MARTHA ANNIE WHITELEY (1866-1956):
CHEMIST AND EDITOR

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Few women chemists whose careers began before 1900 made important contributions to major technical works still to be found in reference sections of science libraries. But Martha Annie Whiteley, coeditor and then editor-in-chief of the eleven-volume fourth edition of Thorpe’s Dictionary of Applied Chemistry (1937-1954) is an exception.

The original three-volume edition of this work was produced under the editorship of British chemist Sir Edward Thorpe (1845-1925) over the period 1890-1893. During the next four decades it was greatly expanded, a five-volume second edition being brought out by Thorpe in 1916-1919 and two more volumes being added by Foster Morley in 1927-1930 after Thorpe’s death. However, within a few years, because of the rapid growth of the field, a complete revision was being planned. Supplementary volumes were issued in 1934 and 1935 as a stop-gap measure and the first volume of the revised fourth edition appeared in 1937. The revision was expected to take nine years, a projection which prompted a Nature reviewer of volume 1 to remark that the first volumes would be out-of-date before the last came out (1). In fact seventeen years were to pass and World War II to intervene before the work was completed with the publication in 1954 of volume 11; a combined index followed in 1956. Coeditors were Sir Jocelyn Field Thorpe (not a relative of Thomas Edward) and Martha Annie Whiteley, who was already very familiar with the material, having helped extensively in the preparation...
of earlier editions. With Sir Jocelyn Thorpe’s death in 1940 about the time of publication of volume 4 of the fourth edition, Martha Whiteley, although then seventy-four and somewhat handicapped physically, became editor-in-chief, with help from an assistant editor, A. J. E. Welch. She also had the backing of a distinguished editorial board; the latter consisted of I. M. Heilbron, Professor of Organic Chemistry at Imperial College London, and H. J. Emeléus, Reader in Inorganic Chemistry, at Imperial College, Sir Alexander Todd, Professor of Chemistry at Manchester University, and H. W. Melville, Professor of Chemistry at Aberdeen University. Throughout World War II Whiteley’s work was done at Cambridge, where she was given accommodation and library facilities. In 1944 she returned to London and prepared the last four volumes, working from Imperial College and her South Kensington flat, her house having been destroyed by bombing.

This last edition of a chemical encyclopedia on which major effort was put forth over more than sixty years covered almost every topic relating to chemistry. Although it can still be used as a comprehensive source for much basic information, it is of considerable interest now from another point of view as well, namely, the broad historical perspective it can give of the field up to the late 1940s. Many entries are in fact careful, detailed reviews by leaders in the field of progress in particular areas and topics up to that time; the essays on stereochemistry (W. H. Mills) and on tautomerism (J. W. Baker) are two of many such articles of particular note. Also striking is the long essay on synthetic drugs by three chemists from Imperial Chemical Industries, Manchester (S. Ellington, W. R. Boon, and H. C. Carrington), which sets out in precise detail the relatively limited collection of medicinal compounds available fifty years ago, when, for example, the sulfa drugs were still the major systemic antibacterial agents. Short discussions afford summaries of work on newly discovered isotopes, such as tritium, and recently isolated compounds such as streptomycin, while longer essays cover standard, classical topics such as the theory, construction, and performance capabilities of the chemical balance, including the successive changes and improvements from the instruments of the early nineteenth cen-
much to gain the acceptance of women students and fos-
ter their work in chemistry at both undergraduate and
graduate levels (2).

Born in Hammersmith, London, November 11,
1866, the second daughter of William Sedgwick
Whiteley and his wife Mary (Bargh), she attended
Kensington High School and the Royal Holloway Col-
lege for Women (London), graduating with a B.Sc. in
1890. She then taught for eleven years, first at
Wimbledon High School and after that at St. Gabriel's
Training College (London); but by 1898 she was also
continuing her studies, having begun work at the Royal
College of Science (later part of Imperial College) un-
der the guidance of Professor Sir William Tilden. She
received a London D.Sc. in 1902, presenting a disserta-
tion on the preparation and properties of amides and
oximes, and the following year was invited by Tilden to
join the Royal College of Science teaching staff. Pro-
moted to demonstrator in 1908, she became lecturer in
1914, at age forty-eight, and for fourteen years, from
1920 until she retired in 1934, held the post of assistant
professor (a senior academic post at Imperial College,
later designated as reader).

Her early research, published in the period up to
about 1909, continued her dissertation studies on the
amide and oxime derivatives of dicarboxylic acids and
related cyclic ureides, including derivatives of caffeine
and barbituric acid. She focused particularly on the prob-
lem of tautomeration in oximes, an area receiving con-
siderable attention at the time, and a special interest of
Sir Jocelyn Thorpe. Although Whiteley was Thorpe's
junior colleague at Imperial College and his collabora-
tor in many projects, it is clear from her writings that
she had her own research program. Her work on amides
and oximes continued after World War I, she and her
students and collaborators (including two women, Edith
Usherwood and Dorothy Yapp) publishing at least three
full papers during the 1920's (3).

Throughout the war, the chemistry staff at Imperial
College put their efforts into urgently needed govern-
ment work. With the cutting off of Britain's pre-1914
supply of German-manufactured chemicals, crash pro-
grams had to be started to try to make good the deficit.
Whiteley collaborated with Thorpe on the synthesis of
drugs badly needed for military hospitals, especially
phenacetin, novocaine and b-eucaine, until then im-
ported. She also worked with Thorpe, a member of the
government's Trench Warfare Committee, on the pro-
duction of lachrymatory and vesicant gases for military
use.

In 1925 she and Thorpe brought out their Students'
Manual of Organic Chemical Analysis: Qualitative and
Quantitative, a work which had its origins in the accu-
mulated experience of twenty years' teaching in the or-
ganic chemistry laboratories of Imperial College;
Whiteley had directed the advanced course throughout
much of this period. The 241-page work, a comprehen-
sive and up-to-date compilation of methods used for
estimating the more common types of organic materials
with full experimental procedures included, was a much
welcomed addition to the then meager literature on or-
ganic analysis. In addition to presenting clear, practical
information, it traced the historical development of some
of the most important areas of the subject. Thus the
section on the quantitative estimation of carbon and
hydrogen included a description of the apparatus devised
by Lavoisier 140 years earlier, which, though it failed
to give satisfactory results, established as early as 1784
the basic method of burning the organic sample and col-
llecting and weighing the combustion products (4).

One further area in which Martha Whiteley's influ-
ence was considerable was in the long campaign to bring
women into fellowship in the London Chemical Soci-
ety (5). She and her friend and fellow chemist Ida
Smedley MacLean (1877-1944), a research worker at
the Lister Institute of Preventive Medicine, were patient
leaders in this effort over almost two decades; and in
1920, when women were finally admitted, Whiteley was
one of the first to be formally accepted. The first woman
elected to the society's council, she served from 1928 to
1931.

Although several British women from about
Whiteley's time were productive research workers, most
of them made their contributions as assistants to male
chemists. A few developed their own research programs
and achieved notable success in newer, nontraditional
branches of the field, Ida Smedley MacLean's work in
biochemistry being especially outstanding (6). Whiteley,
however, was probably the only one who found a place
as an independent worker in an established area of chem-
istry and remained active in research, teaching, and tech-
nical writing throughout a long career at a major educa-
tional institution—a notable achievement for a woman
chemist of her generation.

Her services to chemistry in general and Imperial
College in particular were formally recognized in 1945
when she was made an honorary fellow of the college.
An able teacher, she was remembered by students and
younger colleagues as a source of inspiration and a de-
pendable guide. She died on May 24, 1956, in her nine-
tieth year, not long after she had seen the Dictionary
revision through to its completion.
REFERENCES AND NOTES


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