

D. Bryce Scott, 1843 – 1914

by Brian Stevenson, Kentucky, USA

David Bryce Scott was an amateur microscopist, active during the last quarter of the 19th Century. Many of the microscope slides he produced carry distinctive, attractive labels (Figure 1). I did not locate any information to indicate that Scott sold slides, suggesting that they were produced for exchange with other naturalists. Scott's primary interest was foraminifera shells, and the majority of surviving slides are of such subjects. Various other subjects were mounted, however (Figure 1). Scott was active in the New York City area through the end of the 1880s, and was a very early member and officer of the New York Microscopical Society. From the late 1880s onward, he lived in Moncton, New Brunswick, Canada.



Figure 1. Microscope slides prepared by D. Bryce Scott. The slide on the left, of foraminifera from a chalk deposit, is dated 1895.

David Bryce Scott was born September 25, 1843, in Sherbrooke, Quebec. He was the first child of James and Isabella Black Scott. The 1861 census of Canada lists the young Scott as being a “clerk”, as was also his father. D.B. Scott married Elmere Lynda Hensley in 1866. The young couple and two children lived in Montreal at the time of the 1871 Canadian census, with D. Bryce still working as a “clerk”.

A report of the 1870 Annual of Conversazione of the Natural History Society (Montreal) included descriptions of exhibits by D. Bryce Scott, “The eighth annual conversazione was held at the rooms on the evening of Wednesday, March 9th, 1870. The whole of the ground floor was tastefully decorated with evergreens, under the superintendence of Mr. D. McCord. Fine geological maps and sections were kindly lent for the occasion by the officers of the Geological Survey of Canada. Messrs. Theodore Hart and Hugh Allan also kindly contributed bouquets of

choice cut flowers from their respective greenhouses. A number of microscopes, with objects, were placed in the library, this department being under the special superintendence of the Montreal Microscopic Club, Mr. J. M. Young sent one of Powell & Lealand's large binocular instruments, with all the newest accessories. This is probably the finest microscope ever imported into Canada. Other instruments were contributed by Dr. J. B. Edwards, Messrs. James Ferrier, Jr., A. S. Ritchie, D. B. Scott, R. McLachlan, and J. F. Whiteaves. Mr. Scott shewed the circulation of the blood in the web of the foot of the Shad Frog, also beautiful living examples of *Vorticella campanularia*, *V. nebulifera*, *Stentor coeruleus*, and other infusoria from his own aquarium".

At the January 30, 1871 monthly meeting of the Montreal Microscopic Club, "Mr. J. F. Whiteaves read a paper on Canadian Foraminifera. The author stated that in his dredging excursion to Gaspé in the summer of 1869 he had preserved large quantities of sand, mud, etc., obtained at various depths from ten different localities. Mr. G. M. Dawson had examined portions of six of these dredgings for Foraminifera; and the writer, with Mr. D. B. Scott, had carefully gone over the rest of the material. The species found by the writer and Mr. Scott agreed very closely with those in Mr. Dawson's published list, but some additional forms were observed, A large series of specimens was exhibited and the subject was copiously illustrated by the members of the Montreal Microscopic Club".

According to later census records, the Scott family moved to New York in 1871 or 1872. City directories from 1874 through 1886 gave addresses in Brooklyn. Those directories also gave Scott's occupation as variously "inspector" and "telegraph operator". The 1880 US census elaborated by describing his occupation as "chief inspector stock telegraph", while Reid's 1886 *The Telegraph in America and Morse Memoriam* described D. Bryce Scott as the Chief Inspector of the Gold and Stock Telegraph Company, a major telegraph operation in New York.

Scott invented a new form of turntable for ringing slides. The April, 1876 issue of *The American Journal of Microscopy* included an article on "Recent improvements in the turn-table", which began, "The invention of the turn-table, by Shadbolt, was one of the most important additions to our means of mounting microscopic objects. For a long time it has retained the form which it received shortly after its invention, and even now the turn-table of twenty-five years ago is equal to almost all the wants of the microscopist. Attempts have been made to produce a table which will automatically centre the slide – not a very difficult task, in view of the immense amount of ingenuity that has been expended in this direction in the kindred subject of the turning lathe. For ourselves, however, we still prefer to centre our slides by hand. Those who have a true eye can do it accurately and expeditiously, and when necessity requires the slide to be out of centre, for the purpose of bringing an already made cell to the centre, the common table allows full variation in this respect. The ordinary table is rotated by the action of the finger on a small, milled collar, and when once set in motion, its momentum serves to maintain the movement until the cell has been finished. Under ordinary circumstances this answers every purpose, but when a cell more elaborate than usual is to be made, the varying velocity of the table—a velocity which steadily and rapidly decreases—is a serious objection. Mr. D. Bryce Scott, of this city, has remedied this difficulty by attaching an old clock work to his table. The gearing is large and strong, and is moved by a heavy weight. Such a table has an equable motion, which can easily be regulated by a brake, and the power applied is sufficient to allow of a deep cell being turned off by means of a cutting tool, so as to improve its shape and make it absolutely true. This improvement we regard as quite valuable". It was probably not a coincidence that many of Scott's neighbors were clock makers, and that a boarder at the Scott house was listed in the 1880 census as "works in clock factory".

The first meeting of what was to become the New York Microscopical Society was held November 14, 1877. Election of Officers was held on December 11. D. Bryce Scott was elected

Librarian, Temporary Curator and Member of Permanent Committees on Admissions and Papers & Publications. During the Society's first year, Scott donated numerous slides, including foraminifera from chalk, polycystina from Barbadoes, spicules of gorgonia and potato starch, plus raw specimen material including diatomaceous deposit from Port Hope, Canada, *Echinus* spines and calabar bean starch.

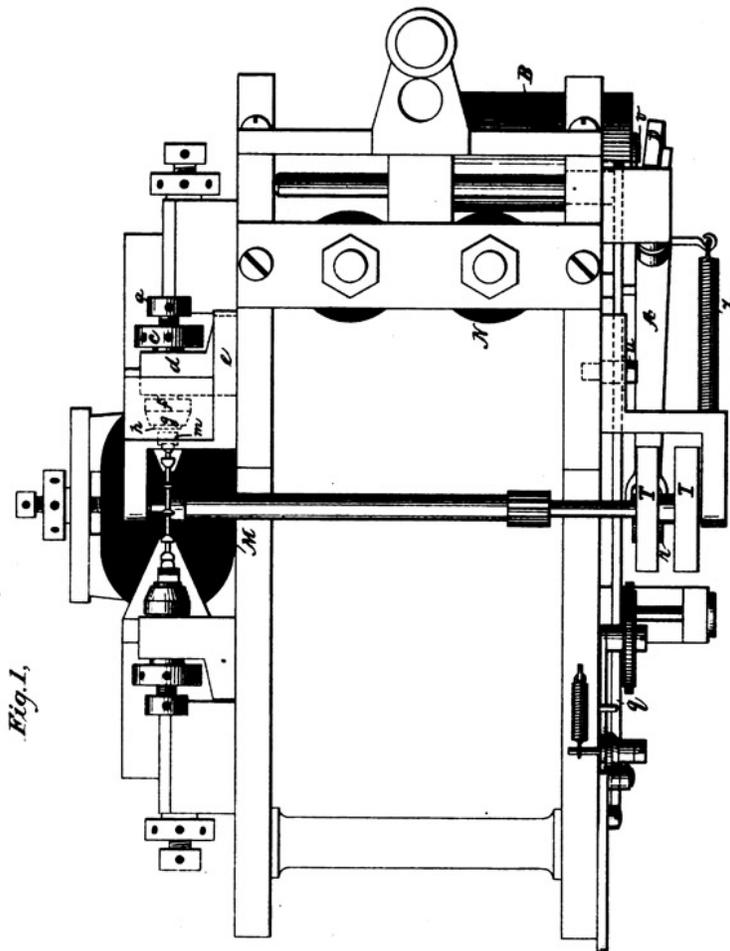
At the September 20, 1878 meeting of the NYMS, *"the President announced that Mr. Scott would be at the room on Monday and Wednesday evenings, to meet such members as desired instruction in mounting and preparing objects"*. This was broadcast across New York in the October, 1878 *American Journal of Microscopy and Popular Science*, *"It is an old saying, 'C'est le premier pas qui coute,' - which may be freely translated to mean that the first step is always the most difficult. This is true in business and study, and nowhere more so than in microscopy. After the beginner has learned a few elementary methods and manipulations, it is not difficult for him to get along himself. The difficulty has hitherto been that most of those who have a liking for microscopy have had no opportunity to get the first start. Mr. D. Bryce Scott, the curator of the New York Microscopical Society, has undertaken to supply this want, and those who desire to learn the practical use of the microscope are invited to meet him at the rooms of the society, 1,207 Broadway, on Monday and Wednesday evenings. Mr. Scott is well known as one of our most skilful manipulators, so far as the preparing and mounting of objects are concerned, and the opportunity thus offered is one which does not often present itself. The instruction is free."*

On a professional note, D. Bryce Scott was awarded a US Patent on October 5, 1886, for improvements that reduced the noise of telegraph typing machines (Figure 2). He evidently sold the rights to the Western Union Telegraph Company. Note that he had retained his Canadian citizenship while living in the USA.

D. B. SCOTT.
PRINTING TELEGRAPH.

No. 350,469.

Patented Oct. 5, 1886.



Witnesses

Geo. W. Brock
James C. Ashley

Inventor

D. Bryce Scott,

By his Attorney

C. L. Fauschman

UNITED STATES PATENT OFFICE.

D. BRYCE SCOTT, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE WESTERN UNION TELEGRAPH COMPANY OF NEW YORK.

PRINTING-TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 350,469, dated October 5, 1886.

Application filed May 24, 1886. Serial No. 203,079. (No model.)

To all whom it may concern:

Be it known that I, D. BRYCE SCOTT, residing in the city of Brooklyn, county of Kings, State of New York, a citizen of Canada, North America, have made a new and useful Improvement in Printing-Telegraph Apparatus, of which the following is a specification.

In printing-telegraphs the escapement-pallets are subject to a rapidly-reciprocating movement, they being impelled by considerable force, and thus the blows of the escapement mechanism upon rigid metallic buffers heretofore employed occasion injurious wear and disagreeable noise. Other parts of printing-telegraph apparatus are also subject to shocks and noise due to the limiting-buffers as usually constructed.

The object of my invention is to provide the vibrating mechanism of printing-telegraphs with limiting-buffers, which shall render the apparatus nearly noiseless and less subject to wear from the shock experienced when arrested at the extreme position of vibration.

I will now explain my invention by reference to the accompanying drawings.

Figure 1 represents a plan view of a print-

buffer *h* may be adjusted to any required position with reference to the pallet-surface *m*, thus increasing or decreasing at pleasure the stroke of the escapement-pallets. In forming such buffers I may make the pieces *h* of leather, vulcanized fiber, or of other non-resonant tenacious material. Preferably, however, for escapement-buffers I employ a good quality of sole-leather.

The method of attaching buffer *h* within the cup-shaped holder which I prefer is as follows: The holder is first made in the form of a blank having a plain cylindrical rim, *g*, and within such cylindrical opening I place a cylindrical piece of sole-leather, whose outer end projects a little distance beyond the rim. The rim of the holder is then hammered down to the form of a frustum of a cone, thus pressing the sole-leather compactly within the rim. The outer end of the sole-leather about the rim *g* is then turned down by lathe or other suitable means, leaving a flat end projecting slightly beyond the rim.

Limiting-buffers such as those described may be employed in connection with the press mechanism of the printer, though in connection

Figure 2. Technical drawing and part of the description for D. Bryce Scott's improved telegraph printer, patented October 5, 1886. The drawing was evidently prepared by Scott.

Exactly what happened in D. Bryce Scott's life between 1886 and 1894 is not clear.

The 1886 Brooklyn city directory listed D. Bryce Scott as living at 340 Pearl Street. The issue date of Scott's patent does not imply that he still lived in Brooklyn at that time. He appears to have spent at least part of the summer of 1886 in Moncton, New Brunswick, demonstrating microscopy at The Summer School of Science of the Atlantic Provinces. An 1887 report of that informal school implied that Scott had by then taken up residence in Moncton, "The programme of evening meetings was an excellent one this year, and embraced lectures, concerts, 'round table talks, and an "Evening with the Microscope." The latter was superintended by D. Bryce Scott, of Moncton, and his fine microscopes and views afforded a pleasure long to be remembered by the members of the school."

Scott married a Laura Willet in Moncton, ca. 1895. He reported on the marriage record that he was divorced. It is not known what happened to his first wife, Elmere. No record of her has been found after the 1880 US census. Genealogical records of the Scott's two eldest children indicate that they remained in the USA.

The 1894 *Johnston's Electrical and Street Railway Directory* reported that D.B. Scott was then electrician for the Intercolonial Railway of Canada, located in Moncton, New Brunswick. Scott was head electrician with that railway until his retirement in 1912. The 1905 *Auditor General's*

Report, 1903-1904 listed D. Bryce Scott at the top of the list of employees of the Intercolonial Railway's Electrical Department. With an annual salary of \$1500 per year, he was by far the highest paid employee in the department. In addition, Scott designed the electrical system operating the locks on the Sault Ste. Marie Ship Canal, which opened on September 9, 1895, and were the first electrically-operated canal locks in the world.

In 1894, he published a short message in *The American Monthly Microscopical Journal*, "*D. Bryce Scott is interested in the Polycystina of which there are but few students in America. He sometimes has earth for distribution*". Over the next decade or so, Scott wrote letters and sent material and slides to various societies and journals on both sides of the Atlantic. Moncton is very isolated from any large city, so his actions were probably appeals for correspondence with other microscopists.

The June, 1894 issue of *The Microscopical Bulletin* included this note, "*Mr. D. Bryce Scott, of Moncton, N.B., has very kindly sent us a quantity of Barbadoes earth (from the Springfield estate), containing Polycystina, for distribution among our subscribers. If any of them 'wants the earth', or a portion thereof, he can have it by sending four cents (in stamps) to cover expense. Mr. Scott's method of cleaning this material is given on page 21*". Scott's method was published in that issue as a report by F.W. Richards, with two figures (illustrated here as Figure 3 A and B):

"This method of cleaning the sandstone deposit known as Barbadoes earth is used by Mr. D. Bryce Scott, of Moncton, New Brunswick. He says, 'I think the quickest way to clean the deposit is as follows:

'Break it up into half-inch lumps and put in a new seamless tin pan, pour in sufficient liquor potasse, and allow it to boil a few moments, or until it becomes very soft and muddy. Then pour it into a glass jar partly filled with water and allow it to settle; do this several times until the very fine particles are washed out. Then boil it for several hours in a strong solution of common washing soda, then put in glass jars with water and wash several times and allow it to settle.

After you have dried the settlings you can then sift them to the different grades through muslin of varying textures. In the coarser grade you will find the beautiful Astromma. Be very careful while you are washing the earth to gather all the scum which forms around the top of the glass jar; you can take it off with a spoon, and place it in a separate jar of water and strain through fine muslin. This scum contains very perfect forms.

Another way is to break up the earth, as before, into half-inch lumps, and place in a new tin pan, wide and flat, with a strong solution of soda and water, and allow it to boil until all the earth is disintegrated and while boiling collect all the scum as it rises and put in a separate jar of water. After drying and sifting they should be put into a test-tube and boiled in nitric or sulphuric acid, and thus thoroughly cleansed; afterwards wash repeatedly to get rid of all trace of acid.

If you wish to make the Polycystina perfectly white place them upon a piece of very thin platinum plate and bring them to a white heat by means of a spirit lamp and blow pipe; they will then be beautifully white and will look well mounted dry or in balsam. Please remember one thing, never in any case throw away the scum which rises on any of your washings, as it contains the finest and most perfect forms - the broken ones allow the air to escape and go more quickly to the bottom.'

A simple and very ingenious method, is used by Mr. Scott to separate the beautiful Astromma from the washings. Take a small oblong box, and in it insert, in an inclined position, a piece of glass as wide as, but somewhat shorter than the box. The arrangement will be easily understood on reference to the illustration (Shown below as Figure 3A).

The glass is painted black on the under side. Place some coarse Polycystina on the glass; stand the box at an angle, and rap on the upper end. The Astromma, being flat in form, will crawl up to the upper end, and the round forms will roll down to the bottom and are caught in any suitable receptacle. A little practice will speedily give you an idea of how much to incline the box in regard to giving the best result. Mount dry or in balsam.

One of the greatest drawbacks to successful mounting, especially when arranging Polycystina in symmetrical groups, is dust. Some writers recommend having a separate room for mounting, the floor to be covered with oil cloth. Ordinarily this would be impossible, but here again Mr. D. Bryce Scott's ingenuity removes the difficulty, which is a real one, as most who have tried mounting will readily admit. A good idea of the construction of this simple device may be obtained from the illustration (shown below as Figure 3B).

The two sides are of wood and the top and back end of glass, thus allowing an uninterrupted view of your work, and the use of the bull's eye condenser. It is admirably adapted for the purpose intended. Its greatest height is 3 inches running down to 1 $\frac{3}{4}$ inches at the back; the length of the shed is 4 inches. You can easily arrange your mount at the inner end. The floor is 9 inches in length, thus enabling you to steady the whole by the weight of your hand when at work. I think I am right in saying that this is the first time that this little contrivance has been exhibited in public."

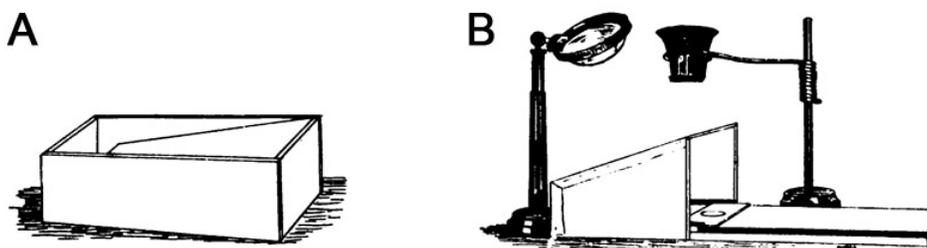


Figure 3. The two figures referred to in the 1894 report on Scott's methods for cleaning polycystina.

The December, 1894 *Microscopical Bulletin* reported, "Through the kindness of Mr. D. Bryce Scott, of Moncton, N. B., we have for immediate distribution, three unmounted objects: *Yucca starch*, *Equisetum spores*, and *Spicules of Gorgonia*; all of which are remarkably free from extraneous matter and well worth mounting. As long as this material lasts we will send some of it to any one who will write for it on a sheet separate from other matters, inclosing two stamps for expenses. Mr. Scott will please accept our thanks on behalf of our subscribers".

The June, 1895 *Observer* thanked "Mr. D. Bryce Scott, of Moncton, N. B., very kindly sends three slides of high grade of preparation and mounting, - one an opaque mount of chalk foraminifera, one astrommas transparent, and one astrommas opaque. The opaque astrommas are the ordinary polycystina brought to a white heat on platinum foil, which leaves them white but very brittle".

Scott also donated "ten slides for mounting *Foraminifera*" to the Royal Microscopical Society in 1895. That description suggests that the slides were empty, and were likely examples of the "slides for opaque objects with removable cover", with photographic grids, which he described to the Quekett Microscopical Club in 1899.

D. Bryce Scott joined the Quekett Microscopical Club on February 18, 1898. He remained on the club membership rolls through 1909. There are no indications that Scott ever travelled to

London for a Quekett Club meeting.

The Journal of the Royal Microscopical Society reported in 1898, "Dr. Hebb said a letter had been received from Mr. D. Bryce Scott, in which he remarked that he had seen Mr. Durrand's paper on the Foraminifera of the Malay Archipelago, and said that if any Fellow of the Society was interested in the subject and would like to have some West India dredgings, he should be very pleased to supply them".

Probably as a result of that letter, Arthur Earland was able to present "On *Orbiculina adunca*" to the Quekett Microscopical Club in June, 1898. He began his report, "A few months ago Mr. Karop very kindly placed me in communication with Mr. D. Bryce Scott, a member of this Club residing abroad, from whom I subsequently received a quantity of dredged sand from a West Indian locality, of the exact particular of which I am at present in ignorance. The material proved upon examination to be a very typical Coral Sand, presenting no special feature in its fauna, but of great interest, owing to the abundance of one species: viz., *Orbiculina adunca* of Fichtel and Moll. This foram occurs in great numbers, and I do not think I should be far out in estimating that quite one-quarter of the entire bulk of the material is made up of this species in a more or less perfect condition. *Orbiculina* is notoriously subject to great variation in shape and size; indeed, since the species was first described by Fichtel and Moll, in the year 1803, the numerous varieties have been figured and described by various authors under about fifteen synonyms. I have succeeded in obtaining a very complete series of the varieties from Mr. Scott's material, and with your permission I will now attempt to give you a short account of the life history of this foram, so far as it can be gathered from the study of the dead shells, and to illustrate by means of rough diagrams the method in which these protean shapes arise".

Earland returned the favor in 1899, presenting detailed directions from Scott on how to make opaque slides with sliding, removable covers and containing photographed grids for mounting type slides.

There are few records of D. Bryce Scott after the turn of the 20th Century. As noted above, his membership in the Quekett Microscopical Club lapsed after 1909. In 1904, Scott wrote a letter to *Country Life* in regards to their *Nature Library*, which was incorporated as a testimonial in an advertisement, "D. Bryce Scott, Electrician, Intercolonial Railway of Canada, Moncton, N.B. 'The volumes of the Nature Library, with Country Life, came safely to hand and are very satisfactory. They are much better than I expected for the money'."

Scott's second wife, Laura, died June 24, 1902 of "carcinoma". She was then only 31 years old.

Scott married a third time some time after that. The 1911 Canadian census reported that the 68 year-old railway electrician was married to 57 year-old Cordelia Scott.

D. Bryce Scott died in Moncton on May 26, 1914. An obituary notice in the *Canadian Railway and Marine World* reported that Scott had retired as Chief Electrician of the Intercolonial Railway only two years earlier.

Author's Note

This and other illustrated biographical essays on early microscopists can also be viewed at the author's web site, <http://microscopist.net>

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