John Henry Martin, 1842 – 1881

by Brian Stevenson, Kentucky, USA

John H. Martin produced a variety of reasonable, though not outstanding, microscope slides during the 1860s and 1870s (Figure 1). He began advertising for objects suitable for making slides in the mid-1860s (Figure 2). Through at least 1877, Martin sold and exchanged both prepared slides and unmounted objects. By the spring of 1881, at the age of 38, he was dead, probably from tuberculosis.

Figure 1. *Examples of microscope slides produced by John H. Martin. The addresses on his slides allow them to be dated.* ***(A)*** *78 Week Street, Maidstone, his parents' home. Martin is known to have requested specimens for making slides in 1865. He lived here until at least the middle of 1867. The date of 18 Dec., 1871 is in another hand, and probably indicates when an owner acquired this slide.* ***(B)*** *86 Week Street, Maidstone. Martin advertised slides for exchange from this address in early 1869. The absence of a Micro-Assay Laboratory label suggests production prior to 1873. The design on the custom-made paper was probably created by Martin, as the style of drawing is very similar to that done by him in his books on microscopy. 86 Week Street was a multifunctional building, and simultaneously housed several families, businesses and societies.* ***(C)*** *Micro-Assay Laboratory, Maidstone. This business operated from Martin's home, at 86 Week Street, and was running by 1873. Martin moved to London after April, but before November, 1877. I am not aware of any Martin slides with the London address, so it is not clear if he continued to supply slides after 1877.*

A. 1865

Echinus Spines.—A correspondent offers these in exchange for other objects.—T. H. Martin, 78, Week Street, Maidstone.

B. 1869

Well Mounted Slides of Reproductive Organs of Moss (*Bryum ligulatum*) for other well mounted objects.—John H. Martin, 86, Week Street, Maidstone.

C. 1872

For testa of Star Anise-seed send stamped directed envelope and object to John H. Martin, 86, Week-st., Maidstone.

D. 1875

Wanted, Good Injections; first-class mounted and unmounted Objects given in exchange.—Micro, 86, Week-street, Maidstone.

E. 1874

Unmounted Objects.—At the request of a number of microscopists, Mr. Jno. H. Martin, of the Maidstone Micro-assay Laboratory, has decided to establish an agency in this country for the distribution of his well-known unmounted objects. Persons desiring to prepare their own objects can thus obtain a large variety of interesting materials at a very small cost. A stock of objects will be kept for immediate distribution, and articles that may be out of stock furnished as soon as they can be obtained from abroad. Lists and objects can be obtained by addressing, by post, C. A. Baldwin, *Troy, N. Y.*

Figure 2. *Advertisements and exchange offers from J.H. Martin.* ***(A)*** *The earliest known advertisement from Martin, from the September, 1865 issue of Hardwicke's Science-Gossip. The letter "T" was clearly a typographical error – there was nobody with the first initial "T" in the Martin household. Spines of Echinus (sea urchin) were very popular objects for microscope slides, especially when cut in cross-section.* ***(B)*** *Martin's earliest identified advertisement for prepared slides. Brian Bracegirdle's 'Microscopical Mounts and Mounters' shows a slide with this same specimen description, with the address 78 Week St., Maidstone (plate 25, slide H).* ***(C)*** *From an 1872 issue of Hardwicke's Science-Gossip, an exchange offer for an unmounted specimen. Such unmounted objects appear to have constituted a significant proportion of Martin's sales/exchanges.* ***(D)*** *The slide illustrated in Figure 1C (above), a tissue specimen, may have been made possible by an advertisement such as this.* ***(E).*** *An international venture by John Martin, to provide unmounted objects to the U.S.A., from The Monthly Microscopical Journal*

John Henry Martin was born during the summer of 1842 in Maidstone, Kent, the second son of John and Caroline Martin. Father John was a cabinet maker, upholsterer and picture frame maker. The elder son, Albert, took up his father's trade, and later took over the family business. The Martin business apparently did relatively well – the 1861 census recorded that John Martin Sr. employed 2 men and 3 apprentices (the two sons plus four other people), and the family employed a domestic servant.

In 1865, 23 year-old John H. Martin offered to exchange echinus (sea urchin) spines with other biologists (Figure 2A). Over the next four years, his exchange offers also included whale bone (baleen) section and asparagus beetles. By May, 1869, Martin was offering prepared slides (Figure 2B).

The Maidstone and Mid-Kent Natural History Society met for its first general meeting on May 18, 1869. Regular meetings were held at the home of the Society's Secretary, John. H. Martin, at 86 Week Street, Maidstone. Martin's report of the meeting to the *Monthly Microscopical Journal* was apparently a bit long-winded, as the printed report was footnoted: "*The Secretary would much oblige us by in future forwarding a brief abstract of the meetings. The task of employing the scissors on a long newspaper report, which has on this occasion fallen to our lot, is not a pleasant one, and it takes up much time.—Ed. M. M. J.*".

John Martin wrote two books on microscopy. The first, *Microscopic Objects Figured and Described*, was published in 1870. It was initially released in monthly installments, consisting of drawings of objects as seen through the microscope with accompanying descriptions of the specimens. A comment in the January 1, 1870 issue of the *Monthly Microscopical Journal* was cautiously optimistic:

"*A New Treatise on Microscopic Objects. Mr. Van Voorst is about to issue a very comprehensive treatise on Microscopic Objects. The Author is Mr. J. H. Martin, Secretary to the Maidstone and Mid-Kent Natural History Society. The first part was to have been issued on the 1st of this month. Each part will contain eight plates and eight pages of text. The whole number of figures will be 200, and we cannot help thinking that Mr. Van Voorst will have to exert more than his ordinary skill as a scientific publisher, if he contrives to include the whole range of histology in these. The figures will be faithful drawings of the structures as they appear when as nearly as possible filling the ordinary field of the microscope. It is proposed to commence with the primary forms of Vegetable life, and to proceed onwards through the tissues to the woody structures of the Exogens and Endogens, next descending to the Acrogens, and so passing to the extreme limits of vegetable life, as the Desmideae, &c.; hence to the lower forms of Animal life, the Infusoria, and on*

through the Badiata to the Insects, which will be drawn and described in their various orders, and the minute organs figured separately. In the concluding Plates will be represented interesting and characteristic geological structures, with some of the more curious forms and groupings of crystals. The description of the objects will be brief, and, as far as possible, void of technicalities; and no attempt will be made to enter into details relating to their physiological action".

Opinion of the final product was extremely negative. Martin's chief mistake was to make all the drawings himself. He was not a particularly good artist, and his drawings generally lack detail and are very two-dimensional. The review of Martin's book in the April, 1871 issue of the *Monthly Microscopical Journal* was both brilliant and vicious. On a personal note, I am a scientist with approximately 90 publications to my credit, and am very thankful that nobody ever gave me a review like this one. The full review follows, accompanied by excerpts from Martin's book (Figures 3 and 4):

"*Microscopic Objects Figured and Described. By John H. Martin, Honorary Secretary to the Maidstone and Mid-Kent Natural History Society. London: Van Voorst. 1870. Apart altogether from our desire that Mr. Martin had not written this work, we must express our regret that the publisher has sent it to us for review. We say this because we suppose he insists on a notice, and it is not in our power to say a single syllable in praise of the volume. It is without any aim; it can serve no purpose; and it is altogether the worst thing of the kind that we have ever seen. There is not, in the whole collection of plates any one which is even fairly passable, and there are many which are as truly execrable as it is possible to conceive. There are 194 drawings of various objects without one that we can say is fairly executed, and indeed some of them are so abominably handled that it is a matter of surprise to us that the author - be he possessed of the smallest possible experience - should have allowed them to appear. But, apart from this, the book is altogether aimless. Every one, or nearly so, of the objects (with the exception of some of Mr. Forbes's specimens at the end) have been done, and exceedingly well done, before, in various treatises on Natural History and Histology. And even the rock specimens have been in part done, and very admirably so, in an article some years ago by Mr. Forbes, in the 'Popular Science Review'. We have never beheld such abominable misrepresentations as the plates, for indeed there is not the faintest depth in them; there is a horrible flatness about them which gives one the idea of an ordinary drawing crushed out flat, so as to effectually remove any traces of perspective. We should gladly have avoided saying anything about the work at all, but it would be unfair to our readers to pass any but a most unfavourable critique upon work which has been so execrably handled*".

A.

MICROSCOPIC OBJECTS

FIGURED AND DESCRIBED.

BY

JOHN H. MARTIN,

HONORARY SECRETARY TO THE MAIDSTONE AND MID-KENT NATURAL-HISTORY SOCIETY.

B.

TO

MY VALUED FRIEND

DR. BOWERBANK, F.R.S., F.L.S., F.R.M.S., &c.,

I DEDICATE THIS WORK.

J. H. MARTIN.

C,

PREFACE.

MICROSCOPY has of late years taken such a hold on cultivated minds, that I believe an apology for sending this work into the world is scarcely needed.

It commences with some of the primary forms of Vegetable life, and proceeds onwards through the tissues to the woody structures of the Exogens and Endogens, next descending to the Acrogens, and so passing to the extreme limits of vegetable life, as the Desmidieæ &c.,—thence to the lower forms of Animal life, the Infusoria, and on through the Radiata to the Insects, which are drawn and described in their various orders, and the minute organs figured separately.

In the concluding Plates are represented interesting and characteristic geological structures, with some of the more curious forms and groupings of crystals.

It has been my aim to represent as faithfully as possible some of the forms of hidden nature; and I sincerely trust that they will be found useful both to the student and to the lovers of natural beauty. My thanks are due to Drs. Griffith, Smyth, Plomley, and other gentlemen for their kindness during the progress of the work.

JOHN H. MARTIN.

Week Street, Maidstone,
December 1870.

Figure 3. *Title page, dedication and preface to John H. Martin's 1870 Microscopic Objects Figured and Described. Bowerbank was a high ranking member of the Royal Microscopical Society and many other important scientific societies. It is not known if Martin actually knew Bowerbank at that time.*

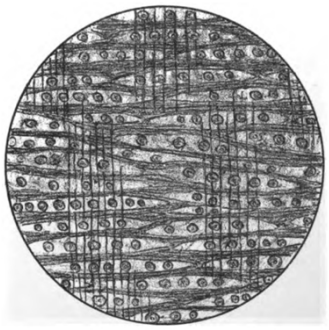


Fig. 14

Fig. 14.—*Longitudinal Section of American Pine* (Pinus Strobus), × 120, N. O. Coniferæ.

This section is used to illustrate the so-called glandular tissue, which really consists, however, of pitted cells or vessels. The cells are very numerous in this wood; and the pits will be seen in each cell with a bordered outline, or, as it is in reality, a slight concavity in the surrounding substance. There are pitted ducts, as well as vessels, in other vegetable structures (see fig. 8).

The cross lines in this figure represent portions of medullary rays.

The pits or dots on this tissue are often used to test the quality of the object-glass of the microscope. When this is good, they will appear free from colour.

They are best seen in the dry state.

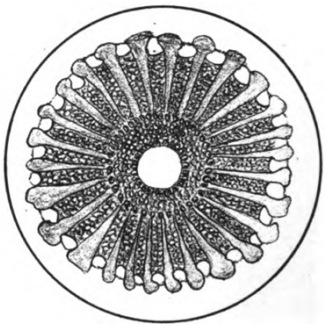


Fig. 113.

Fig. 113.—*Transverse Section of an Echinus-spine* (Echinothrix petersii), × 40.

The genus *Echinus*, from which the class Echinodermata derives its name, has many structural beauties, both superficial and otherwise. The spines in nearly all the species furnish most beautiful objects when cut in a transverse manner with a fine saw, then ground exceedingly thin with a file, and finished on a stone. If they are wanted for the polariscope, the grinding may be coarser, and they may then be mounted in balsam. The pedicellariæ, sections of the shell, &c. also make fine objects.

The internal structures of these animals are not less interesting.

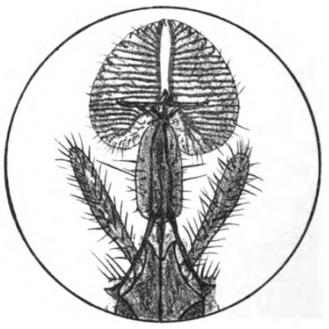


Fig. 151.

Fig. 151.—*Tongue of Blow-Fly* (Musca vomitoria), × 20.

One of the most marvellously constructed instruments with which insects are furnished is the proboscis, or tongue, of the Blow-Fly, to thoroughly describe which would take many pages. The broad part at the top of the drawing represents the two lobes of the ligula; these lobes contain a number of minute tubes, kept partially open by rings; and through these fine channels the fluid sugar is thoroughly filtered before it enters the mouth. A duct, which serves to convey a fluid with which to soften sugar and other substances, also runs into the tongue. Both of these necessary parts are kept in action by the muscularity of the pharynx, which part is at the bottom of the drawing. The contraction of this sends the salivary fluid to the food to moisten it, and the dilatation of the same forms a suctorial power, with which the liquid food is conveyed into the mouth.

The proboscis must be dilated by pressing the thorax of the Fly, then cut off with a fine pair of scissors (the Fly having been previously killed in alcohol), next placed gently in its natural position, squeezed flat, dried under pressure, soaked in turpentine until transparent, and mounted in balsam; or it may be mounted, without preparation, in glycerine.

Fig. 181.

Fig. 181.—*Crystals of Carbonate of Lime,* × 80.

Chalk (see fig. 102), marble, limestone (figs. 191, 192, 194), coral, &c. are composed of carbonate of lime. It also occurs in bone, shells, &c., and is, moreover, often found in the animal secretions. From it all the salts of lime may be formed.

The drawing illustrates the various forms of the crystals as seen under polarized light.

These crystals may be mounted in balsam.

Figure 4. *Four illustrations and accompanying texts from Martin's 1870 Microscopic Objects Figured and Described. In the book, the illustrations appear on one page, and the captions on another. John Martin did all the artwork. The generally poor quality of his drawings overshadowed the text, which included instructions in how to prepare the various objects.*

For the 1871 census, Martin listed his occupation as "*Prof(essor) Microscopy and Author*". Several other professional slide makers, such as Amos Topping, referred to themselves as "*professor*". The 1872 *Handy Directory and Guide for Maidstone and the Surrounding Villages Within a Circle of Six Miles* recorded John H. Martin as "*microscopist, 86, Week street*".

Despite their objections to his 1870 book, John H. Martin was elected to be a Fellow of the Royal Microscopical Society on December 9, 1874. This may have been made possible by the 1872 publication of Martin's second book, *A Manual of Microscopic Mounting* (Figure 5 and 6). This book wisely focused on extensive descriptions of methods for mounting microscope slides, and included far fewer of Martin's drawings. The majority of his drawings were sketches related to slide making, and while generally crude, were sufficient to convey the necessary information. Artwork from professional illustrators was also used, in particular, engravings from microscope makers' catalogues. This new book was evidently a success, and a second, revised edition was issued in 1878 (Figure 7).

A.

A MANUAL

OF

MICROSCOPIC MOUNTING

WITH NOTES ON THE

COLLECTION AND EXAMINATION OF OBJECTS

BY

JOHN H. MARTIN,

AUTHOR OF MICROSCOPIC OBJECTS, ETC.

ILLUSTRATIONS DRAWN BY THE AUTHOR.

LONDON:
J. AND A. CHURCHILL, NEW BURLINGTON STREET.
1872.
[*The right of translation is reserved.*]

B.

PREFACE.

This work is intended for the use of students and lovers of the science of Microscopy. I desire to draw the attention of my readers to the value of original and practical work; for if any one subject, however small, is made by concentrated attention to bear fruit to the worker, it will be found to contain much that is new to the science. In microscopic mounting the student must not be discouraged at the failure of his first attempts, but gradually try to acquire a knowledge of the principles, with the manual dexterity necessary in their application. The aim of this work is to supply the student with a concise manual of the former, and to assist his progress in the latter, as far as illustrations and words render it possible.

The majority of the drawings have been done by me, most of which are original. My thanks are due to Dr. Lionel Beale, for the loan of Figs. 15, 61, 64, &c.; and also to Drs. Smyth, Matthews, Bloxam, and Rev. W. Law; also Messrs. Jordan, Hardwicke, Cotton and Johnson, Collins, Wheeler, &c.; and to Messrs. Pardon and Son, printers, Messrs. Butterworth and Heath, Miss Powell, and others, for their faithful rendering in the engravings my ideas as drawn on the wood, &c.

JOHN H. MARTIN.

WEEK STREET, MAIDSTONE.
August, 1872.

Figure 5. *Title page and preface to John Martin's 1872 Manual of Microscopic Mounting. Note especially the acknowledgements to professionals such as Beale, Collins and Wheeler for the use of images from their books and catalogues.*

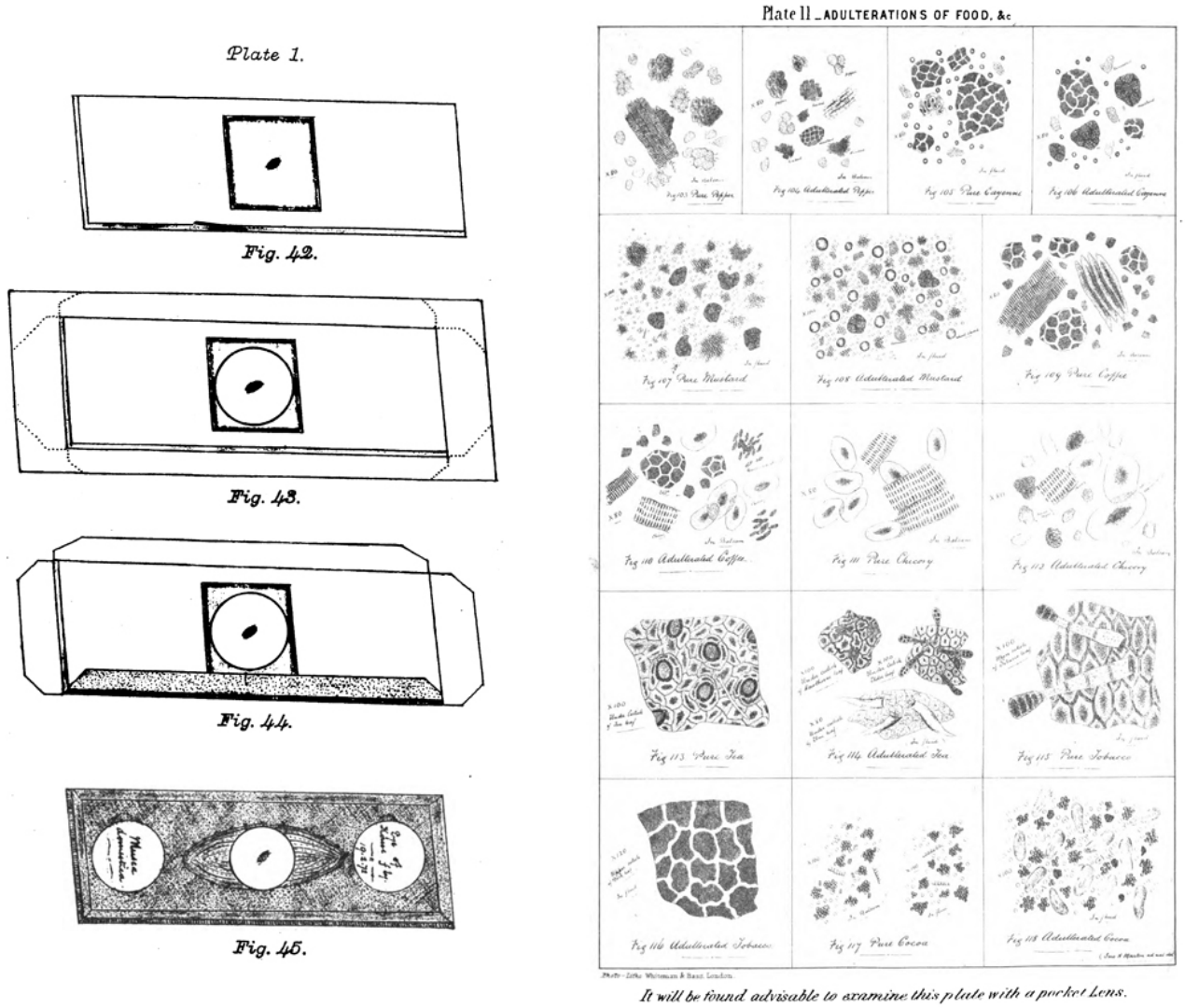
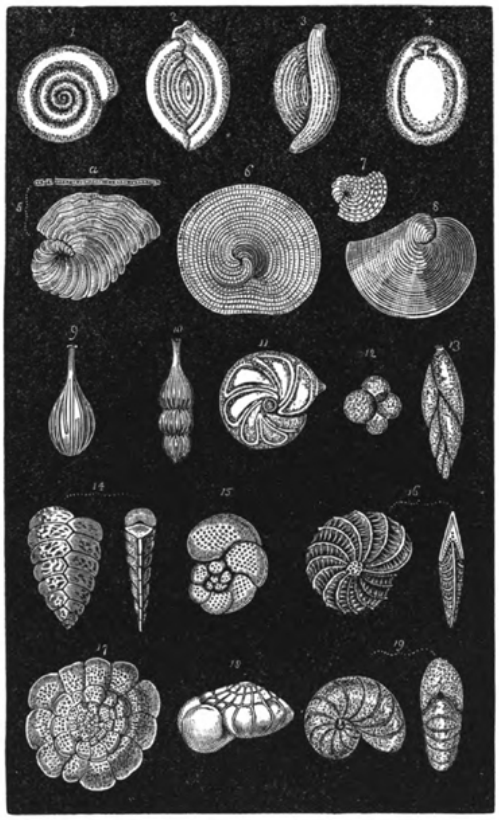


Figure 6. *Two plates from Martin's 1872 Manual of Microscopic Mounting, both from drawings by Martin. The majority of Martin's artwork in this book is like the left plate, simplistic but nonetheless instructive. The right plate, Martin's drawings of adulterants that may be found in food, is of dubious value.*

A.

PLATE XII.



1. Cornuspira.
2. Spiroloculina.
3. Triloculina.
4. Biloculina.
5. Peneroplis.
6. Orbiculina (cyclical form)
7. Orbiculina (young).
8. Orbiculina (spiral form).
9. Lagena.
10. Nodosaria.
11. Cristellaria.
12. Globigerina.
13. Polymorphina.
14. Textularia.
15. Discorbina.
16. Polystomella.
17. Planorbulina.
18. Rotalia.
19. Nonionina.

B.

fatiguing than the ordinary compound instrument. A larger range of field is obtained, and much more room for working. Scissors, needles, scalpels, &c., necessary for dissections are sold with it. It forms, when closed,

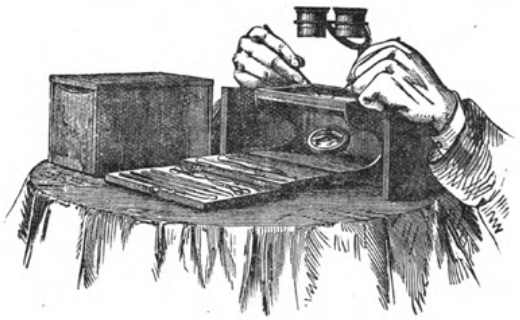


FIG. 31.

a box about six and a half inches long by four inches wide, and it will be found much the best dissecting microscope, especially for beginners.

29. *Apparatus for Drawing, &c.* (Fig. 32).—This

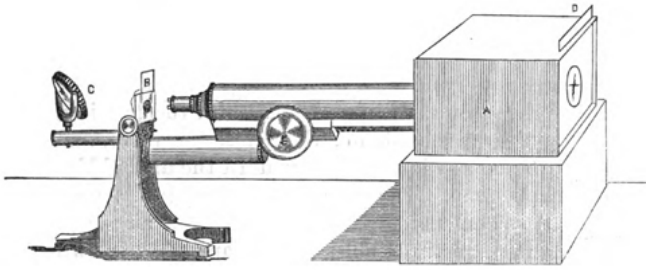


fig.32

form of apparatus, which can be made exceedingly

Figure 7. *Two pages of illustrations from John Martin's 1878 second edition of Manual of Microscopic Mounting. This edition relied even more heavily on professionally prepared drawings.*

Martin formed a company, the Micro-Assay Laboratory, as a service to evaluate customer's foodstuffs and other products for contaminants. The sketches of adulterants in Martin's 1872 book (Figure 6, right panel) hint at his interest in this use of the microscope. This business was in operation by June, 1973, the earliest record I found for Martin's use of the company name. On June 20, 1873, the *English Mechanic and World of Science* published a short article by Martin, on construction of a flow chamber for cultivating water life, which gave his address as "*Micro-Assay Laboratory, Maidstone*".

In early 1877, Martin made a bid for another line of work. The February 10, 1877 issue of the *Saturday Review of Politics, Literature, Science and Art* carried the following advertisement: "*To NOBLEMEN and GENTLEMEN.—An AUTHOR, a Fellow of the Royal Microscopical Society, &c, desires to ASSIST a Gentleman in SCIENTIFIC RESEARCH; would also act as Private Secretary, &c; no objection to travel - Further particulars, amount of salary required, and first-class reference, address F.R.M.S., care of Jno. H. Martin, Esq., 86 Week Street, Maidstone*".

He was still in Maidstone as of April, 1877, when he published an article in the *English Mechanic and World of Science* from 86 Week Street. On November 16 of that year, Martin advertised that he and the Micro-Assay Laboratory had move to London (Figure 8). The 1878, second edition of *A Manual for Microscopic Mounting* gave Martin's address as "*Micro Assay Laboratory,* York Chambers*, Adelphi, London, WC*".

JOHN H. MARTIN,
MICRO-ASSAY LABORATORY,
YORK CHAMBERS, YORK BUILDINGS, ADELPHI,
LONDON, W.C.

Analysis of Food, Water, and Drugs; Slide Preparations illustrating Adulterations, &c. Students can use the Laboratory on Thursdays
Write for Terms.

Laboratory hours—10 a.m. to 1 p.m., 3 p.m. to 6 p.m.

Figure 8. *Announcement of Martin's move to London. From the November 16, 1877 issue of Chemical News and Journal of Industrial Science.*

Also on November 16, 1877, John Martin was elected to the Society of Public Analysts. The election announcement described him as being an "*analytical chemist*".

The 1881 census found John Martin back in Maidstone, living with his parents. The census was conducted at the end of March. John Henry Martin died April 6, 1881, at his parents' house. The recorded cause of death was "*caries of vertebrae, fatty liver*" certified by Charles Boyce M.B. The caries (holes) in Martin's vertebrae may have been a result of extrapulmonary (miliary) tuberculosis with a concentration in the spine (Pott's disease). While fatty liver may indicate obesity or alcoholism, it might also have been a consequence of nutritional deficiency related to tuberculosis.

Comments to the author welcomed at brian.stevenson@uky.edu

This and other illustrated essays on historical microscopists can also be read at the author's web site, http://microscopist.net

Acknowledgements

Many thanks to Drs. James McCormick and Peter Paisley for their thoughts on John Martin's death record.

Resources

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Bracegirdle, Brian (1998) *Microscopical Mounts and Mounters*, Quekett Microscopical Club, London, pages 65 and 154, and plate 25

Chemical News and Journal of Industrial Science (1877) Advertisement from John Martin, Vol. 36, page 225

Death record of John Henry Martin (1881)

Directory of Maidstone, Kent (1847) Cabinet makers and upholsterers: Martin, John, 5 Church St. accessed from http://freepages.genealogy.rootsweb.ancestry.com/~mrawson/maiddir47.html

England census and birth records, accessed through ancestry.co.uk

English Mechanic and the World of Science (1874) proposal from John Martin to form a microscopical club in Maidstone, Vol. 20, page 52

Hardwicke's Science-Gossip (1865) Exchange offer from John H. Martin, Vol. 1, page 216

Hardwicke's Science-Gossip (1866) Exchange offers from John H. Martin, Vol. 2, pages 72 and 168

Hardwicke's Science-Gossip (1867) Exchange offer from John H. Martin, Vol. 3, page 168

Hardwicke's Science-Gossip (1869) Exchange offer from John H. Martin, Vol. 5, page 120

Hardwicke's Science-Gossip (1872) Exchange offers from John H. Martin, Vol. 8, pages 72, 96, 120 and 144

Hardwicke's Science-Gossip (1873) Exchange offers from John H. Martin, Vol. 8, pages 168, 192, 240 and 264

Hardwicke's Science-Gossip (1874) Exchange offers from John H. Martin, Vol. 9, pages 24 and 284

Hardwicke's Science-Gossip (1875) Exchange offer from John H. Martin, Vol. 11, page 48

The Handy Directory and Guide for Maidstone and the Surrounding Villages Within a Circle of Six Miles (1872) information on the Martins and their addresses, pages 10, 12, 50, 58, 65, 80 and 81

Martin, John H. (1870) *Microscopic Objects Figured and Described*, J. van Voorst, London

Martin, John H. (1872) *A Manual of Microscopic Mounting*, J. & A. Churchill, London

Martin, John H. (1873) A new growing cell, *English Mechanic and the World of Science*, Vol. 17, page 352

Martin, John H. (1875) Preserving fungi, *Hardwicke's Science-Gossip*, Vol. 11, page 163

Martin, John H. (1875) Meat biscuits, *English Mechanic and the World of Science*, Vol. 22, page 311

Martin, John H. (1875) Test for estimating the proportion of chicory in coffee, *English Mechanic and the World of Science*, Vol. 22, page 300

Martin, John H. (1875) Test for estimating the proportion of chicory in coffee, *English Mechanic and the World of Science*, Vol. 22, page 377

Martin, John H. (1875) untitled note on using platinum wire for filtering, *English Mechanic and the World of Science*, Vol. 22, page 300

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Martin, John H. (1877) Economic pressure apparatus, *English Mechanic and the World of Science*, Vol. 25, page 69

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The Monthly Microscopical Journal (1870) A new treatise on microscopic objects, Vol. 3, page 50

The Monthly Microscopical Journal (1871) New books, with short notices: *Microscopic Objects Figured and Described*, Vol. 5, page 133

The Monthly Microscopical Journal (1874) election of John Martin to the Royal Microscopical Society, Vol. 13, page 37

The Monthly Microscopical Journal (1875) donation of a slide from John Martin to the RMS, Vol. 13, pages 135 and 138

Pigott's, Maidstone (1840) Cabinet makers and upholsterers: Martin, John, (& picture frame maker), 4 Church St. accessed from http://www.janetandrichardsgenealogy.co.uk/pigots_1840_-_maidstone.htm

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