of Sir William Crookes O.N., F.R.S.*, T. Fisher Unwin Ltd., London, 1923 and New York, NY, 1924, p. 48.
7. Reference 5.
8. Reference 6, p. 52.
9. *Ibid.*, pp. 80-81.
10. Anon., Preface, *Chem. News*, **1869**, 19, unpaginated. For *The Laboratory*, see W. H. Brock, "The Development of Commercial Science Journals in Victorian Britain" in A. J. Meadows, ed., *Development of Science Publishing in Europe*, Elsevier, Amsterdam, 1980, pp. 95-122.
11. W. Crookes, "A Retrospect", *Chem. News*, **1910**, 101, 1-2.
12. Anon., "Notices of Books", *Chem. News*, **1866**, 14, 176.
13. The first valence headline was 1871. See discussion in C. A. Russell, *A History of Valency*, Leicester University Press, Leicester, 1971, pp. 83-89.
14. Anon., "Address to Students", *Chem. News*, **1863**, 8, 147, 152-7, 165-6 and annually every September.
15. Anon., "To Our Readers", *Chem. News.*, **1863**, 8, 303.
16. See D. M. Knight's facsimile reprints of articles from the *Chemical News* in *Classical Scientific Papers, Chemistry, Second Series*, Mills & Boon, London, 1970.
17. H. C. Blood Ryan, *The Great German Conspiracy*, Lindsay

Drummond, London, 1943.

18. J. F. G. Druce, "The Chemical News", *J. Soc. Chem. Industry*, 1932 (16 December), 1031. Also Anon., "A Self-styled Faculty of Science", *Nature*, 1932, 130, 603-4; and "College and Faculty Dissociations", *ibid.*, 1932, 130, 692-3.

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## OLD CHEMISTRIES

### A "Lost" Silliman Chemistry Text

*William D. Williams, Harding University*

Published in 1866, *Principles of Modern Chemistry* by Benjamin Silliman, Jr. and George F. Barker, has gone unnoticed by chemical historians (1). This extremely rare text was the first American work to present the "new chemistry" of the 1860s. An examination of the volume reveals it to be a revision of the first section of Silliman's famous text, *First Principles of Chemistry*.

Silliman and Barker each authored a well-known chemistry text. Silliman's *First Principles of Chemistry* (2) went through 50 "editions" and sold 50,000 copies between 1847 and 1875 (3). Barker's *A Text-Book of Elementary Chemistry, Theoretical and Inorganic* (4) had 13 "editions" from 1870 to 1891, sold 10,000 copies the first five years, and was translated into Japanese, Arabic and French (5). Despite the prominence of these two authors, however, their co-authored text has remained "lost" (6). The following review examines this rare volume and its relationship to the two authors' well-known texts.

*Modern Chemistry* was published by Theodore Bliss and Co. of Philadelphia - the same publisher as Silliman's *First Principles*. Although it never mentioned *First Principles* by name, the preface of *Modern Chemistry* left no doubt that it was intended as a revision of Silliman's text. It explained that the section on physics, "which has heretofore occupied the first portion of the work", was being omitted (7). Part I of Silliman's *First Principles* was indeed titled "Physics". The preface to *Modern Chemistry* also spoke of "earlier editions" and of T. Sterry Hunt's organic section (8):

It is appropriate that the atomic system should appear in this book, since many of its leading principles have been taught in its pages for

PRINCIPLES  
OF  
MODERN CHEMISTRY.

ARRANGED  
ON THE  
ATOMIC SYSTEM OF NOTATION.

BY  
BENJAMIN SILLIMAN, M.A., M.D.,  
PROFESSOR OF GENERAL AND APPLIED CHEMISTRY IN YALE COLLEGE,  
AND  
GEORGE F BARKER, M.D.,  
INSTRUCTOR IN PRACTICAL CHEMISTRY IN THE YALE MEDICAL INSTITUTION.

PART I.  
CHEMICAL PHILOSOPHY.

PHILADELPHIA:  
THEODORE BLISS & CO.  
1866

the last fourteen years. Professor T. Sterry Hunt, the author of the Organic Chemistry in the earlier editions, was one of the first laborers in this field ... while the progress of fourteen years has changed the general aspect of chemistry, the student will recognize in these pages many of the principles laid down in former editions.

Subtitled, "Part I. Chemical Philosophy", the 100 pages of *Modern Chemistry* were to replace the briefer and outdated, "Part II. Chemical Philosophy" section of Silliman's *First Principles*. The prime purpose of the new edition was the introduction of the "atomic system of notation" into inorganic chemistry as had already been done with organic. The old dualistic system of expressing inorganic formulas ( $\text{CaO} \cdot \text{SO}_3$ ) was to be replaced by the simplest atomic formula ( $\text{CaSO}_4$ ). Classification by the "theory of types" and the resulting system of "equivalence" were recommended as less complex and more easily remembered by introductory students.

The "new chemistry" of the 1860s was a reform of equal importance to Lavoisier's "new chemistry" of the 1790s. During the first half of the 19th century, facts and theories accumulated faster than they could be systematized. Earlier combining atomic weights were inconsistent with Avogadro's law of equal volumes and the Dulong and Petit relationship for