

THE ROYAL COMMISSION ON HISTORICAL MANUSCRIPTS

Report on correspondence and papers of

WALTER STILES (1886-1966)

botanist

1906-1965

deposited in the Library of the

University of Birmingham

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(CSAC 59/3/78)

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Report on the papers of
Professor Walter Stiles F.R.S.
(1886-1966)

Compiled by: Jeannine Alton
Harriot Weiskittel

Deposited in the Library of the University of Birmingham, 1978

Description of the collection

The material was received from Professor Stiles's children, Miss Ruth and Dr. Walter Stiles.

The collection is relatively small; it includes careful notes taken by Stiles at Cambridge 1906-09, especially B.1, lectures by Sir Rowland Biffen and Professor H. Marshall Ward. Stiles wrote many books and articles, and the royalty and sales information in A.13-A.20 is of interest. His regular contributions on 'Recent advances in plant physiology', published in Science Progress 1919-63, based on his own meticulous reading and evaluation of the literature, helped to guide and inform research, especially in permeability, salt absorption, trace elements, and nutrition deficiency in plants.

W. Stiles
CSAC 59/3/78

Summary of the career of Walter Stiles

b. 1886

1890-97	educ. Westville Road Elementary School, Shepherd's Bush, London
1897-1905	Latymer Upper School, Hammersmith, London
1905-09	Emmanuel College, Cambridge. Natural Science Tripos Part I 1907 (Cl.1), Part II 1909 (Cl.1)
1910-19	Assistant Lecturer, Department of Botany, University of Leeds
1911	Walsingham Medal, Cambridge
1918-20	Work for Food Investigation Board, D.S.I.R.
1919-29	Professor of Botany, University of Reading
1920	Married Edith Ethel May Harwood
1922	Sc.D. Cambridge
1928	F.R.S.
1929-51	Mason Professor of Botany, University of Birmingham
1953	Hon. D.Sc. University of Nottingham

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Section A Biographical and personal

- A.1 Misc. obituaries and biographical notes.

Memoir of Stiles by W.O. James, Biog. Memoirs of Fellows of the Royal Society, 13, 1967, 343-357.
- A.2 Family souvenirs: certificates of merit (N.S.P.C.A., 1873 and for drawing 1875) awarded to Walter Stiles (Stiles's father), an artist and woodcarver.
- A.3 Misc. personal souvenirs and memorabilia, including Latymer Upper School; certificate of exemption from military service, etc. (1918); signed menu cards (various dates), Stiles's letter (1963) to Editors of Science Progress relinquishing the task of preparing abstracts on Plant Physiology which he had discharged since 1918.
- A.4 Photographs: of Stiles's mother, father, self and friends at Cambridge (c) 1908-10, of collaborators and colleagues in laboratories (one dated 1917) of Ingvar Jørgensen, Franklin Kidd and others, of Sixth International Botanical Congress (Physiology Section) held in Amsterdam 1935 (Stiles was a Vice-President). The photographs are identified on verso where possible.
- A.5 Letters of congratulation on Stiles's election to the Royal Society (not itemised or indexed). 1928
- A.6 Misc. honours:
- American Society of Plant Physiologists (Corresponding Member). 1951
- University of Birmingham (Emeritus Professor). 1952
- British Association (Section member of Council). 1960
- University of Nottingham (Hon. D.Sc.), with citation, programme, social engagements, correspondence. 1963
- A.7 Visit to Czechoslovakia, 1958.

 The visit was at the invitation of the Czechoslovak Academy of Sciences, via the Royal Society.

 Brief correspondence with colleagues re arrangements for visit, letters of thanks, etc.

A.8-A.12 Account books, 1957-62

Very carefully itemised accounts of all domestic outgoings.

- A.8 1957-59.
- A.9 1959-60.
- A.10 1960-62.
- A.11 1962.
- A.12 1962-63. This records the detailed cost of running Stiles's Triumph Herald car.

A.13-A.20 Royalty statements

Stiles kept the statements and accounts of royalties and fees received from journals and publishing houses, with few gaps, throughout his career. The material enables authorial income of this kind to be traced reasonably fully, and in his later years Stiles himself drew up comparative tables of sales and royalties between various publishers (see A.20).

- A.13 New Phytologist, 1917-1929
These accounts were drawn up in longhand by the Editor, Sir Arthur Tansley, and some brief correspondence is included.
- A.14 Longmans, Green (Photosynthesis), 1925-40.
- A.15 Edward Arnold (Science Progress), 1951-63.
- A.16 Macmillan (Nature), 1953-63.
- A.17 Springer-Verlag (Encyclopaedia of plant physiology), 1958.
- A.18 Methuen (Respiration in Plants), 1932-65.
- A.19 Cambridge University Press (Trace elements in plants and animals), 1947-65.
- A.20 Stiles's own comparative table of sales of his works in UK and abroad, and royalties received.

Section B Notes and working papers

B.1-B.6 Notes on lectures at Cambridge, 1906-09

- B.1 Black exercise book, with name 'W. Stiles, Emm. Coll. Camb.' inside front cover, and description by Stiles:
 'Notes on Lectures delivered by Mr. Biffen [later Sir Rowland Biffen] in the Botany School Cambridge, Lent Term 1906, and Notes on Lectures delivered by Prof. H. Marshall Ward in the Botany School Cambridge, Easter Term 1906 [H. Marshall Ward, FRS, died 1906]'.

 The book, which is very carefully kept with many diagrams and drawings, contains a group of lectures entitled 'Botany Vol. II' beginning with 'Lecture 19' (no Vol. I remains) presumably the course by Biffen, and continues with 'Easter Term' lectures, presumably by Marshall Ward, on 'The Classification of Flowering Plants'.
- B.2 Misc. sets of notes taken at Cambridge, probably at lectures, various dates: 4, 6, n.d., 15, 20, 22, 25 May 1908, on botanical species.
- B.3 Misc. notes on botany of 'Fen Districts' probably taken at Cambridge, some inscribed 'Moss. May 1909'.
- B.4 Misc. notes 'Principles of Classification', etc. taken at Cambridge, but not dated or identified.
- B.5 Misc. notes, two titled 'Lecture V' and 'Lecture XVIII', of botany courses at Cambridge, not dated or identified.
- B.6 Green notebook of experiments on plant physiology, based on Darwin and Acton [Practical Physiology of Plants by F. Darwin and E.H. Acton, 1894, etc.]; one set is dated 21/9/08.
- B.7 Black notebook, inscribed 'W. Stiles. University of Leeds. Field Notes II' (no Vol. I remains), various dates 1910-11. Observations of woodlands and heath species in areas around London - Norbury, Walton, Dorking, Epsom, Reigate, Box Hill, etc. - presumably compiled during vacations from Leeds, where Stiles was appointed Assistant Lecturer in Botany 1910. (See also B.27.)

- B.8 Black notebook, inscribed 'Studies in Permeability'. A careful account of experiments, with diagrams and calculations, usually bearing the title of the series added in red ink at the top of the page.
- Experiments begin Dec. 10, 1914, and continue at various dates 1914-17, and continues Jan. 11, 1919 with heading 'This investigation was carried out in the Institute of Physiology, University College, London'.
- These notes are related to the papers published in collaboration with Ingvar Jørgensen in New Phytologist 1914-18.
- The book continues with notes of experiments April 1927-Feb. 1928, on the exmosis of dissolved substance from storage tissue into water.
- B.9 Folder of notes on Permeability and Diffusion. Mainly preliminary notes on the literature, preparatory to the series of experiments by Stiles and Jørgensen, with careful analysis and evaluation by Stiles (related to B.8).
- B.10 Similar material on 'Water Cultures'. Notes on the literature, but also 'Suggestions for Water Culture Work', list of ideas and experiments to be carried out (related to B.8).
- B.11 Work for Food Investigation Board, D.S.I.R. 1919:
- ms. notes by Stiles 'Fruit Freezing and Storage Expts.' June-July 1919;
- ms. notes by Jørgensen on freezing;
- ms. and typescript drafts of 'Method for Preserving Soft Fruit' (in sucrose instead of ice) by Stiles and Jørgensen, 7 May 1919;
- 2 letters from Sir William Hardy (Director, Food Investigation Board) on a paper by Stiles on cooling problems (not the above), May 1920.
- Also included is a letter from Hardy, Nov. 1919, asking Stiles to prepare a report 'on the work at Billingsgate', in view of 'The very evident fact that you have an unusual capacity for making a clear statement of a case'. (This report was later published over Stiles's name as Food Investigation Board Special Report no.7, H.M.S.O. 1922. See Royal Society Memoir, p.346.
- B.12 Ledger of experiments, 'Penetration of Salts into Plant Tissue', carried out 13 Feb. 1919-5 Nov. 1923, begun at Food Investigation Board in collaboration with Franklin Kidd and continued at Reading.

- B.13 Ledger of experiments, 'Penetration of Salts into Gels', carried out 10 Feb. 1919-20 Feb. 1923.
- B.14 Black notebook inscribed 'Physiology. Abstracts of papers'. General notes on the literature with special reference to absorption of salts, (c) 1921.
- B.15 Notes on the literature, and on experiments to be undertaken; correspondence, 1920, with Gilbert Adair re work in collaboration with Stiles on the penetration of electrolytes into gels.

Adair's letters, many fragmentary and few dated, contain an account of the work, with calculations, discussion of problems and objections and a short introduction to a paper on the subject.
- B.16 'Metabolism. Transpiration'. Notes on the literature, and Stiles's own notes, c.1921.
- B.17 'Nutrition'. Ms. pages numbered 1-23, possibly for a course of lectures at Reading.
- B.18-B.20 3 folders on 'Irritability' (c) 1923-24:
- B.18 'Irritability and Movement Tropisms. Phototropism'.
- B.19 'Irritability. General Radiations'.
- B.20 'Irritability and Movement', probably intended for course of lectures.
- B.21 Folder of notes on 'Analytical Methods', c.1924.
- B.22 Small black notebook inscribed 'Blackstonia perfoliata', record of germination of seeds 'collected by Dr. F. Drabble at Totland Bay, I.o.W.' under various conditions of light and water, Jan.-Feb. 1925 (related to work on water cultures).
- B.23 Notes on cells, c.1929.
- B.24 Notes on germination, c.1932, and 3 pp. notes, perhaps for lectures, on 'Vegetative Development'.
- B.25 University of Birmingham:
misc. teaching material;
notes for students on laboratory methods and analyses;
duplicated class notes for laboratory work on course on 'Physiology of Nutrition', 1929-30.

- B.26 University of Birmingham:
Botanical Department Lake District Excursions 1932 (Excursions 1-6); 1933 (Excursions 6-12).
Duplicated notes of routes, and ecological observations to be made.
- B.27 Small notebook, begins with observations at Newbridge Marsh and Deptford, perhaps early (c) 1910, cf. B.7:
continues with heavily corrected pencil draft of paper or lecture on salt absorption (after 1935 collaborative paper with W.J. Rees);
tables of data, notes and ideas for experiments to be undertaken, some with notes 'No good', 'not practicable', 'do in triplicate';
list of 24 experiments, to be carried out in sequence;
some notes on the literature (the latest ref. is 1944).
- B.28 Ledger of experiments, 'Calibration of Barcroft', carried out Nov. 1935-April 1936.
- B.29 Folder of notes on trace elements and deficiency in plants, very carefully presented, (c) 1936-37.
- B.30 Black notebook, with notes on the literature, mainly on translocation, respiration, phototropism, some with Stiles's notes and comments, (c) 1945-61.
- B.31 Orange exercise book, notes on the literature, mainly toxicity and trace elements, some with Stiles's notes and cross-references. Papers referred to cover 1924-57, but mainly 1953-57.
- B.32 Black notebook, inscribed 'Plant Micro-nutrients': notes on the literature, some with Stiles's comments, kept up to date to (c) 1963, with separate sections on Manganese, Boron, Zinc, etc., perhaps for 'Science Progress' articles, or for Stiles's contributions to Encyclopaedia of Plant Physiology, 1956-61.
- B.33 Folder of notes, especially on enzyme action, and on 'N metabolism'.

Section C Publications and addresses

- C.1 Autograph draft for speech, no date or place, delivered as Presidential address to Yorkshire, or Leeds University Natural History Society.
- C.2 Review of G. Kraus: *Boden und Klima auf Kleinsteines Raum*, 1911.
- C.3-C.7 Autograph or corrected typescript drafts of some of Stiles's early papers which are missing from the printed collection in C.20.
- C.3 'The measurement of electrical conductivity as a method of investigation in plant physiology'.
- C.4 'The antagonism between ions in the absorption of salts by plants'.
(Articles in collaboration with Ingvar Jørgensen, published in New Phytologist, 13, 1914.)
- C.5 'The nature and methods of extraction of the soil solution'.
(Article in collaboration with Ingvar Jørgensen, published in J. Ecology, 2, 1914.)
- C.6 'On the relation between the concentration of the nutrient solution and the rate of growth of plants in water culture', published in Ann. Bot., 29, 1915.
- C.7 'On the interpretation of the results of water culture experiments', Ann. Bot., 30, 1916.
- C.8 Detailed notes on the literature, and draft for Chapter VI. on 'The Absorption of Energy by the Green Leaf' (for Stiles's Photosynthesis. The assimilation of carbon by green plants, London 1925).
- C.9-C.13 Trace elements in plants and animals, C.U.P., 1946, 2nd ed. 1951, 3rd ed. Trace elements in plants, 1961.
- C.9 Copy of first edition 1946, with extensive ms. revisions and corrections.
- C.10 Copy of second edition 1951, with extensive ms. revisions, corrections and diagrams.
- C.11 Misc. correspondence with C.U.P. re various reprintings and editions of Trace elements, 1948, 1959.

- C.12 Correspondence with Keiichiro Fuwa, re Japanese translation, 1952-53.
- C.13 Misc. press-cuttings of reviews of various editions of Trace elements.
- C.14 Principles of Plant Physiology, Methuen 1936, 2nd ed. 1950: brief correspondence with publishers re revision of book, which Stiles was unable to complete because of ill-health. The work was continued by E.C. Cocking, 1965.
- C.15 Respiration in Plants (with W. Leach), Methuen 1932, 2nd ed. 1936, 3rd ed. 1952, 4th ed. 1960: alterations and additions, and preface to 4th ed.
- C.16 Misc. drafts and revisions for papers.
- C.17 Published works not listed in bibliography of Royal Society Memoir:
- 'The Physiology of the plant cell', Nature, 142, 1938 (based on, but not identical with, Stiles's Presidential Address to Section K, British Association, meeting Aug. 1938).
- 'Photosynthesis', Discovery, June 1951, with editorial correspondence 1950.
- 'The Mechanism of photosynthesis' in The Times Science Review, Summer 1952.
- 'The Mechanism of photosynthesis', text of above, published by permission in American Scientist, 41, 1953.
- 'David Thoday 1883-1964', draft for Biographical Memoirs of Fellows of the Royal Society, 11, 1965.
- C.18 Book reviews by Stiles.
- C.19 Contributions by Stiles to Science Progress 1919-63. This includes Stiles's own contributions 'Some scientific aspects of cold storage 1919-20', and also his regular articles on recent advances in plant physiology, for which many of his careful notes and abstracts (Section B) were made and which are not listed in the Bibliography of the Royal Society Memoir.
- C.20 Published works listed in the Bibliography of the Royal Society Memoir. 1 Box.

Section D Correspondence

D.1 Correspondence re Natural Sciences Tripos Cambridge 1925-26. Stiles was Examiner in Botany, 1926 and 1927. Mainly re setting of papers, meetings, etc., with Chairman of Examiners, S.M. Wadham.

D.2 Correspondence re Final Honour School of Natural Science, Oxford, 1927. Stiles was External Examiner. Mainly with Chairman of Examiners, C.G. Douglas; includes drafts etc. for question papers.

D.3 Letters, June-Oct. 1923, from I.B. Pole Evans, South Africa Department of Agriculture, suggesting a visit by Stiles to advise on problems of cold storage for fruit exports. The visit did not take place.

D.4 Shorter correspondence:

from O.S. Gibbs (on 'Trace Elements')	1948
to Mr. O'Brien from Stiles (on Manganese)	1954
from Eben H. Toole	1956
" Keiichiro Fuwa	1957
" Arthur S. Thomas	1961

Requests for reprints of Stiles's publications.

D.5 The Royal Society
misc. correspondence with officers and colleagues on the affairs of the society, various dates 1936-53.
RESTRICTED.

Index of Correspondents

Adair, Gilbert Smithson	B.15
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