Leeds Microscopical Society

John Benjamin Dancer

1812-1887

His Microscopes and Microphotographs

Mike Mahon

Sheffield University

Manchester University

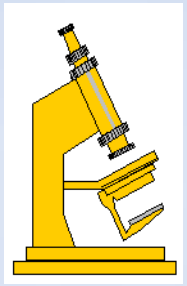
14th March 2013

Keele University

Manchester Victorian Society

John Benjamin Dancer

A Victorian Microscopist



Manchester, Microscopes, Microphotography, Measurement

Mike Mahon

4th April 2012

Stanhope Collectors International

The Life and Discoveries of

John Benjamin Dancer

1812-1887

Mike Mahon

14th October 2012

J.B. Dancer


PCRSCHE


BATTERY


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PHOTO ENGRAVERS
BUSHEY, HERTS.
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Half-Tone & Line Blocks
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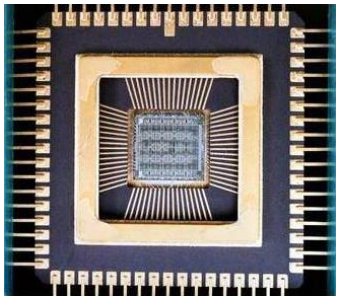
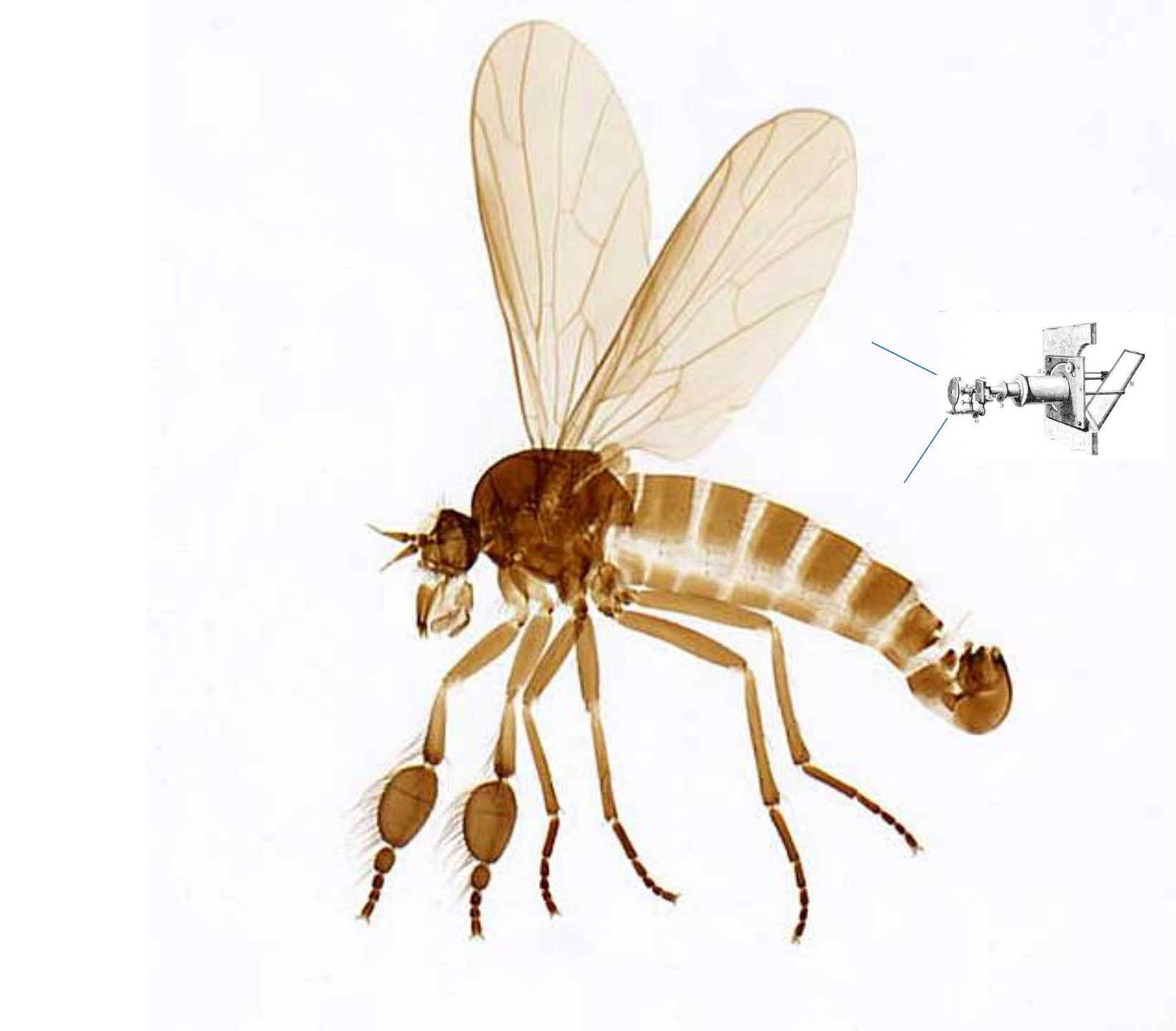
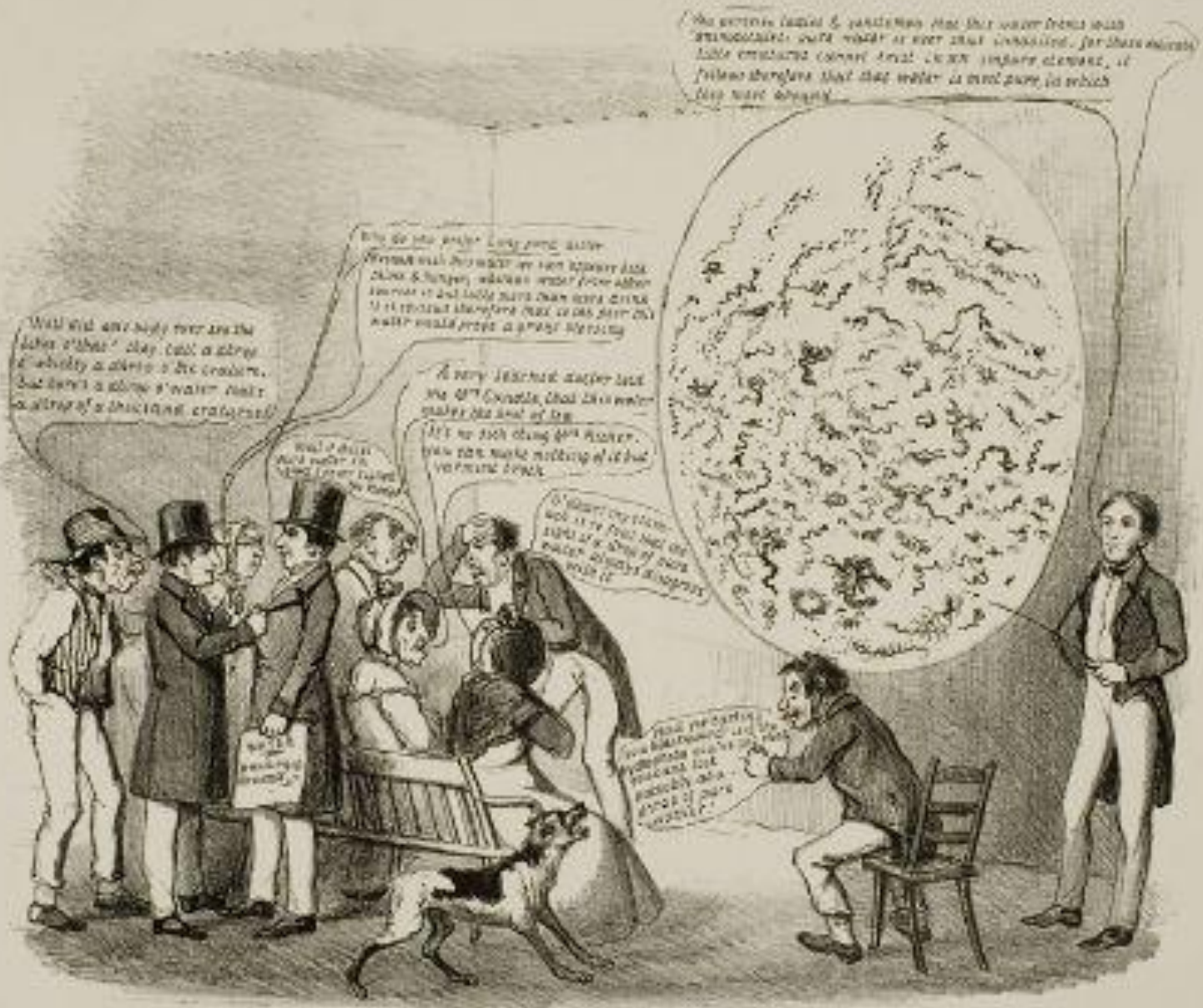
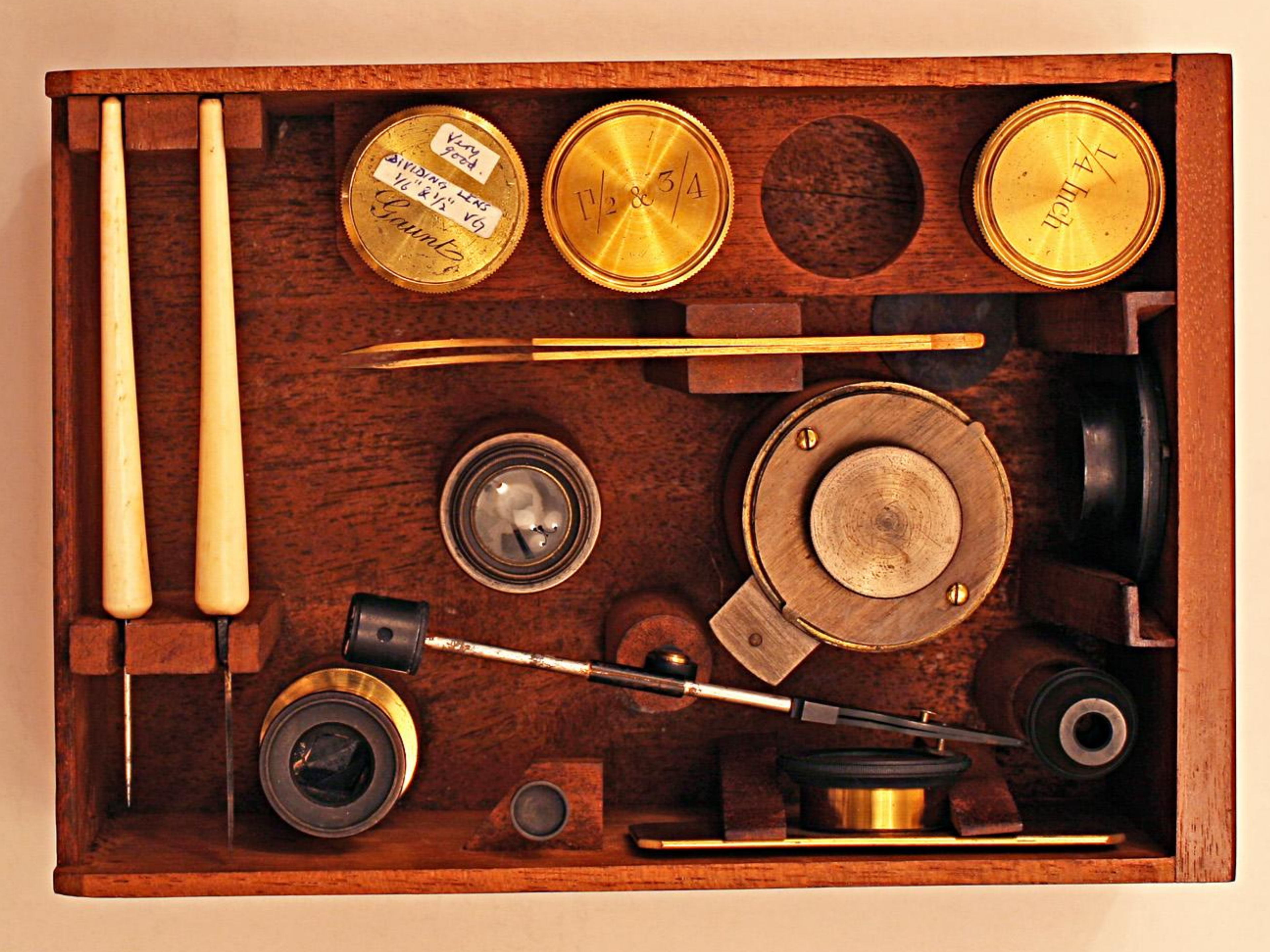






A drop of Long pond water magnified by the Solar microscope.



Very good.
DIVIDING LENS
1/6" & 1/2" VG
Gaunt
1/2 & 3/4
1/4 Inch

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www.manchestermicroscopical.org.uk

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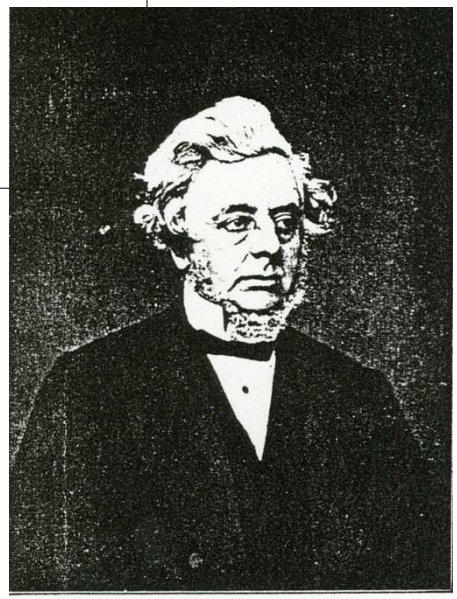


JOHN BENJAMIN DANCER
1812–1887

McCormick Collection

Self portrait, from Dancer slide no. 33.

John Benjamin Dancer
1812-1887

Garnett

Summary of J.B.D.

- Man of great energy
- Skilled craftsman & manipulator
- Sympathetic & helpful to all interested in microscopy

Biography (1)….

- **1812**, born on October 8th in London. Son of Josiah Dancer (1779-1835), grandson of Michael Dancer (d 1817), great grandson of Daniel Dancer (d 1794), manufacturers of philosophical, optical and nautical instruments who had apprenticeships with Ramsden, Dollond and Troughton.
- **1818**, family moved to Liverpool where Josiah helped found the Lit & Phil and Mechanics Institute and JB assisted in giving public lectures.
- **1835**, inherited the family business at 23 years of age and carried on the public lectures.
- **1837-1870**, numerous inventions but no patents! (see later)
- **1839**, produced photographs and early microphotographs using the new invention of Fox Talbot and Daguerre. Set up development & processing service.
- **1840**, showed first photographic pictures of Liverpool
- **1841**, formed partnership of Abraham & Dancer and family moved to Manchester (13 (later renumbered 43) Cross Street - Optical, Mathematical & Philosophical Instruments). Family lived for various periods at Cheetham Hill (6 Limefield Terrace - where he erected an Astronomical Observatory), Ardwick (Old Manor House, Tipping Street) and Greenheys (11 Greenhill Street). He married Elizabeth (in Everton, Liverpool) and had 5 sons and 3 daughters. He was also musical, could sing, play the piano and was an able conjuror. (His son Mr William Dancer BSc (d 1928) was an early Owens graduate)
- **1841**, introduced photography to Manchester and took first pictures of the city
- **1842**, involved in superintending the first telegraph wires being installed in Manchester
- **1845**, separated business from Abraham and concentrated on manufactor of improved achromatic microscopes, 'high quality but affordable'.

McCormick Collection

This photograph titled 'Family Group from Life,' J.B. Dancer no. 3, was taken about 1853. The microphotograph represents the high achievement of quality in Dancer's early work. The picture above is enlarged from the slide image with a magnification of 60:1.

Biography (2) …

- **1850**s, used the new fine grained collodion process to make the first lantern slides, and improved microphotographs (277 images ranging from buildings and famous people to the Lord's prayer). Copies presented to Queen Victoria and Prince Albert, and by Sir David Brewster to the Pope and in Florence, Rome and Paris.
  Made accurate thermometers for JP Joule's experiments on heat. Supplied equipment to Dalton, Williamson, Sidebotham. Colleague also of Sturgeon, Nasmyth, Roscoe, Herschel, Carpenter and Binney.
- **1855**, elected a Fellow of the Royal Astronomical Society
- **1857**, appointed Optician to Her Majesty's Royal Commissioners
- **1857**, quoted by Brewster in the 8th edition of Encyclopeadia Britannica regarding microphotography
- **1861**, exhibits binocular microscopes at British Association Meeting in Manchester
- **1862**, awarded a Prize Medal and Honourable Mention at the Great Exhibition
- **1868**, studied airborne particles microscopically
- **1869**, appointed Optician in Manchester to HRH The Prince of Wales

Inventions

- **1837**, established use of lime-light for magic lantern lectures
- **1838**, first use of porous glazed jars for voltaic batteries
- **1838**, improved induction coil for medical use by adding a spring contact breaker or interruptor, a forerunner of the electric bell
- **1838**, introduced shellacked cardboard insulators
- **1839**, electrolysis for electroplating silver and gold
- **1839**, discovered ozone
- **1840s-1850**s, produced the first microphotographs
- **1840s**, designed corrugated battery plates
- **1852**, invented stereoscopic camera (patent 2064, 1856)
- modified magic lantern and introduced slide-dissolve
- made the first photographic lantern slides
- invented the Victorian 'Fairy Fountain'
- made micrometers for telescopes
- built a swivel aspirator for testing the air
- improved the anemometer and rain gauge, surveyors level, and rifle barrel tester
- made a new form of spring based contact breaker - the interruptor
- **1870**, invented Davis shutter which improves depth of focus in microscope

Spencer !

Friends & Acquaintances

- Henry Fox Talbot (Photographer)
- John Dalton (Chemist)
- James Joule (Physicist)
- WB Carpenter (Physiologist)
- Charles Darwin (Biologist)
- Dallinger
- Herschel
- David Brewster (Optics)
- William Crawford Williamson (Medic, Palaeobotanist)

- Made specific instruments for Joule
  (eg Thermometers accurate to 0.008 deg F !)

M/C Lit & Phil (1781) & MMS (1880)

FE Weiss, 1930, MMS;
H Garnett, 1928, MLP

- JBD joined MLP in 1842 (nominated by Dalton)
- 1858 assisted in setting up Microscopical section (1858-1900)… natural history, biology, geology
- 1859 Mr Dancer exhibited Diatoms and Foraminifera from the Atlantic & Red Sea
- 1865 Microscopy Section, 45 members, 11 associates, JBD Chairman
- 1867 Microscopy Club
  - 1867 Manchester Scientific Students Microscopical Club
  - 1875 Leeuwenhoek Microscopical Club
- 1880- helped establish MMS
- 1880- Manchester University, UMIST, Botany, Geology, Med School, Life sciences teaching & research

top of the mill yard walls (Lomax 1899). The study grew and came to the notice of professional men, in particular Edward Binney, a Manchester solicitor and businessman (Binney 1912). Binney developed an interest in geology via legal work for coal-mine owners (*Reminiscences*, p. 78), subsequently made his fortune by patenting the manufacture of paraffin oil and eventually dedicated himself to palaeobotanical studies of plants from the Coal Measures. Binney and Williamson both came to Manchester in 1835 as young men, and in October of that year first encountered each other at the reading of a paper by Leigh & Binney (1836) to the Manchester Literary and Philosophical Society. Williamson challenged the authors' conclusions concerning the age of the rocks in question (*Reminiscences*, p. 61) and was subsequently proved right in his interpretation (Williamson 1836). Thereafter, they conducted a lifelong uneasy relationship, which seems to have veered between collaboration and disagreement (*Reminiscences*, p. 195), although there is no doubt that Williamson's botanical criticisms of Binney's work were always correct.

Williamson came to Manchester in 1835 (aged 19) to become Curator of the Museum of the Manchester Natural History Society (Kargon 1977), interrupting his medical studies to do so. He was introduced to Jurassic fossils at an early age by his gardener father, an avid collector along the North

Fig. 2. Professor William Crawford Williamson, LL.D, FRS photographed holding a microscope slide beside what is thought to be his beloved microscope (*Reminiscences*, pp. 96 and 106) made in Manchester by John Benjamin Dancer (Butler 1986).

drawn the Yorkshire fossil plants, his youth taking Lindley greatly by surprise.

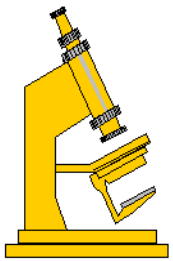
On January 1st 1841 Williamson put up his brass

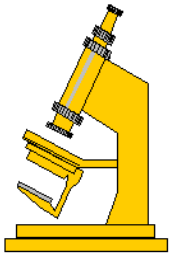
Publications

- Contributed 27 formal papers, 15 minor contributions, 26 exhibits
    - Microscopical examination of solid particles in Manchester's air
    - 1877, transfer of subsoil to the surface by worms, insects

- **1884**, made an Honorary Member

Business & Microscopes



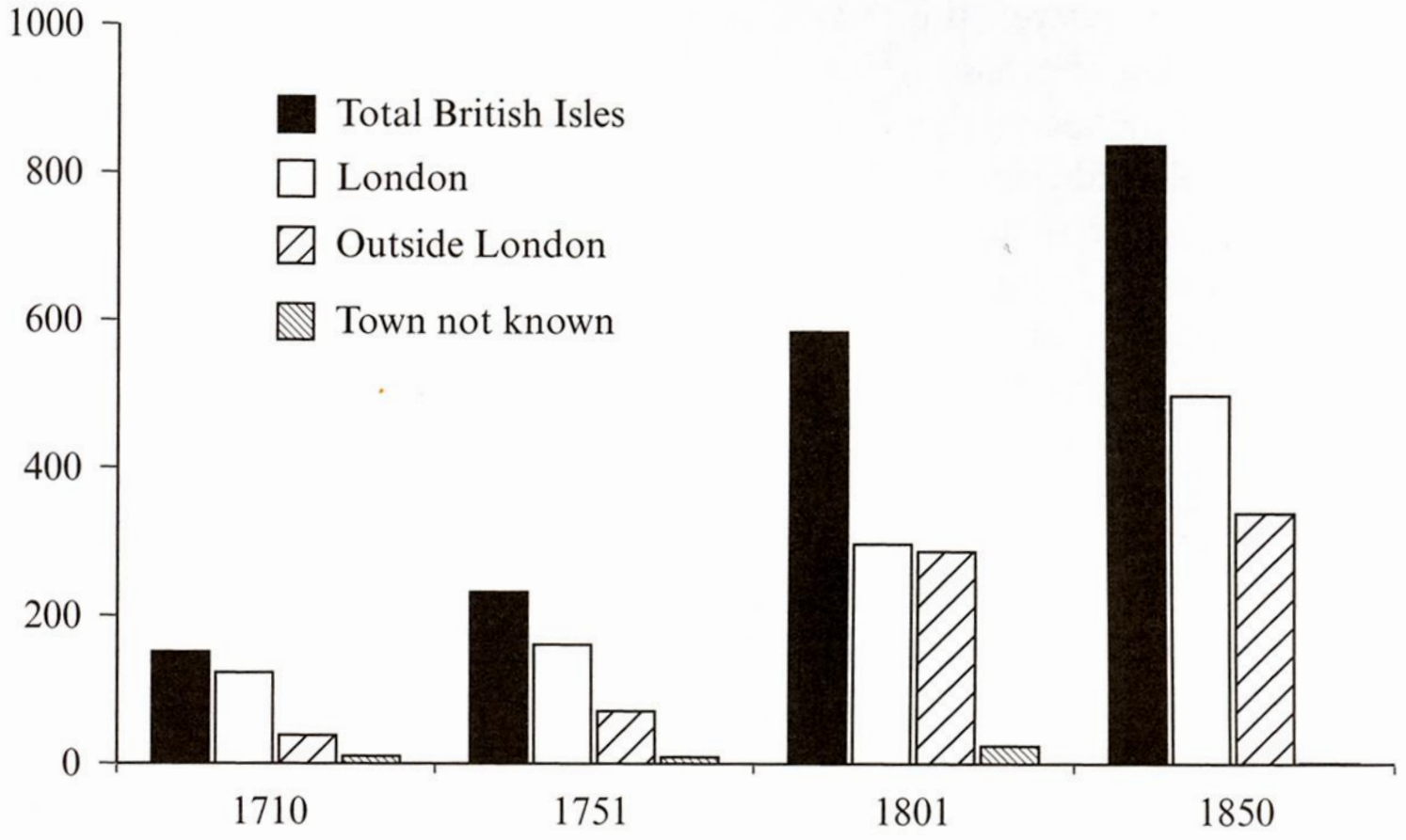


Science, Technology and Culture 1700–1945

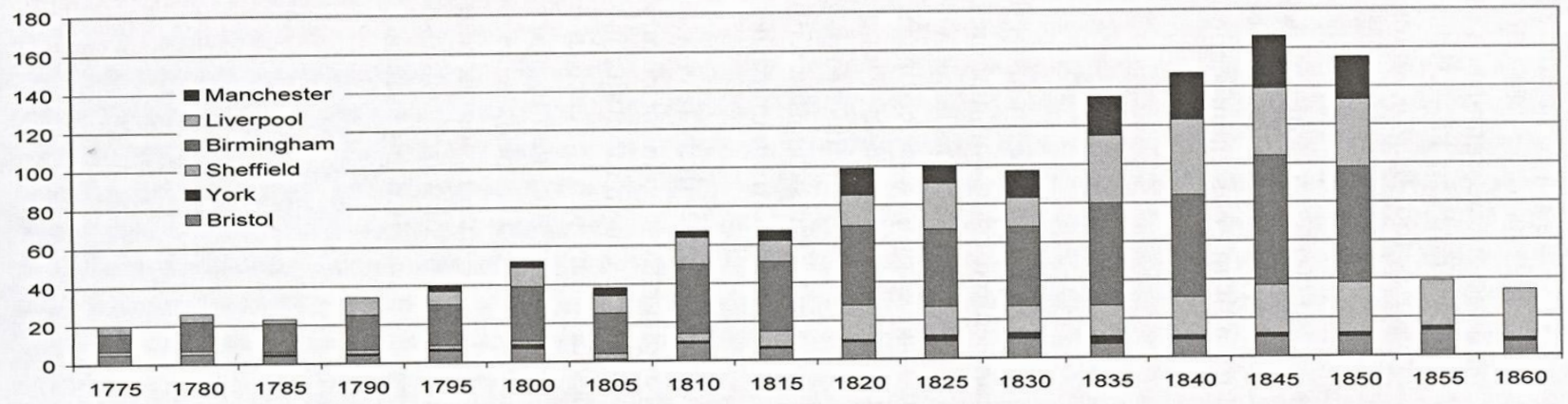
ASHGATE

Making Scientific Instruments in the Industrial Revolution

A.D. MORRISON-LOW



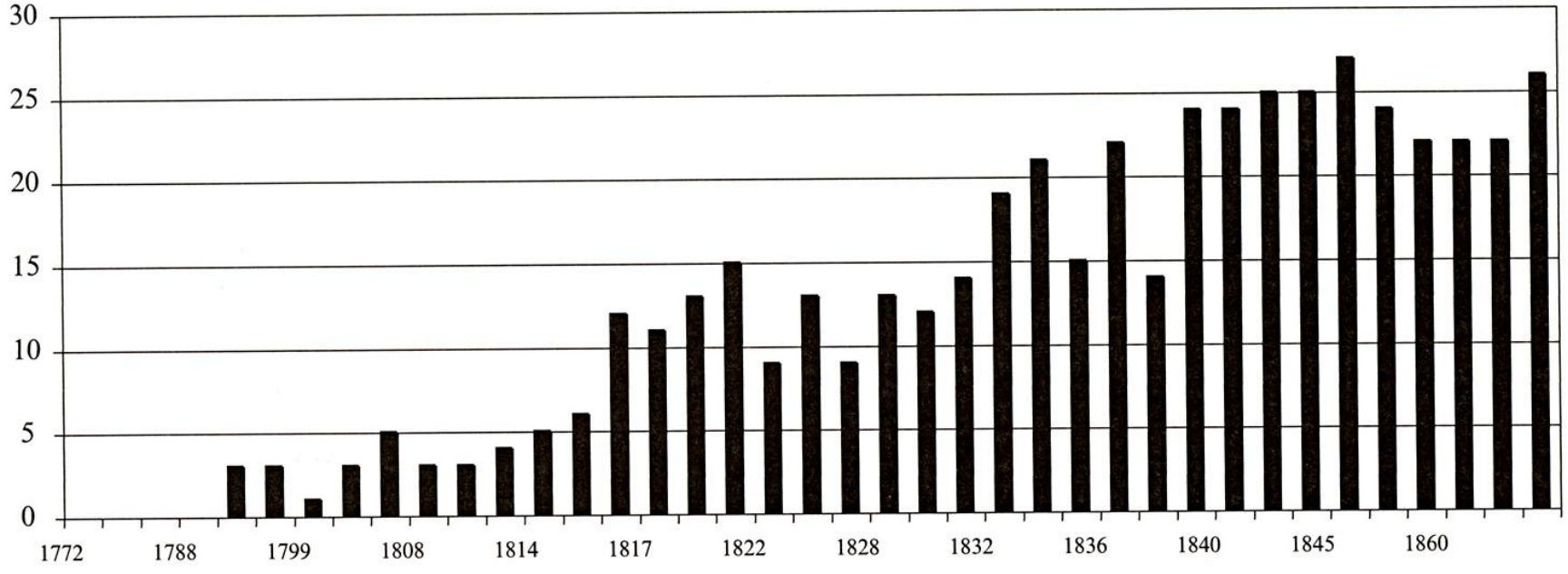
Graph 1.1 **Numbers of individual scientific instrument makers working in the British Isles, including Scotland and Ireland, whose names have been traced (from Gloria Clifton, *Directory of British Scientific Instrument Makers 1550–1851* (London, 1995), xv)**



Year	1775	1780	1785	1790	1795	1800	1805	1810	1815	1820	1825	1830	1835	1840	1845	1850	1855	1860
Bristol	5	[5]	4	[4]	6	[7]	1	9	6	9	9	10	7	9	10	10	13	[7]
York		0	1	1	1	2	0	1	1	1	3	3	4	2	2	2	2	2
Sheffield	[2]	[2]	[1]	[2]	[2]	[2]	[3]	4	[8]	[18]	15	14	[16]	[20]	25	[26]	[24]	25
Birmingham	9	15	15	18	21	28	21	36	36	41	40	41	53	53	67	60		
Liverpool	[4]	[4]	[2]	9	[7]	10	9	14	[11]	[16]	24	15	35	[39]	35	[35]		
Manchester	0	0	0	0	3	3	4	3	5	14	9	14	20	24	27	22		
Provincial centres total	**14**	**15**	**20**	**28**	**31**	**43**	**35**	**67**	**48**	**65**	**100**	**97**	**119**	**88**	**166**	**94**		
London	**164**	**191**	**200**	**256**	**224**	**240**	**333**	**284**	**293**	**357**	**373**	**457**	**478**	**548**	**515**	**477**		

London figures supplied from the database of British scientific instrument makers maintained by Gloria Clifton at the National Maritime Museum, Greenwich.

Graph 1.2 Number of instrument making firms in six provincial centres (figures from local street directories, square brackets indicate inferred numbers for years where no directory exists). See Graph 6.1 for London figures



Graph 4.1 Manchester 1772–1852: numbers of instrument making firms from local directories

WOOD, Alfred Josiah, 1843–1847
Optician and mathematical instrument maker

1843–1845	30 Wappping
1846	29 Wapping

WOOD, Benjamin, 1810–1841
Mathematical instrument maker and optician

1810	41 Wapping
1811	52 Wapping
1814–1822	50 Wapping
1823	49 Wapping
1824–1829	50 Wapping
1829	50 Wapping and 6 Bath Street
1830	49 Wapping
1832	50 Wapping and 12 Bath Street
1834	46 Wapping and 21 Bath Street
1835	46 Wapping and 28 Bath Street
1837	45 Wapping
1839–1841	30 Wapping

Succeeded by Benjamin Jasper Wood, junior.

WOOD, Benjamin Jasper, junior, 1837–1851+
Optician and teacher of navigation

1837	21 Bath Street
1839–1851+	7 Bath Street

WOOD, George Smart, 1848–1851+
Optician

1848–1851+	20 Lord Street

With A. Abraham, and in partnership there with Charles West as A. Abraham & Co., from 1851.

Manchester

ABRAHAM & DANCER, 1843
Mathematical and philosophical instrument makers

1843	13 Cross Street, King Street

Succeeded by John Benjamin Dancer from 1845.

AGNEW, Thomas, 1837–1851+
Optician, barometer, looking glass maker and repository for fine arts

1837–1851+	14 Exchange Street

Previously Agnew & Zanetti.

AGNEW & ZANETTI, 1828–1836
Carvers, gilders, looking glass and picture frame manufacturers, print sellers, publishers, barometer, thermometer and hydrometer makers

1828–1830	10 Exchange Street
1832–1834	18 Exchange Street
1836	14 Exchange Street

Succeeded by Thomas Agnew

AITKEN, Henry, 1848–1851+
Manufacturer of surgical instruments, trusses etc., cutler and optician

1848	8 King Street

From 1850 a 'surgical instrument maker' at 3 Ducie Street, Exchange.

ARSTALL, Frederick Dicas, 1836–1845
Scale beam etc. maker

1836	1 Bradshaw Street
1838–1841	5 Bradshaw Street
1843–1845	7 Bradshaw Street

Previously Widow Arstall & Son.

ARSTALL, Thomas, 1817–1819
Scale beam–maker

1817	25 Market Place; manufactory Rainhill, near Prescot (late at Brookbank, near St Helens)
1818–1819	25 Market Place

ARSTALL, Widow & Son, 1833
Scale beam manufacturers

1833	1 Bradshaw Street, Shudehill

Succeeded by Frederick Dicas Arstall.

BLACKBURNE, Thomas, 1800
Mathematical instrument maker

1800	Blossom Street

BOLONGARO, Dominic 1817–1846
Carver, gilder, barometer and mathematical instrument maker, printseller, and ladies' repository for fancy painting

1817–1830	2 Old Millgate
1832–1833	14 Market Street
1834–1841	32 Market Street
1843–1846	65 Market Street

Succeeded by Bolongaro & Son.

BOLONGARO & SON, 1848–1851+
Carvers, gilders, printsellers, looking–glass, barometer etc. makers

1848–1851+	32 Market Street

BOLTON, Robert, 1834
Magnet manufacturer

1834	34 Back Turner Street

BOWEN, Thomas Michael, 1825–1851+
Optician and mathematical instrument maker

1825–1836	12 Market Place
1834–1851+	27 Market Place

BROWN, George, 1846
Optician

1846	1 Old Millgate and 8 King Street

CAMINADA, Louis, 1840–1841
Optician

1840–1841	1 Scholes Street

CAPPRANI, Anthony,1836–1851+
Barometer maker and picture frame maker

1836–1843	110 Tib Street
1845–1846	98 Tibb Street
1848	9 Carpenter's Lane, Tib Street
1850–1851+	26 Thomas Street, Shudehill

CHADWICK, William Henry, 1851+
Barometer maker and carver and

1836–1838	21 Ridgefield
1840–1848	9 King Street
1850–1851+	23 Lower King S

COLLAR, George, 1814–1830
Optician

1814–1830	101 Market Stree
1816	101 Market Stree Chapel Street, Sa
1817	New Market
1825	42 Market Street

Not in directories for 1828, 182

COOPER, Sarah, 1845–1851+
Rule maker

1845–1846	16 Miller Street,
1848–1850	6 Miller Street
1852	16 Miller Street

Succeeded Stephen Norris Coop

COOPER, Stephen Norris, 1818
Ivory and box rule maker

1818–1830	25 Miller Street
1832–1843	16 Miller Street

Succeeded by Sarah Cooper.

DANCER, John Benjamin, 1845
Optician, barometer, thermomet mathematical and philosophical instrument maker

1845–1846	13 Cross Street, K
1848–1851+	43 Cross Street

Previously Abraham & Dancer.

FISHER, William, 1848–1850
Rule maker and cutler

1848	65 Shudehill
1850	23 Dean Street, C Ancoats Street

FOX & GRUNDY, 1830
Opticians, barometer and lookin makers

1830	St Ann's Square

See Grundy & Fox.

OPTICAL, MATHEMATICAL, AND PHILOSOPHICAL INSTRUMENT MANUFACTURING ESTABLISHMENT,

No. 13. CROSS STREET, KING STREET, MANCHESTER.

SPECTACLES ADAPTED TO EVERY

DESCRIPTION OF VISION.

ABRAHAM & DANCER,

(Of Liverpool).

Respectfully announce to the Nobility, Gentry, and Inhabitants of Manchester and its vicinity, that, at the solicitation of many Scientific Gentlemen, upon the conviction that Manchester imperatively requires an Establishment to which the manufacture of Philosophical and Chemical Apparatus is immediately directed, they have opened the above Premises, and, in soliciting Public Patronage, respectfully state, that all work emanating from their Manufactory, or sold at their Establishment, shall be of guaranteed accuracy, combining all recent mechanical and scientific improvements.

UNIVERSAL as is the use of SPECTACLES, it is imperatively necessary that persons who require their aid should exercise proper caution in their selection—experience has however shown, that there exists a prevailing inattention to this most important subject.

If the value of the Organ of Vision was duly estimated, then would persons requiring the aid of Spectacles apply only to a respectable Optician, by whose practical knowledge lenses adapted to the visual angle would be supplied. Mental irritation is frequently produced by organic diseases of the Eye, which render persons so affected, fit objects for the absurd, but rapacious practices of those ignorant and quack venders of Glasses, who are found hawking throughout the country, practising the most barefaced impositions under the pretext of distinguished patronage, (charging double the price for the most common description of articles for which the best might be obtained of a respectable Optician,) and by their ignorance, vending Glasses, neither truly ground, nor of an adapted focus—the public cannot be too earnestly cautioned against such pretending quacks.

A. & D. HAVE FOR INSPECTION AN ELEGANT ASSORTMENT OF

SPECTACLES,

WITH THE BEST BRAZIL PEBBLES,

OR IMPROVED AZURE LENSES,

(Recommended by Oculists for weak or inflamed Vision.)

Mounted in Gold, Silver, Tortoiseshell, or elastic Steel Frames, to suit all Ages and Sights;

WITH AN EXTENSIVE SELECTION OF

Optical, Mathematical, Philosophical, Surveying, and Mining Instruments.

OF SUPERIOR QUALITY AND WORKMANSHIP, AND ON THE MOST APPROVED CONSTRUCTION.

MATHEMATICAL, MECHANICAL, AND ARCHITECTURAL DRAWING INSTRUMENTS AND SCALES.

ACHROMATIC MICROSCOPES.

DAGUERREOTYPE PICTURES, Comprising Views in France and Italy.

THE IMPROVED THERMO, OR POCKET BAROMETER.

ACHROMATIC OBJECT GLASSES, ADAPTED TO MICROSCOPES.

MICROSCOPES, with DISSOLVING VIEW, and POLARISING APPARATUS, for exhibiting with the Oxy-hydrogen Light, and Instruments or Models of every description, for Public Institutions and Lectures, Manufactured.

INSTRUMENTS CAREFULLY REPAIRED.

ORDERS FROM THE COUNTRY WILL HAVE IMMEDIATE ATTENTION.

CARY'S GLOBES.

Bracegirdle Collection

An undated sales poster.

(Of Liverpool).

Respectfully announce to the Nobility, Gentry, and Inhabitants of Manchester and its vicinity, that, at the solicitation of many Scientific Gentlemen, upon the conviction that Manchester imperatively requires an Establishment to which the manufacture of Philosophical and Chemical Apparatus is immediately directed, they have opened the above Premises, and, in soliciting Public Patronage, respectfully state, that all work emanating from their Manufactory, or sold at their Establishment, shall be of guaranteed accuracy, combining all recent mechanical and scientific improvements.

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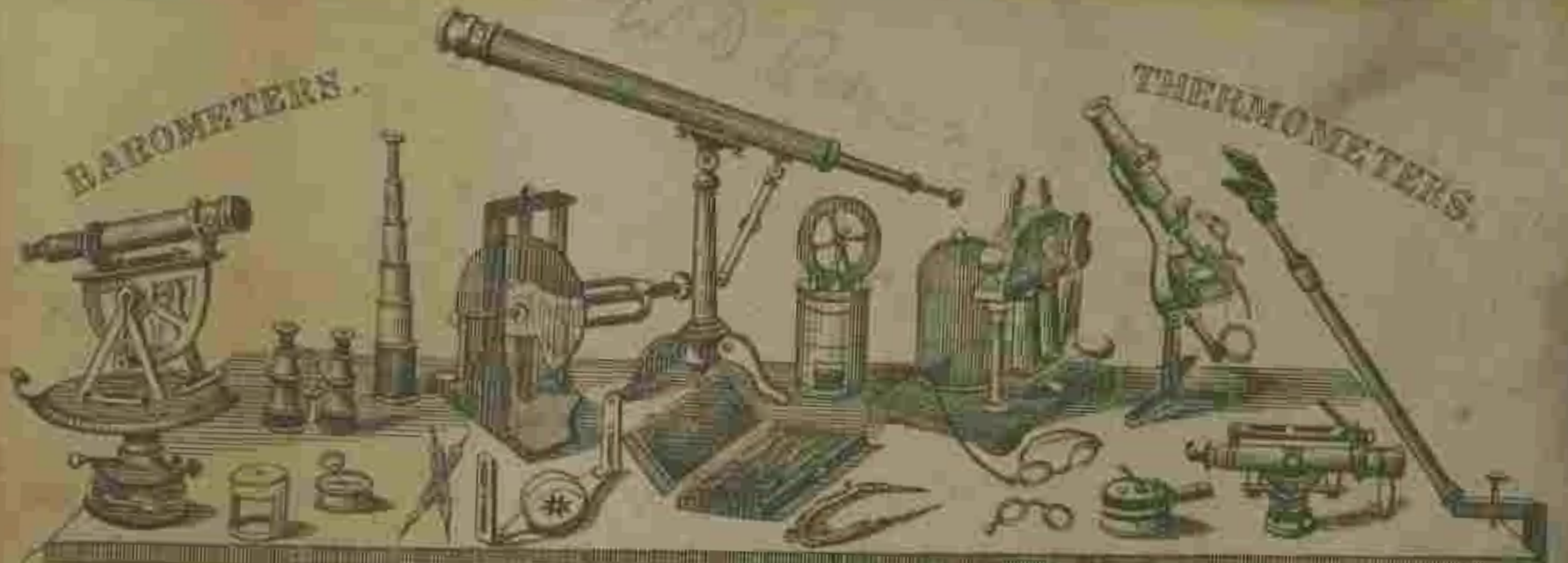
"Suffer little children to come unto Me."
Painted by A. Hemings,
Engraved by G. B. Every.
J.B.D.
J.B.DANCER.
Optician
MANCHESTER


Eggs of Parasite of Secretary Bird
ANOPLURA
WARD, PREPARER FOR OBJECTIVE. MANCHESTER.
Abdominal Segment of Humble Bee showing Hairs
HENRY HALL. Nov. 1914.
MANCHESTER MICROSCOPICAL SOCIETY
No. 518
Ova of Parasite European Flamingo
ANOPLURA
WARD, PREPARER FOR OBJECTIVE. MANCHESTER.
Skin of Blow Fly
119
K. E.
Hairs of Humble Bee
HENRY HALL. Dec 2 1916
MANCHESTER MICROSCOPICAL SOCIETY
No. 41
Emerald tail
MANCHESTER MICROSCOPICAL SOCIETY
No. Box E. 43.
WATSON & SONS 313 HIGH HOLBORN LONDON
570
Chrysis cyanea



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Graham Marsh, ASIUK

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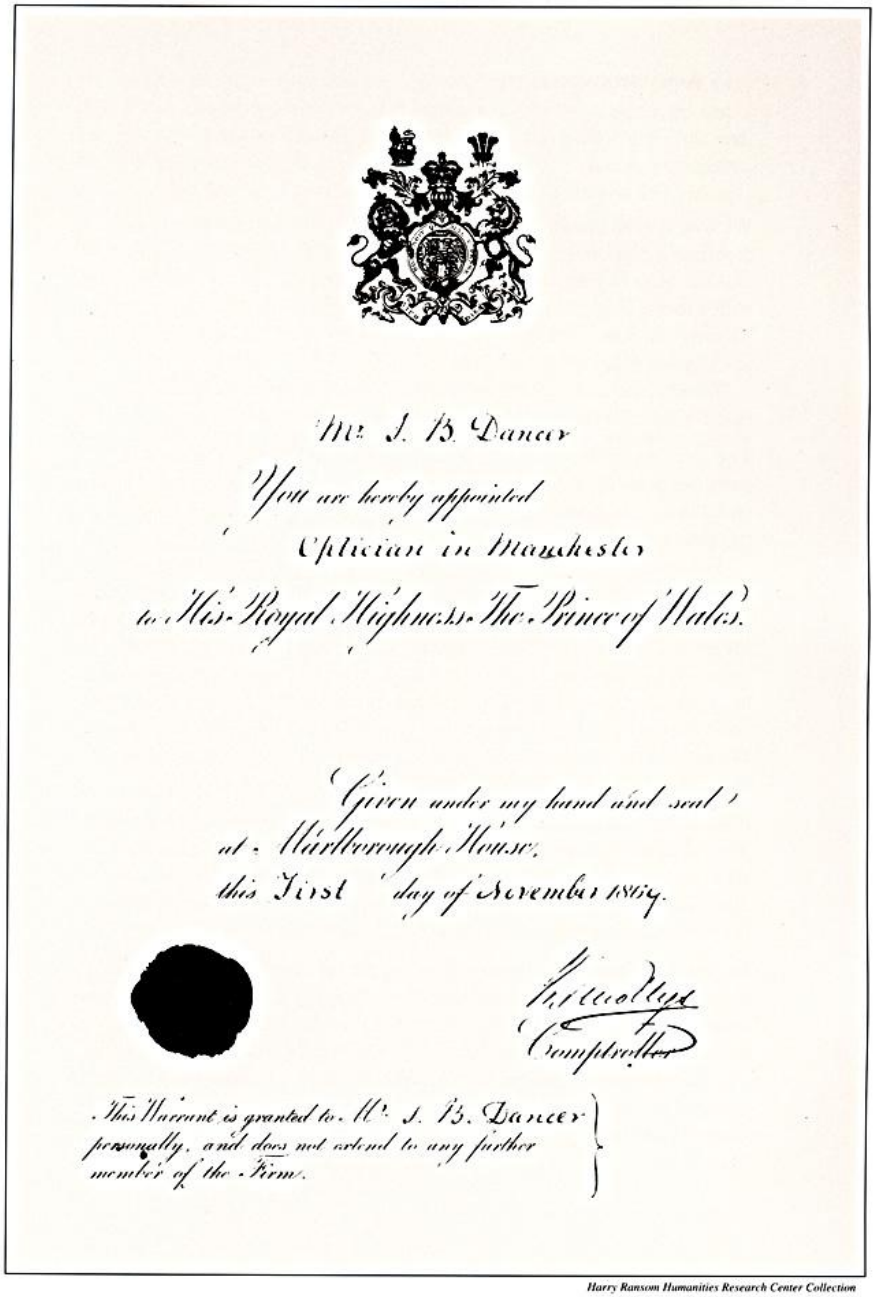

Mr. J. B. Dancer

You are hereby appointed

Optician in Manchester

to His Royal Highness The Prince of Wales.

Given under my hand and seal

at Marlborough House,

this First day of November 1864.

Comptroller

This Warrant is granted to Mr. J. B. Dancer personally, and does not extend to any further member of the Firm.

Harry Ransom Humanities Research Center Collection

The certificate appointing Dancer an optician to the Prince of Wales.

Bracegirdle & McCormick

OPTICIAN BY APPOINTMENT

To H. R. H. the Prince of Wales.

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Instrument Maker to the Government; the Royal Institution of Great Britain; the Royal College of Chemistry; the University of Oxford; and Owen's College. Inventor of the Vibrating Interrupter for Coil Machines; Porous Jars for Batteries; Patent Stereoscopic Camera; the 6-way Gas Tap for economising Gas and producing the Dissolving Effect in Oxy-hydrogen Lanterns; the Diagonal Dissolving View Lantern for Lecturers; Patent Speed Counters and Microscopic Photography Prize Medal, 1862.

Prize Medal

WAS AWARDED

FOR THE GENERAL EXCELLENCE OF HIS

MICROSCOPES,

AND FOR ORIGINATING

MICROSCOPICAL PHOTOGRAPHS.

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OF

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BAROMETERS,

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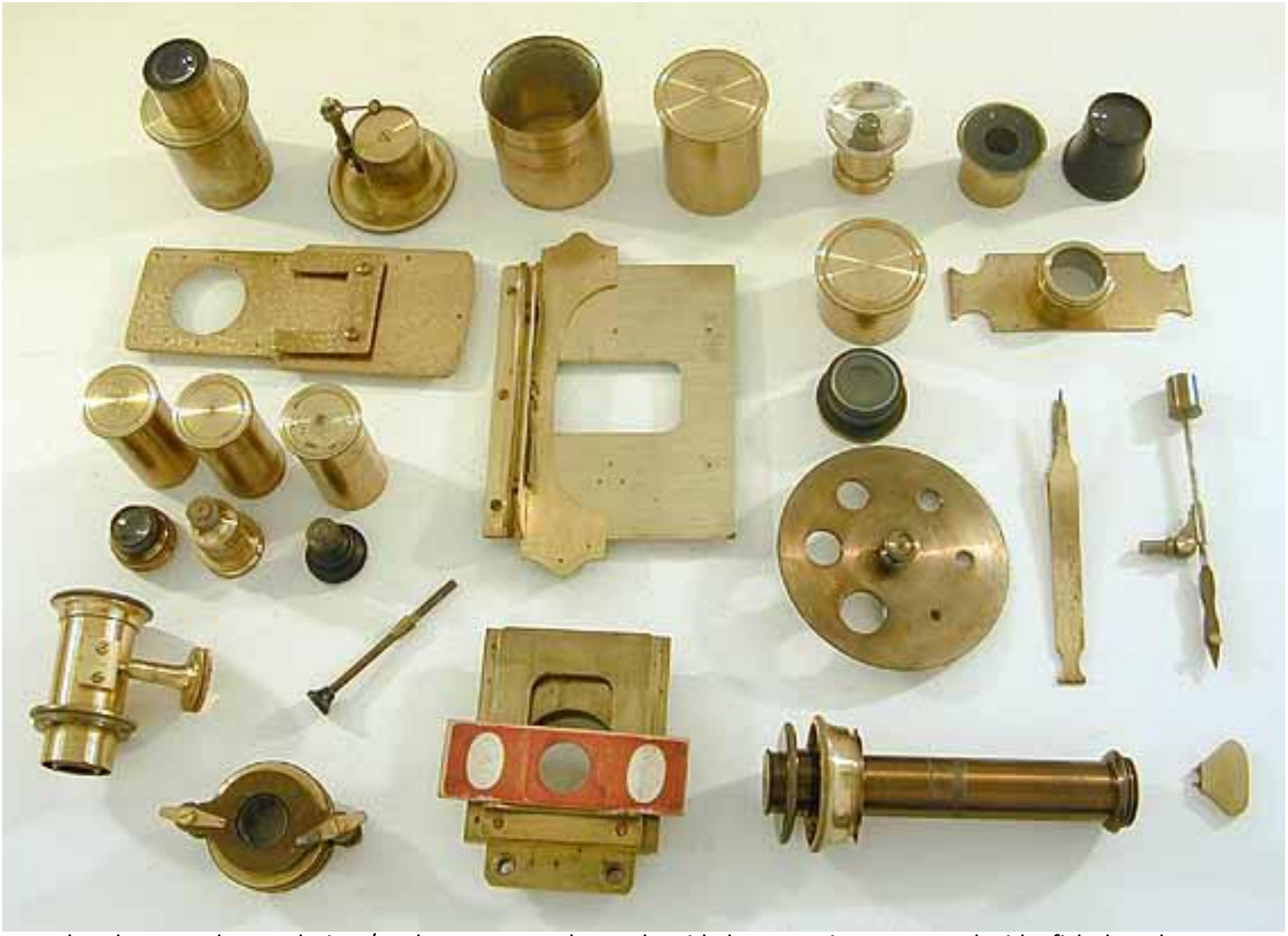
Pre 1850

Graham Marsh, ASIUK

Graham Marsh, ASIUK

Graham Marsh, ASIUK

Graham Marsh, ASIUK



watchmakers eyeglass, polariser/analyser, one top hat style wide lens eyepiece, camera lucida, fishplate, large overstage, small overstage, 1/8, ½ & 2 inch objectives in matching lacquered brass cans, live box, compressor stage, wheel of stops, forceps, stage forceps, dark well, illuminator, micrometer & spanner.

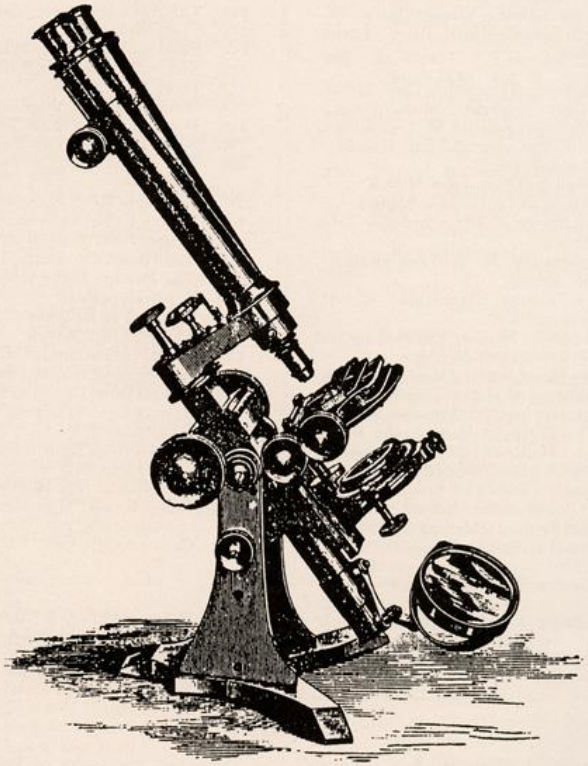
Graham Marsh, ASIUK

Graham Marsh, ASIUK

Graham Marsh, ASIUK

BINOCULAR MICROSCOPE.

No. 1.



Graham Marsh, ASIUK

1860s

Graham Marsh, ASIUK

Portable
Manchester Field Naturalist's Binocular Microscope
"Manufactured by the desire of the Committee of the Society" - 1873

Graham Marsh, ASIUK

JBD Telescopes

Graham Marsh, ASIUK

JBD Opera Glasses

Graham Marsh, ASIUK

JBD Barometers

Graham Marsh, ASIUK

JBD Barometer / Altimeter / Compass

Graham Marsh, ASIUK

JBD Protractor

Graham Marsh, ASIUK

Photography & Microphotography

Fox Talbot 1839
Daguerre 1839
Scott Archer 1851

- **1839-1841** Photographs of Liverpool & Manchester, D&P
  ~1852 Stereoscopic camera, Photoslides, Slide dissolve

- **1840**, showed first photomicrograph of Flea in Liverpool, and made microphotographs

- **1852**, produced first of higher quality (277) microphotographs, later 512 negatives passed to Richard Suter.

- **1855**, co-founded the Manchester Photographic Society
-
- **1856** Brewster takes JBD microphotographs to Europe

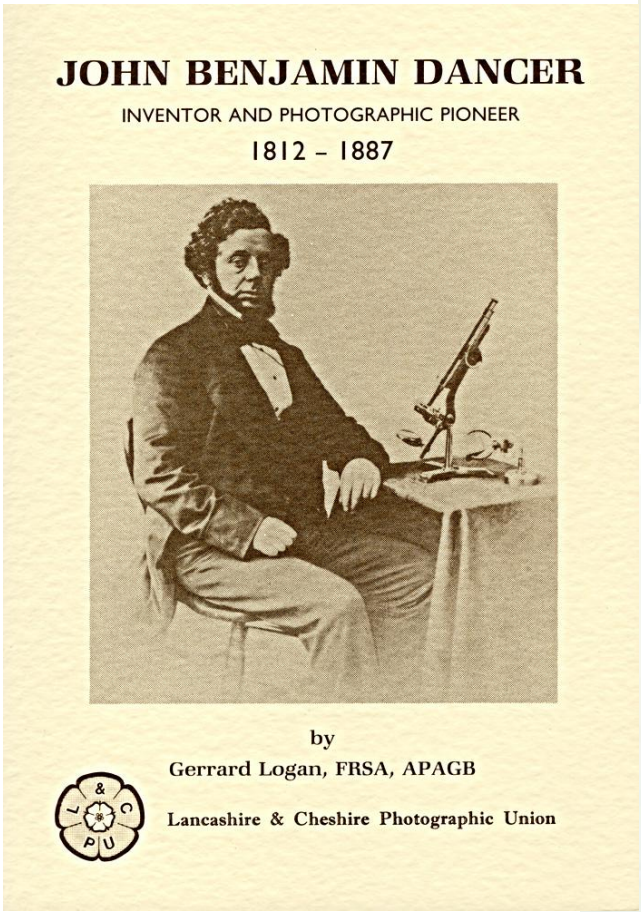
Dagron !
Shadbolt !

- **1861,** exhibited microphotographs at British Association for the Advancement of Science

- **1862**, microphotographs used in Stanhope & Dagron lenses

- **1870**s, microfilmed messages used in Franco-Prussian War

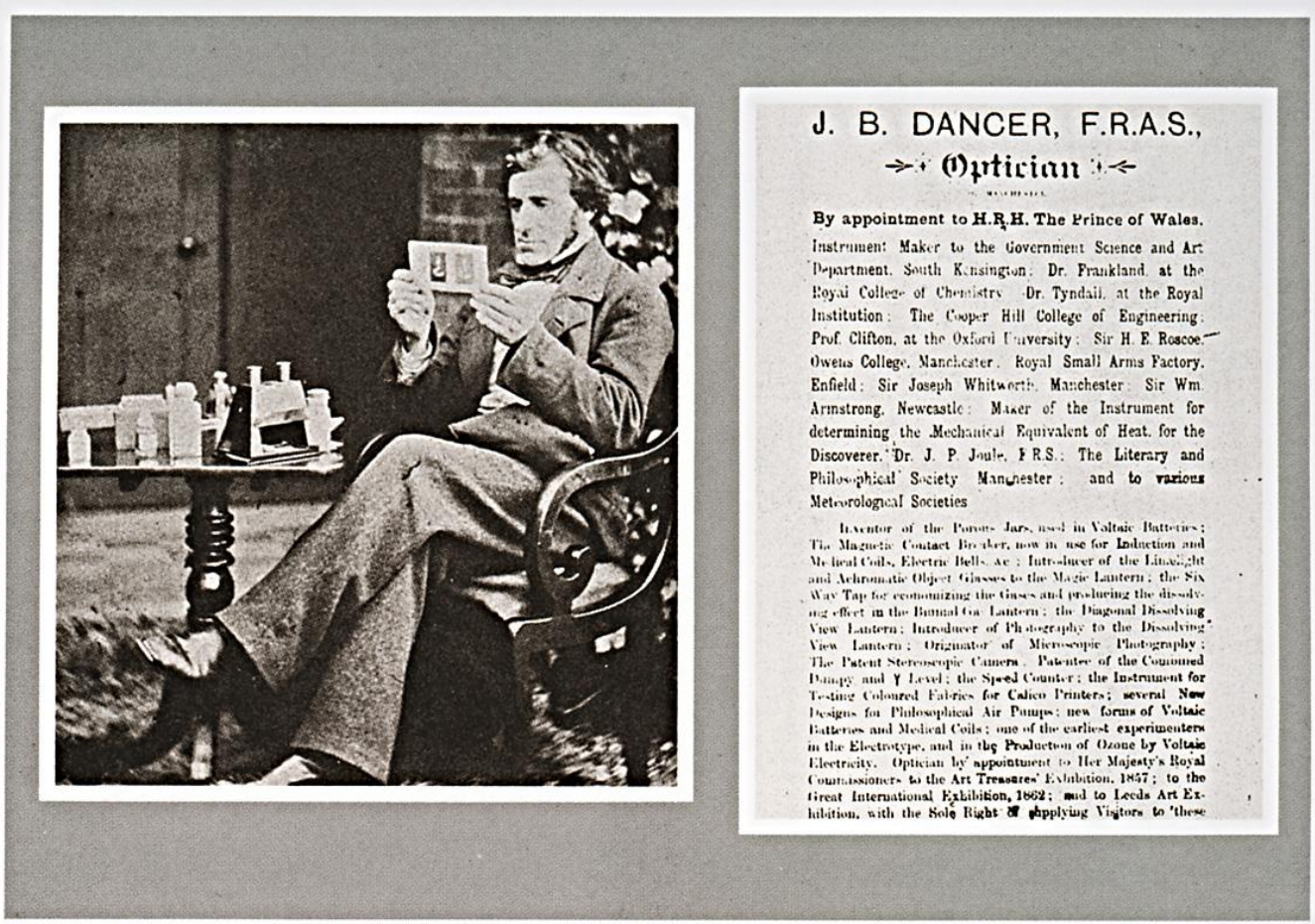
Photography



Enlarger / Reducer

Graham Marsh, ASIUK

Stereoscopic Camera



J. B. DANCER, F.R.A.S.,

Optician

By appointment to H.R.H. The Prince of Wales.

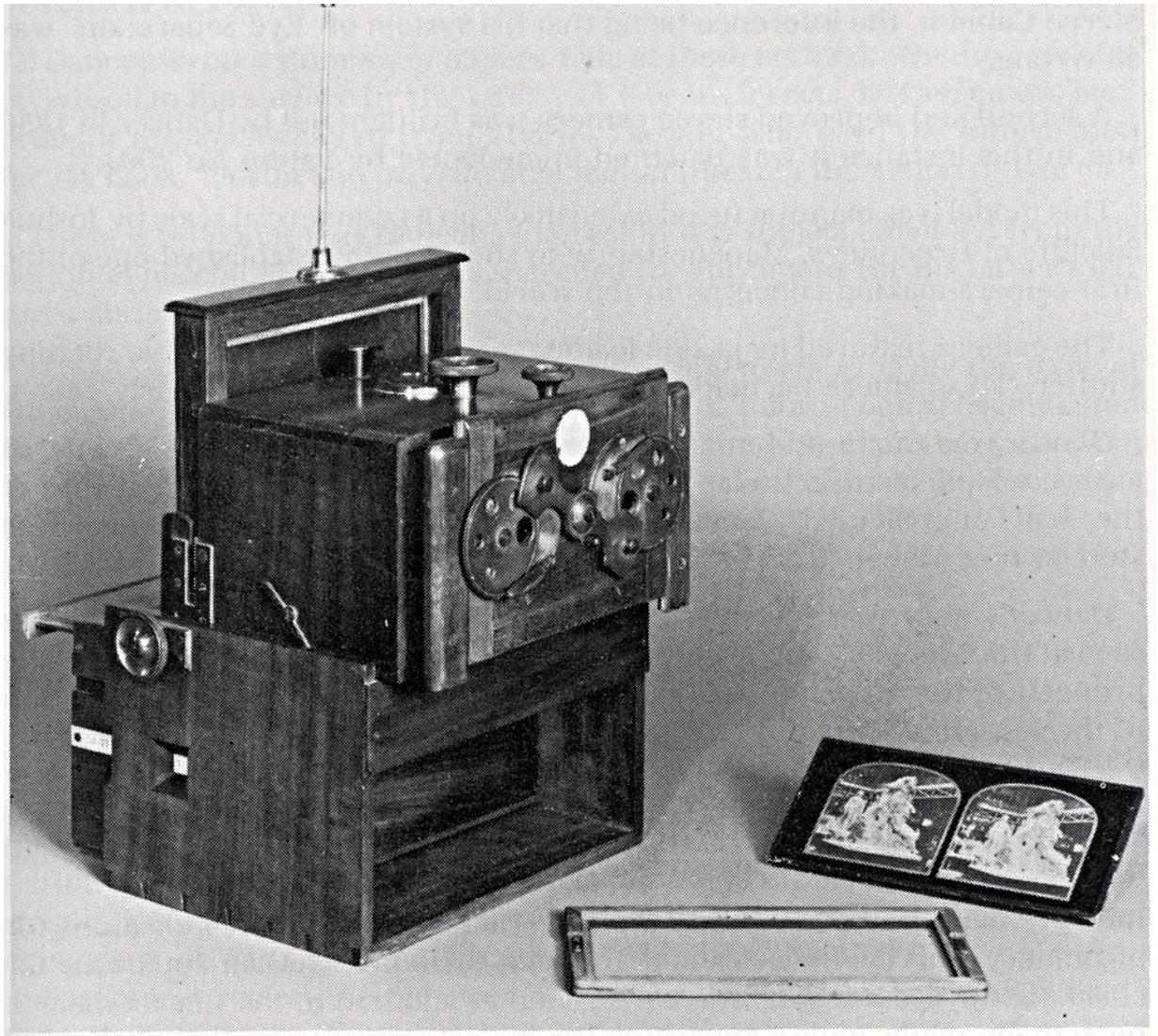
Instrument Maker to the Government Science and Art Department, South Kensington; Dr. Frankland, at the Royal College of Chemistry; Dr. Tyndall, at the Royal Institution; The Cooper Hill College of Engineering; Prof. Clifton, at the Oxford University; Sir H. E. Roscoe, Owens College, Manchester; Royal Small Arms Factory, Enfield; Sir Joseph Whitworth, Manchester; Sir Wm. Armstrong, Newcastle; Maker of the Instrument for determining the Mechanical Equivalent of Heat, for the Discoverer, Dr. J. P. Joule, F.R.S.; The Literary and Philosophical Society Manchester; and to various Meteorological Societies

Inventor of the Porous Jars, used in Voltaic Batteries; The Magnetic Contact Breaker, now in use for Induction and Medical Coils, Electric Bells, &c.; Introducer of the Linalight and Achromatic Object Glasses to the Magic Lantern; the Six Way Tap for economizing the Gases and producing the dissolving effect in the Bunnal Oxy Lantern; the Diagonal Dissolving View Lantern; Introducer of Photography to the Dissolving View Lantern; Originator of Microscopic Photography; The Patent Stereoscopic Camera; Patentee of the Contoured Dumpy and Y Level; the Speed Counter; the Instrument for Testing Coloured Fabrics for Calico Printers; several New Designs for Philosophical Air Pumps; new forms of Voltaic Batteries and Medical Coils; one of the earliest experimenters in the Electrotype, and in the Production of Ozone by Voltaic Electricity. Optician by appointment to Her Majesty's Royal Commissioners to the Art Treasures' Exhibition, 1857; to the Great International Exhibition, 1862; and to Leeds Art Exhibition, with the Sole Right of supplying Visitors to these

Bracegirdle Collection

J.B. Dancer was the inventor of the stereoscopic camera, discovering among other things that the best images were produced by placement of the lenses at approximately the same distance apart as the human eyes. At right is an undated advertisement card.

Bracegirdle & McCormick



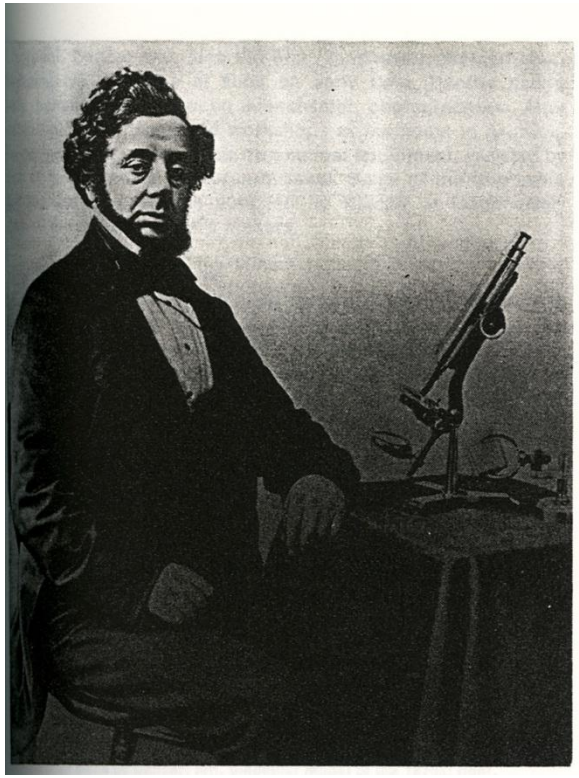
J. B. Dancer binocular stereoscopic camera, ca. 1851 (prototype) (Greater Manchester Museum of Science and Industry).

Logan


nmsi


J. B. DANCER
PATENT
No. 68
MANCHESTER.

Microphotography

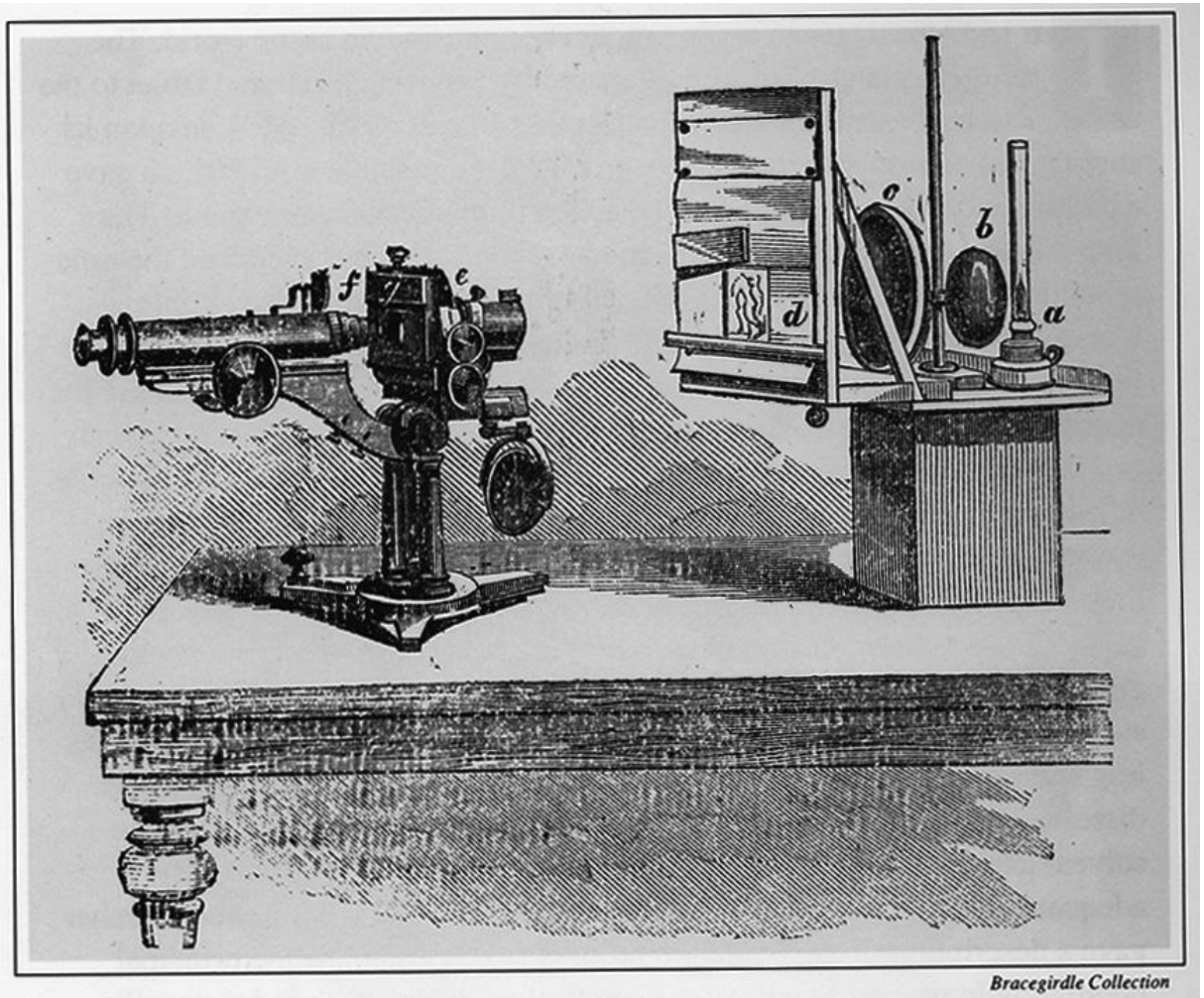


John Benjamin Dancer

Originator of Microphotography

Br J Photography, 1973


S. M. L'IMPERATRICE
DES FRANÇAIS,
Entourée des Dames de sa
Cour.
Painted by Winterhalter.
50
J.B.D.
ENLARGED
VIEW

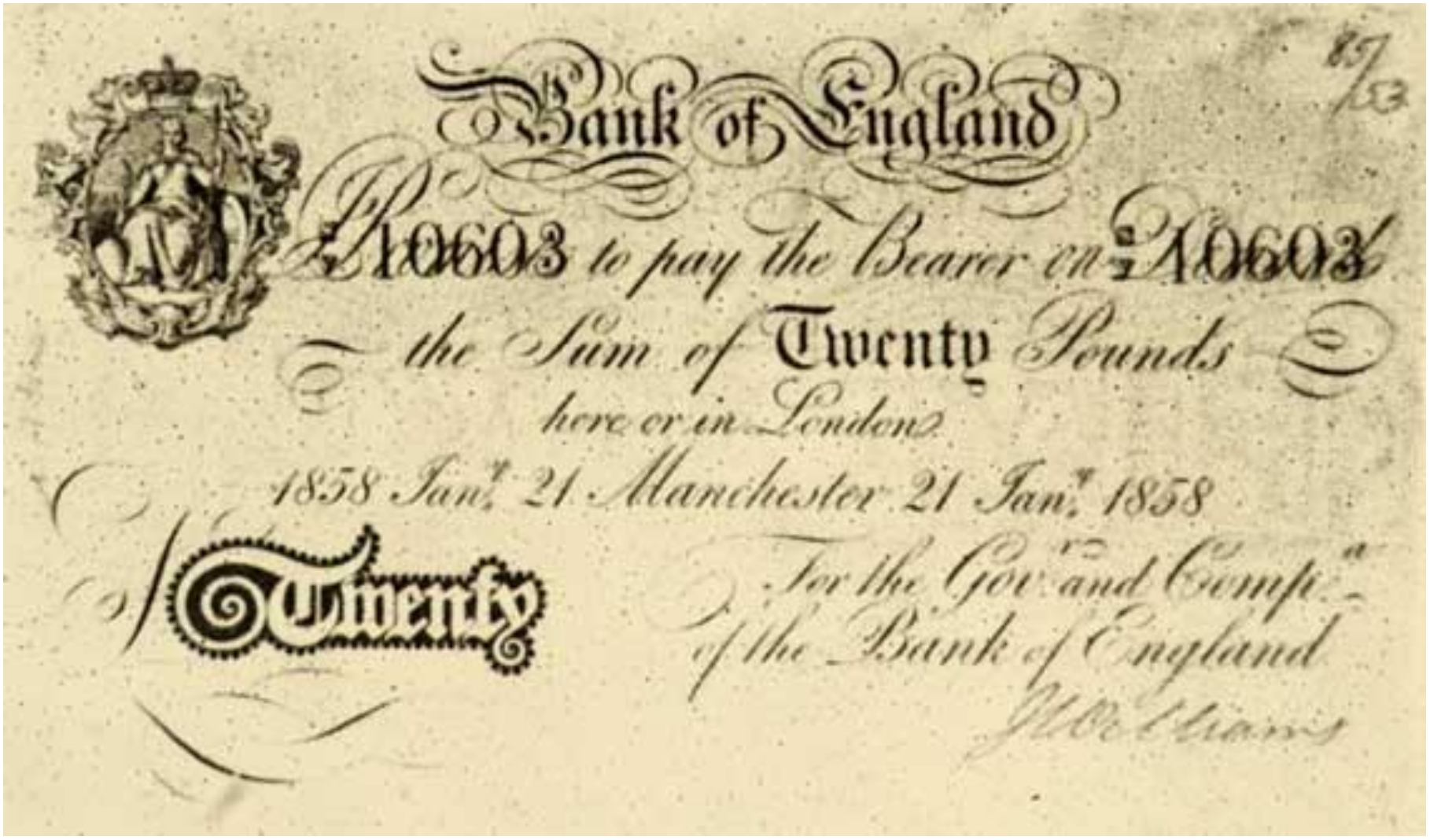


Bracegirdle Collection

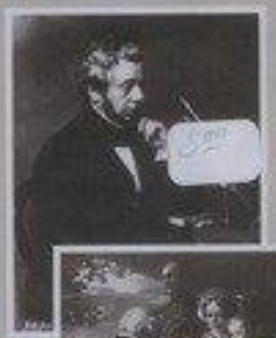
G. Shadbolt (1857): On the mode of producing extremely minute photographs for microscopic examination, Journal of the Photographic Society of London, *4, 78-81.*

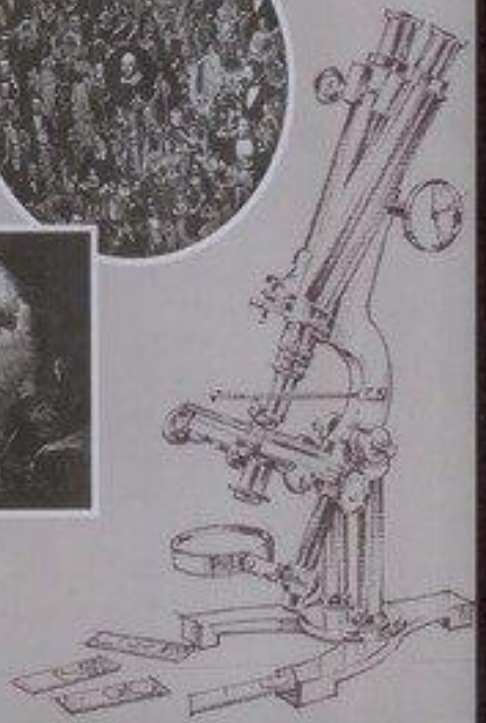
a. Camphine (oil) lamp
b. Condenser lens
c. Condenser lens
d. Negative
e. Objective carried in substage
f. Microscope's ordinary objective used to check focus

Bracegirdle & McCormick


Bank of England
£10603 to pay the Bearer on £10603
the Sum of Twenty Pounds
here or in London
1858 Jan.y 21 Manchester 21 Jan.y 1858
Twenty
For the Gov.r and Comp.a
of the Bank of England

The Microscopic Photographs of J.B. Dancer





Brian Bracegirdle
and
James B. McCormick

LIST OF MICROSCOPIC PHOTOGRAPHS,

ORIGINATED

BY J. B. DANCER,

43, CROSS STREET, MANCHESTER,

Optician and Achromatic Microscope Manufacturer by appointment to H.R.H. The Prince of Wales.

SHIPPERS AND THE TRADE SUPPLIED WHOLESALE AND RETAIL.

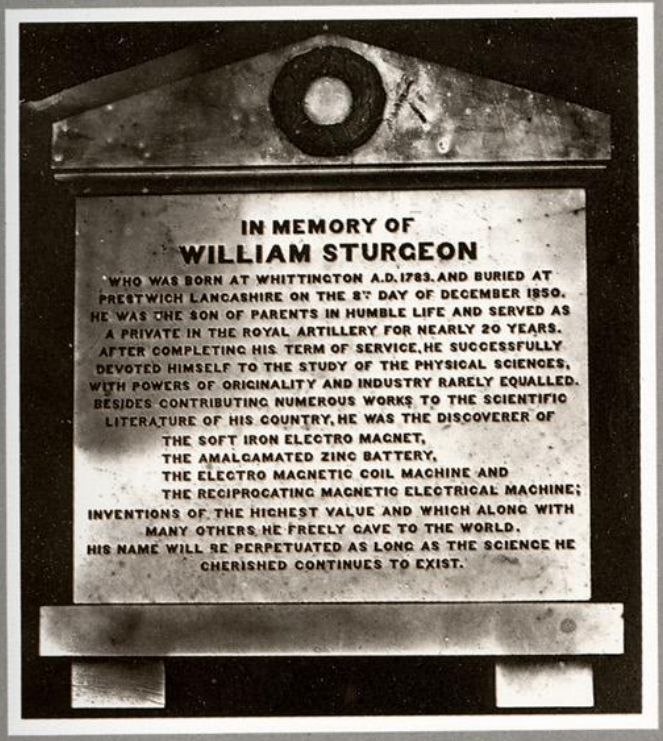
PRIZE MEDAL, EXHIBITION, 1862.

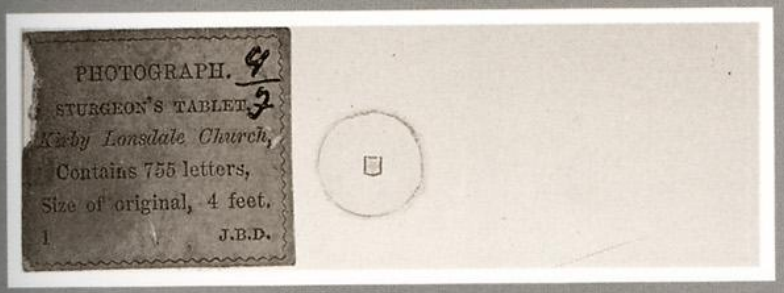
1 Sturgeons' (The Electrician) Tablet.
2 Lieut Col Dickson's Tablet.
3 Family Group from Life.
4 Her Majesty the Queen. Princess Royal. and Prince of Wales.
5 First of May, 1851, the Birthday Present
6 George Washington.
7 The Queen, by Winterhalter.
8 Prince Albert.
9 Napoleon III
10 Empress Eugènie.
11 The Madonna.
12 Louis Seize.
13 Sir D. Brewster.
14 Group of Figures from Life.
15 The Artic Council Discussing the Plan of Search for Sir John Franklin.
16 Photograph—Fountains Abbey.
17 Photograph—Rivcaulx Abbey
18 Photograph Ripon Minster
19 Photograph—Tintern Abbey.
20 Photograph—Ferry House.
21 Photograph—Pagoda Fountain, Alton Towers
22 Photograph—Conservatories, Alton Towers
23 Photograph—Alton Towers, Staffordshire
24 Photograph—Alton Towers, from the Gardens
25 Shakspeare.
26 The Lord's Prayer Illuminated.
27 The Lord's Prayer. Plain.
28 The Creed Illuminated
29 The Creed. Plain
30 The Ten Commandments Plain.
31 The Ten Commandments contains 1243 Letters Illuminated.
32 Bolton Abbey in the Olden Time.
33 The Photographer
34 Deer Stalkers Returning.
35 The Auld Man's Best Argument.
36 Her Majesty, by Chalon
37 Prince Albert
38 Rustic Felicity.
39 The Imperial Family of Russia.
40 The Imperial Family of Austria.
41 Refreshment.
42 Shoeing.
43 Windsor Castle. Modern Times.
44 W. A Mozart.
45 Photograph of the Bridge at Prague.
46 A. V. Humboldt.
47 Bonaparte Franchissant les Alpes.
48 Wellington Reading his Despatches.
49 Nelson Meditating his Prayer before the Battle of Trafalgar.
50 S. M. L'Imperatrice Des Francais Entourée des Dames de sa Cour.
51 £20 Bank Note.
52 Conference of Engineers at the Menai Straits, previous to floating one of the Tubes of the Britannia Bridge.
53 H R H Prince Frederick William of Prussia.
54 Lord Raglan's Tablet, contains 1687 Letters
55 "The Glorious Company of the Apostles Praise Thee"
56 "The Noble Army of Martyrs Praise Thee"
57 Ecce Homo.
58 The Departure, Second Class.
59 The Return, First Class
60 "Suffer Little Children to come unto me."
61 Pharaoh's Horses.
62 Her Royal Highness Victoria—Princess Royal Princess Frederick William of Prussia. 1858
63 The Queen and Prince—The Prince of Wales—Prince Alfred—The Princess Royal Princess Alice—and Princess Helena.
64 The Princesses, by Winterhalter.
65 T.R.H's. Prince Alfred and Princess Helena, 1849
66 The Holy Family.
67 Benjamin Franklin.

68 Highland Shooting Pony.
69 The Stag at Bay.
70 Odin
71 Laying down the Law.
72 Dignity and Impudence.
73 L'Graison Dominicale.
74 Lord Palmerston.
75 Lord John Russell.
76 Lord Panmure
77 General Sir Colin Campbell.
78 Hon Geo. Miffin Dallas.
79 David Livingstone, L.L.D.
80 Dr Farady F R S.
81 Sir H. Davy, Bart.
82 Sir W. Herschell.
83 Laplace.
84 Sir Isaac Newton.
85 Gay Lussac.
86 Handel.
87 Albert Smith Esq.
88 Mārshal Pelissier.
89 Cromwell and Milton.
90 Charles Dickens Esq.
91 The Straw Yard.
92 With the Stream.
93 Against the Stream.
94 Weighing the Deer.
95 H.R.H. Maharajah Dhuleep Singh.
96 Photograph—The Seven Bridges, Paris.
97 Photograph—St. Sulpice. Paris.
98 Photograph Notre Dame
99 Photograph - Panoramic View, Paris.
100 Photograph—Tintern Abbey, South Aisle
101 Photograph—Tintern Abbey, Cloisters
102 The Bashful Lover and the Maiden Coy
103 Cent Francs Banque de France.
104 Raphael's Cartoon Paul Preaching at Athens.
105 Raphael's Cartoon, The Beautiful Gate of the Temple.
106 Napoleon le Grand.
107 Jenny Lind.
108 Portraits of the Presidents of the United States from Washington to J Buchanan
109 Conway Castle. Suspension Bridge and Tubular Bridge
110 Declaration of Independence of the United States of America.
111 Blarney Castle, Ireland
112 Lea Hurst, the Home of Miss F. Nightingale.
113 Great Cross of Muiredach Monasterboice, Ireland
114 Balmoral Castle. the Highland Residence of Her Majesty Queen Victoria.
115 Eaton Hall near Chester.
116 The Porch of Lichfield Cathedral
117 Uncle Toby and the Widow.
118 The Gardener's Daughter.
119 Preparing Moses for the Fair.
120 Andrew Prichard M.R I.
121 A Glimpse at an English Homestead.
122 Raphael's Cartoon, The Miraculous Draught of Fishes
123 Raphael's Cartoon, The Death of Ananias.
124 Raphael's Cartoon. Paul & Barnabas rejecting the Sacrifices at Lystra.
125 Raphael's Cartoon Elymas the Sorcerer struck with Blindness.
126 Raphael's Cartoon, Christ's charge to Peter.
127 Greek Fugitives.
128 Miss Amy Sedgwick, as "Hester."
129 The Deliverance of St Peter from Prison.
130 Neapolitan Peasants.
131 Nell Gwynne.
132 Happy as a King.
133 Othello Relating his Adventures
134 John Knox Reproving the Ladies of Queen Mary's Court.
135 The Poet and the Players.
136 The Loan of a Bite.
137 Sickness and Health.
138 80-Pounder Whitworth Gun.
139 The Prince of Wales.
140 Garabaldi, from Life.
141 Garabaldi, Full Length.
142 Un Portrait mal Payé,—A Portrait badly paid for
143 Le Repas Interrompu,—The Interrupted Repast.
144 Les Pêcheurs —The Fishermen.
145 L'Improvisateur The Improvisatore.
146 Les Moisonneurs dans les Marais Pontins, The Reapers in the Pontine Marshes.
147 Prince Alfred
148 Ninety-seven Dramatic Portraits,—the present Era.
149 112 Portraits of Eminent Men.
150 155 Portraits of Eminent Persons.
151 Sir Walter Scott and his Literary Friends at Abbotsford.
152 The Illustrated News.
153 Fr. V. Schiller.
154 Goethe.
155 Meyerbeer.
156 Hr Alois Ander, Als Prophet in der Oper der Prophet.
157 Friederike Glossman
158 Wengl Scholz, Carl Treumann, T. Nestrog
159 Medicinishes Professoren Collegium der Hochschule, Wien.

The famous 1873 list of 277 microscopic photographs originated (and invented) by J. B. Dancer, 43, Cross Street, Manchester.

Bracegirdle & McCormick





J.B. DANCER No. 1

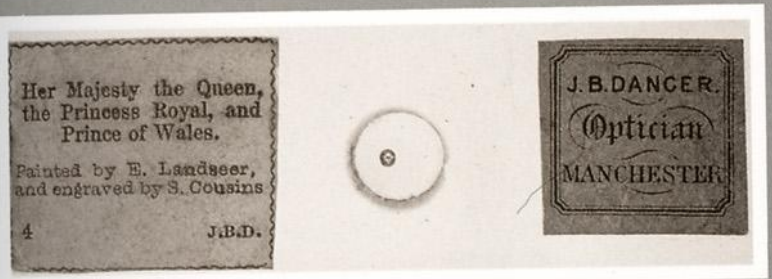
Sturgeon's (The Electrician) Tablet.

R. SUTER
Sturgeon's Tablet, Kirby Lonsdale Church.
Contains 755 letters. Size of original, 4 ft.

Collection of A.L.E. Barron.
Image from original negative.

As well as the achievements and discoveries listed on his memorial, William Sturgeon was Superintendent of the Victoria Gallery of Practical Science at Manchester. He was born in 1783 at Whittington in Lancashire, a village near Kirby Lonsdale, where his father, 'an ingenious but idle' character, was a shoemaker. His mother was the daughter of the village shopkeeper. Sturgeon died in the Manchester suburb of Prestwich in 1850. He was buried in Prestwich church graveyard but a marble tablet to his memory was subsequently placed in Kirby Lonsdale Church. Dancer has reduced the tablet from 4 ft. to 2 mm.

Graham Marsh, ASIUK



J.B. DANCER No. 4

Her Majesty the Queen, Princess Royal, and Prince of Wales.

R. SUTER
Her Majesty the Queen, the Princess Royal, and the Prince of Wales.

Collection of A.L.E. Barron.
Image from original negative.

The Queen was delighted that her first child, born in 1840, was a daughter. The Princess Royal was a precocious child, known as 'Pussy' until she was seven, and adored for her pert antics and sayings. Prince Albert Edward ('Bertie') was born the following year, and described by his mother as 'wonderfully strong, with a very large nose and pretty little mouth.' The Queen, however, was not fond of babies; she wrote later that 'an ugly baby is a very nasty object—and the prettiest is frightful when undressed—till about four months.' She particularly detested 'that terrible frog-like action' and named a cow Alice after the daughter that she saw breast-feeding. Sir Edwin Landseer (1802-73) was a family friend, romping with the Princess Royal, teaching the Queen to etch and correcting her sketches. When he died, she recorded that she owned 39 of his oils. This work was painted in 1842.

FIG. 1. A new portrait of J. B. Dancer in 1860.

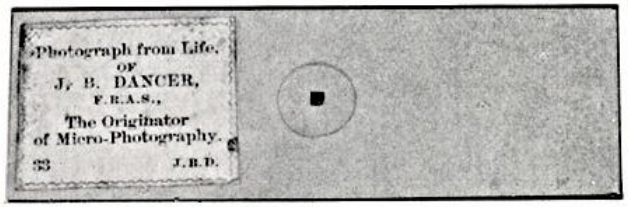


FIG. 2. The portrait of J. B. Dancer was enlarged by Mr. E. H. Duckworth from microscopic-photograph No. 33 shown here in exact size. It is owned by Mr. E. P. Herlihy and no other copy of it is known, though the original (1860) negative may be in a collection in the possession of Mr. A. Barron.

J.B. DANCER No. 58

The Departure, Second Class.

R. SUTER
The Departure, Second-Class. By A. Solomon.

Collection of A.L.E. Barron.
Image from original negative.

This painting was also known as *Second Class—the Parting*. As the *Art Journal* commented when Abraham Solomon (1824-62) exhibited the pair at the Royal Academy in 1854, 'This is a pendant to a picture by the same artist already noticed, called "the meeting," but it is superior to the latter in everything. A widow is accompanying her child, a sailor boy, to Portsmouth or Southampton, whither he is proceeding by railway to join his ship, bound on a long voyage. The characters are well drawn, and the story is pointedly told.' The engravings are by William Henry Simmonds (1811-82). The original pictures are now in the Southampton Art Gallery.

R. SUTER **No. 289**

Mr. Hyde's Shop, Market Street, Manchester.

Collection of P.J. Evennett.
Image from commercial slide.

William Hyde was a noted grocer and importer of Irish butter and cheese, although he was prosecuted at least three times for 'knowingly and designedly' keeping and using a false balance. He manufactured gas on his premises and in 1820 was charged with 'throwing away large quantities of lime water used in the making of such gas as aforesaid and thereby did wrongly and injuriously make or permit and suffer to be made divers fetid nauseous and unwholesome vapours smells and stenches.' His shop was the most picturesque building in Market Street and an excellent example of Elizabethan domestic architecture with elaborate timber work and hundreds of tiny glass panels. Scarcely less ornate is the gable over Mrs. Walker's ironmongery shop. The Manchester artist J. Ralston was born in 1789. As well as being a landscape and marine painter, he possessed considerable musical talents, but died at the age of 44 in poor circumstances.

Slide image not available.

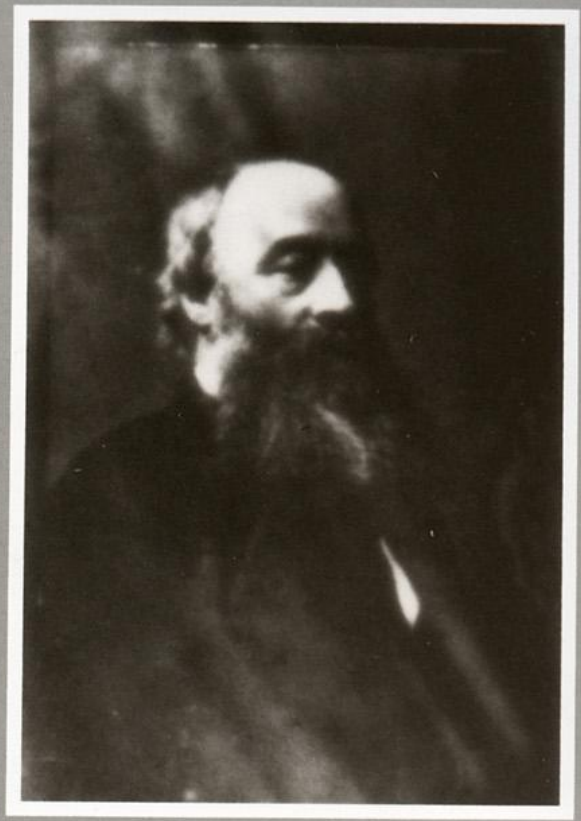
Bracegirdle & McCormick

R. SUTER **No. 343**

Dr. J.P. Joule, F.R.S.

Collection of P.J. Evennett.
Image from commercial slide.

James Prescott Joule (1818-89), was a Manchester man and a friend of J.B. Dancer. He studied chemistry under Dalton and showed in a series of experiments between 1843 and 1878 that heat is a form of energy, which he described quantitatively in terms of mechanical and later electrical energy. This became the basis of the law of conservation of energy. He was fanatical in his researches, even spending his honeymoon measuring the difference in temperature between the top and bottom of a waterfall. With Lord Kelvin, he measured the fall in temperature when gas expands without doing external work, thus laying the basis for the refrigeration industry. They further developed this study which allowed them to liquify helium and hydrogen, leading to the new science of cryogenics. In later years Joule was elected to the Royal Society and became President of the Association for the Advancement of Science.



Label only.
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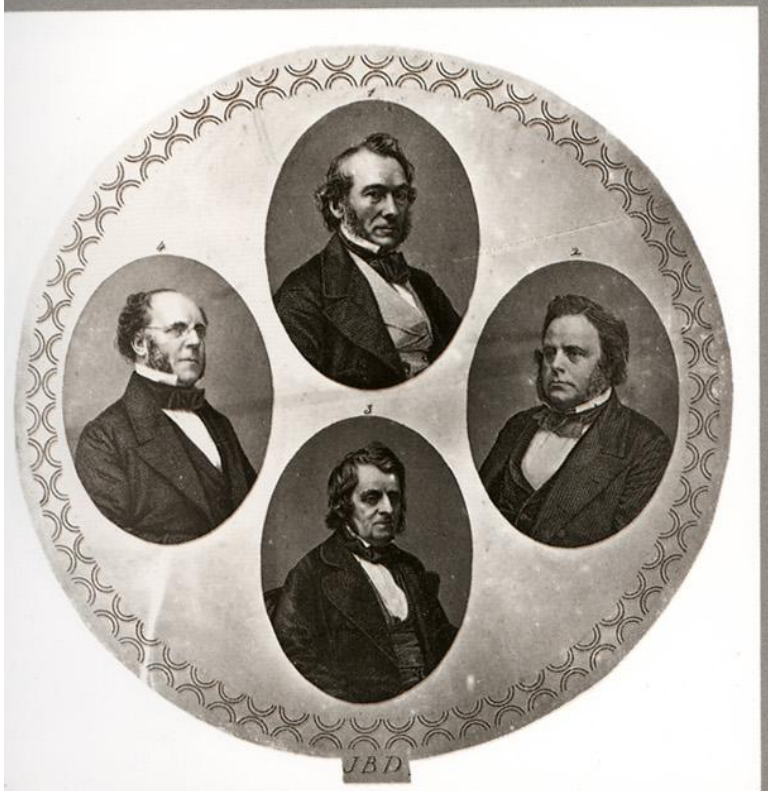
Bracegirdle & McCormick



Slide image not available.

J.B. DANCER . No. 221

Richard Cobden, John Bright, J.A. Roebuck, M.T. Baines.

R. SUTER: Same

Collection of A.L.E. Barron.
Image from original negative.

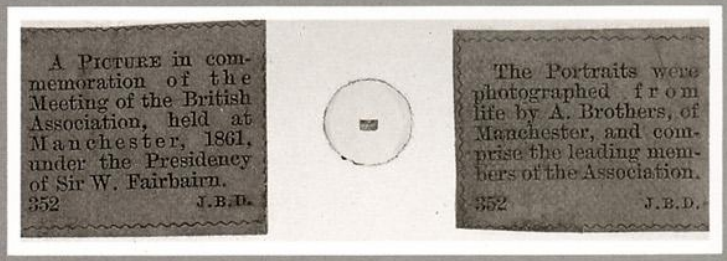
Richard Cobden (1804-65), the 'Apostle of Free Trade,' was a prominent member of the Anti-Corn Law League formed in 1838. It was partly because of his persuasive speeches in the House as Member for Stockport that the Corn Laws were abolished in 1846. In 1859-60 he arranged the Treaty of Commerce with France. John Bright (1811-89) agitated with Cobden for Free Trade. In 1843 he became MP for Durham and opposed the Corn Laws. Like Cobden, he opposed the Crimean War. His name was associated with the Reform Act of 1862. John Arthur Roebuck (1802-79) came to England from Canada in 1824 and became Radical Member for Bath in 1832. He represented Sheffield 1849-68 and again from 1874 until his death. His motion for inquiring into the state of the army before Sebastopol overthrew the Aberdeen administration in 1855. In 1879 he was made Privy Councillor. Matthew Talbot Baines (1799-1860), MP for Hull 1847-52 and thereafter Leeds, was President of the Poor Law Board from 1849. He was Magistrate for Lancashire and General Chairman of the Annual Sessions for Manchester.

R. SUTER No. 352

A Picture in commemoration of the Meeting of the British Association, Manchester in 1861.

Collection of J.B. McCormick
Image from commercial slide.

The British Association for the Advancement of Science was founded in 1831. The slide shows the Free Trade Hall, Manchester, on 4 September, 1861, when 'The Lord Wrottesley FRS resigned the office of President to William Fairbairn Esq FRS. A copy of the engraving in Manchester Central Library is faintly annotated as follows (left to right): ?J.F. Bateman; Sir Roderick Murchison [1792-1871, geologist]; Professor Charles Cardale Babington [1808-95, botanist and archaeologist]; Rev. V. Harcourt [?Rev. William Vernon Harcourt, 1789-1871, chemist]; Rev. D. Robinson [?Rev. Thomas Robinson, 1792-1882, astronomer]; Robert D. Darbishire [local Secretary]; David Brewster [1781-1868]; William Neild [?Alderman Alfred Neild, local Secretary]; illegible; Lord John Wrottesley [1798-1867, astronomer]; Sir Edward Sabine [1788-1883, General, arctic astronomer, President 1852]; Joseph Heron [1809-89, Manchester Town Clerk]; William Allan Miller [1817-70, chemist]; Matthew Curtis [d.1887, Mayor of Manchester 1860-61]; Eric Mackie [Mayor]; Sir William Fairbairn [1789-1874, civil engineer]; Professor Newmarsh [Economics Committee member]; William Hopkins [1793-1866, mathematician and geologist]; Adam Sedgwick [1785-1873, geologist]; Reverend R. Willis [1800-75, civil engineer]; Professor John Phillips [1800-74, geologist]; illegible.

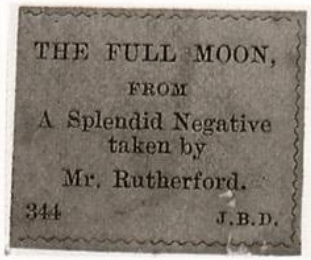


R. SUTER **No. 344**

The Full Moon. Photographed from Nature by Mr. Rutherford.

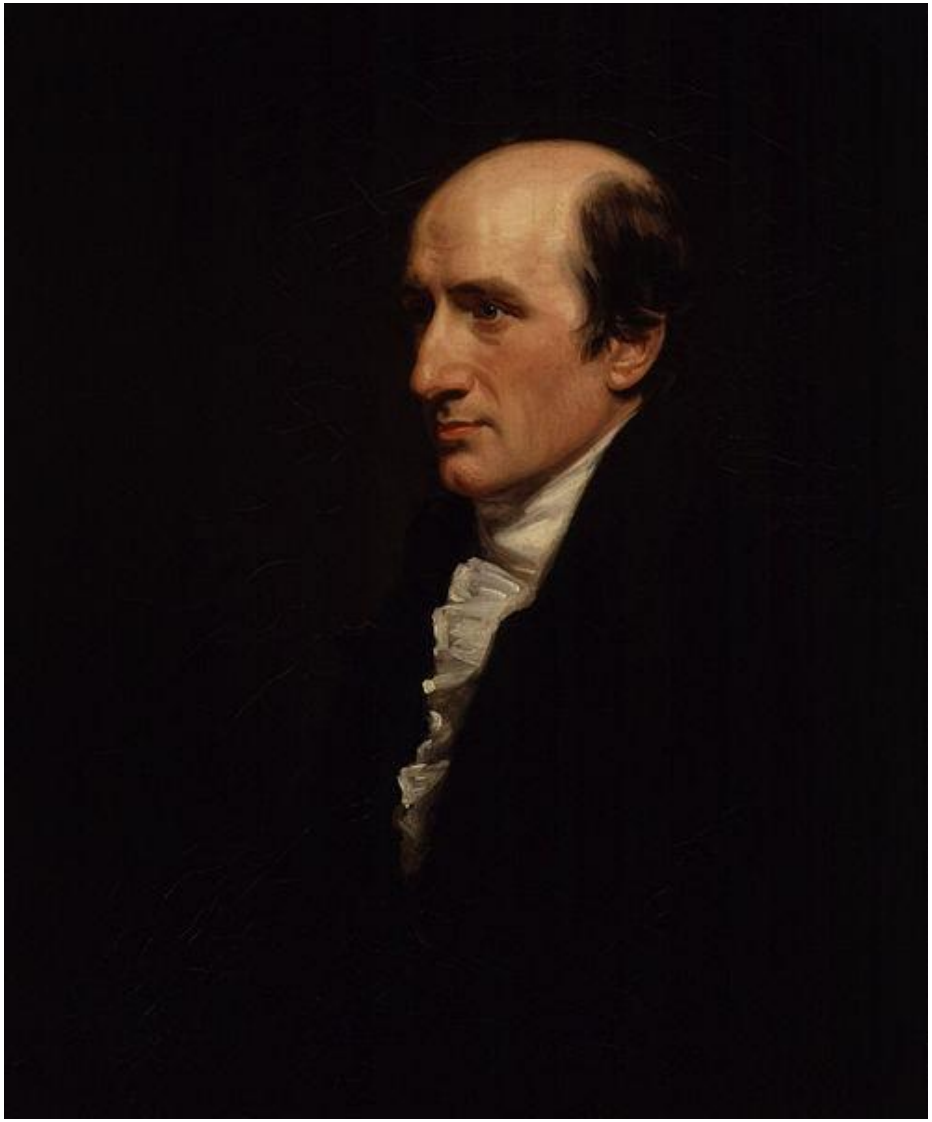
Collection of J.B. McCormick.
Image from commercial slide.

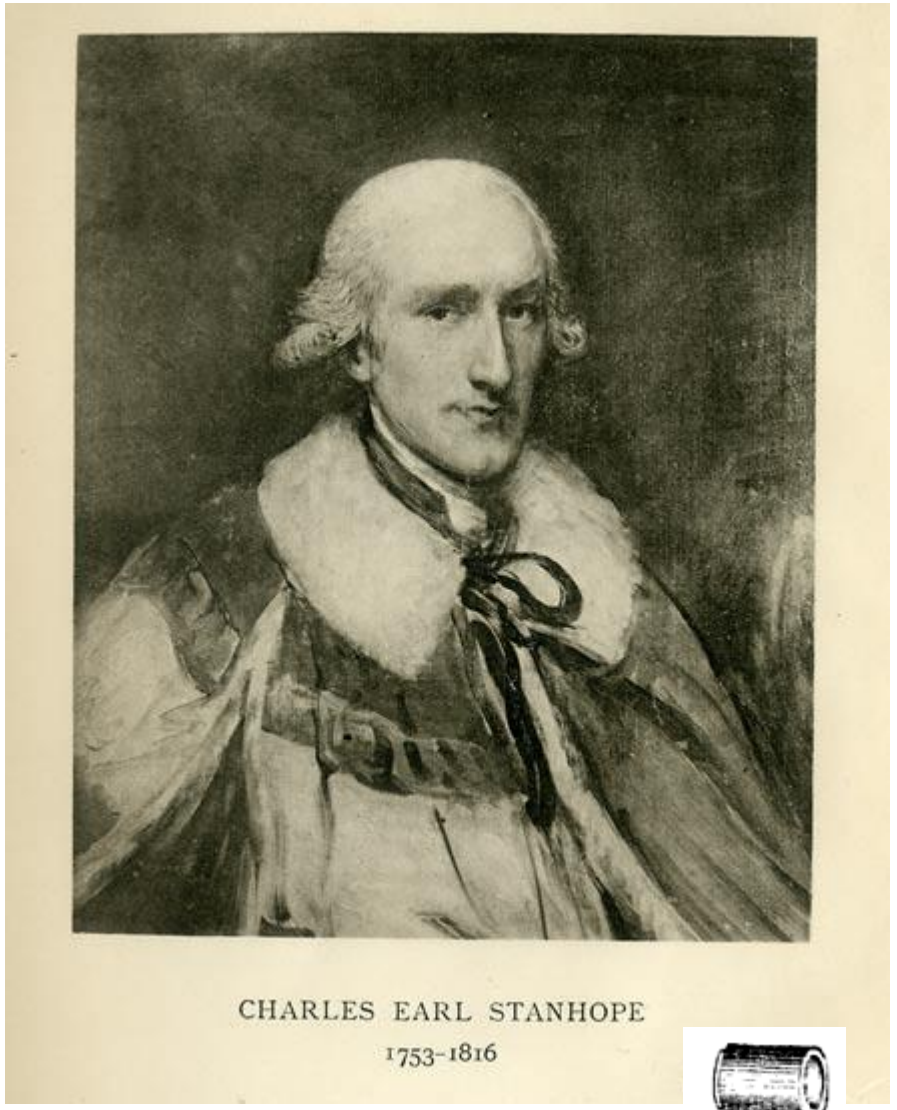
Early photographers of the moon faced three difficulties. Firstly, telescopes of small aperture have less light-gathering ability as well as poorer resolution. The second difficulty was the low speed of the photographic materials; daguerreotypes were very slow (with an ASA of perhaps 0.01). Collodion emulsions were much faster, with an ASA speed of about 1. Dry plates brought the speed up to between ASA 5 and 10. The third difficulty was that of moving the telescope accurately so that it remained lined up with the image, thus avoiding a line on the negative. By the 1880s, it was possible to manufacture adequate tracking mechanisms, and the speed of emulsion had in any case made this less important.



Bracegirdle & McCormick


March 12 1869





CHARLES EARL STANHOPE
1753–1816

3rd Earl Stanhope, Charles, FRS, (1753-1816) … Charles Mahon, Lord Mahon

Stanhope Press, Stanhope Lens, Calculating Machines

5th Earl Stanhope – Philip Henry, FRS, 1805-1875 (Lord Mahon)

Historian

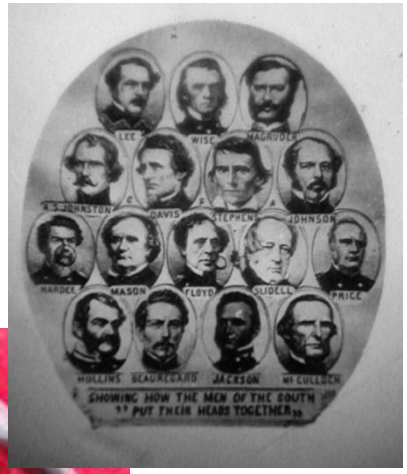
René Prudent Patrice Dagron (1819-1900)

1859 Cylindres photomicroscopique
Optical bijou
Bijoux microphotoscopiques
(microscopic photo- jewellery)

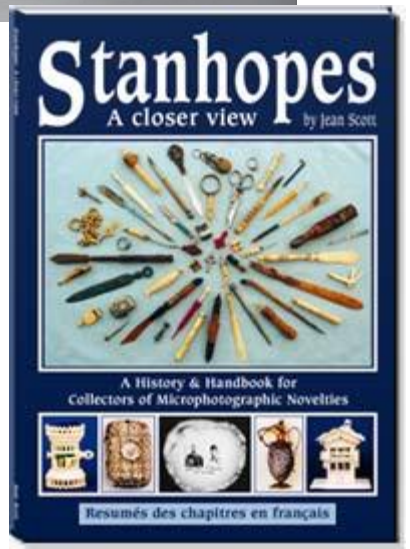
1862 London Exhibition

1862 Factory at Gex, 12,000 per day plus mail order

from www.stanhopes.info


LEE
WISE
MAGRUDER
A.S. JOHNSTON
DAVIS
STEPHEN
JOHNSON
HARDEE
MASON
FLOYD
SLIDELL
PRICE
HOLLINS
BEAUREGARD
JACKSON
McCULLOCH
SHOWING HOW THE MEN OF THE SOUTH "PUT THEIR HEADS TOGETHER"

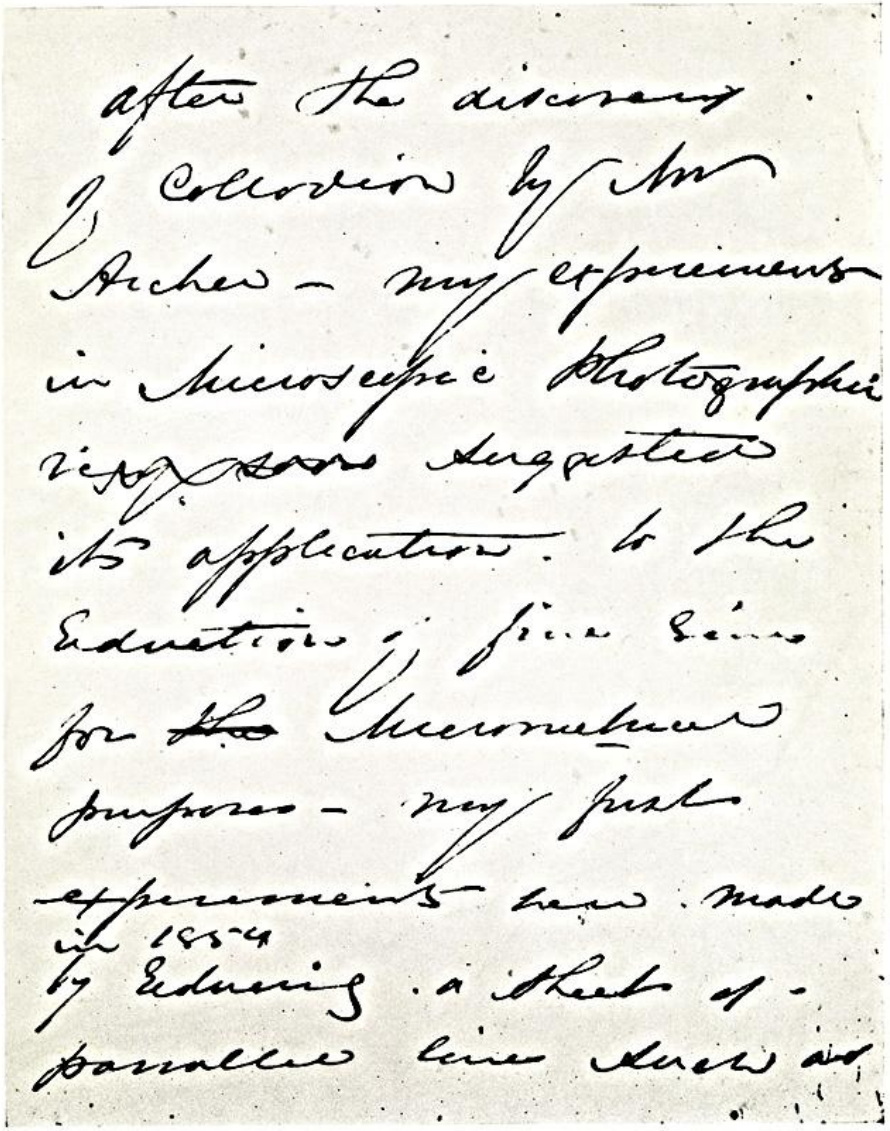

KARL KRAUSE
HINCKEL BREWERY


Stanhopes
A closer view
by Jean Scott
A History & Handbook for
Collectors of Microphotographic Novelties
Resumés des chapitres en français

Later Years ….

- **1870**, diagnosed as having diabetes and glaucoma
- **1877**, wrote a paper on subsoil transfer by worms which was quoted by Darwin
- **1878**, ill health and failing eyesight forced retirement, business passed to his two daughters
- **1880**, amongst first members of the newly formed Manchester Microscopical Society
- **1884**, honorary member of Manchester Lit & Phil
- **1885**, dictated his autobiography to granddaughter Eleanor Elizabeth Dancer (b1871), (refound by Miss Wilkie her daughter in 1958 following an MMS meeting). Moved to Birmingham (53 Hampstead Road, Hamworth) to stay with family.
- **1886**, article by Joule praising Dancer's talents and achievements
- **1887**, died November 24th aged 75. Buried at Brooklands Cemetery, Sale, Cheshire
- **1896**, business sold to Richard Suter for only £50, photographic plates re-discoverd in 1959
- **1960**, posthumously awarded a Medal of Meritorious Service by the National Microfilm Association of USA

Photo-copy of a letter to a person unknown, but dealing with a request by Sir David Brewster for a micro-photograph of parallel lines for use as a micrometer for telescopes, and also recording in it the existence of his micrometer machine made some time before, which, he states, is " capable of ruling lines with a diamond if required on glass to the ten-thousandth part of an inch ".



after the discovery
of Collodion by Mr
Archer — my experiments
in Microscopic Photography
led me to suggested
its application to the
Education of fine lines
for ~~the~~ Micrometrical
purposes — my first
experiments were made
in 1854
by Ruling a sheet of
parallel lines such as

MLit Phil, Browning

This is the Last Will and Testament of me John Benjamin Dancer of the City of Manchester Optician - I give devise and bequeath All my real and personal estate whatsoever and wheresoever unto my wife Elizabeth Dancer her Heirs Executors and Administrators - And I hereby appoint my said wife Executrix of this my will - In Witness whereof I have hereunto set my hand this 16th day of October 1872 -

Signed by the said Testator as his last will and testament in the presence of us who in his presence at his request and in the presence of each other have hereunto subscribed our names as Witnesses - J. B. Dancer

Edwd Hy Binney Solr Manchester
S. G. Raingill, Clerk to Mr. E. H. Binney

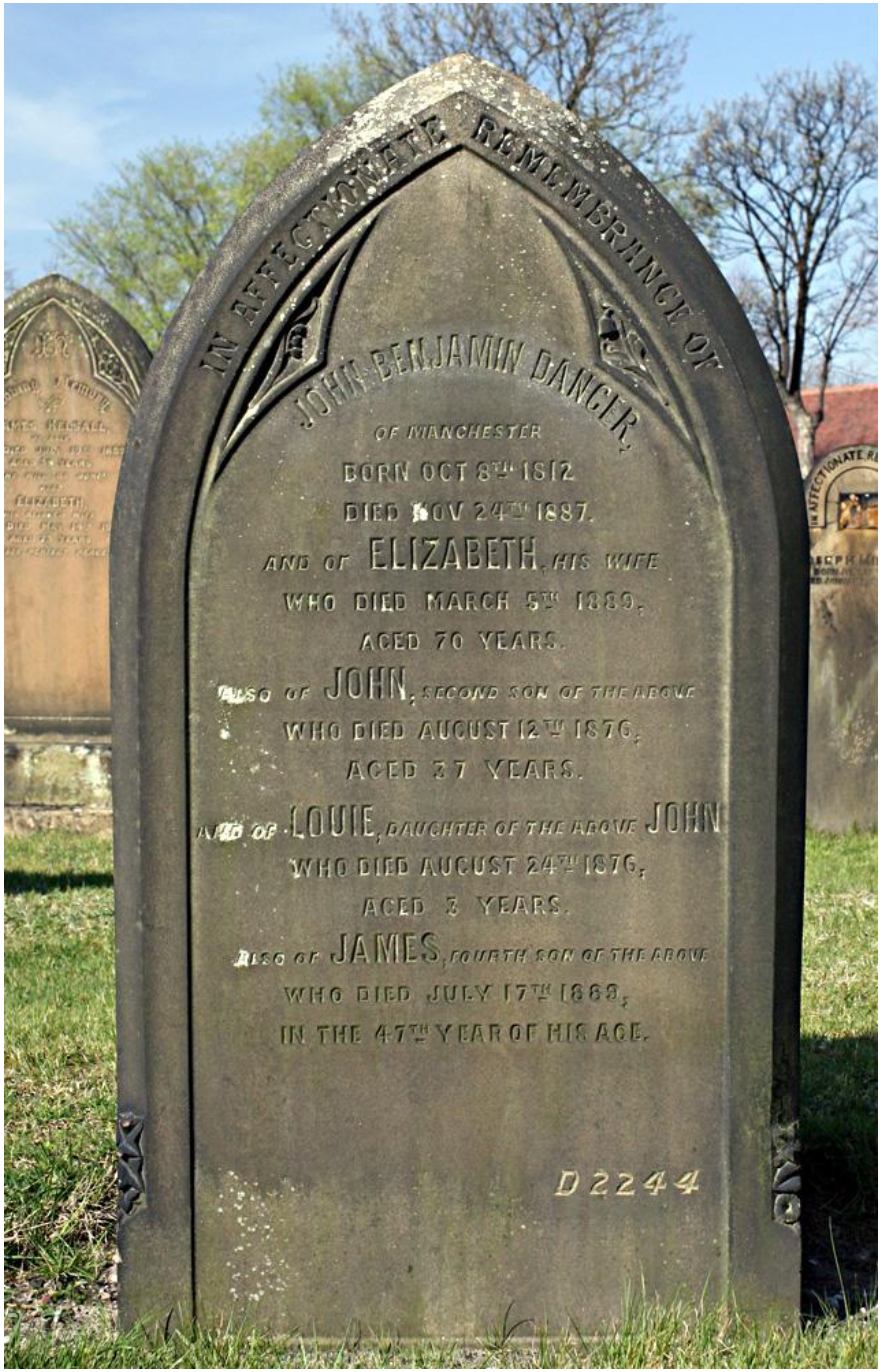
Harry Ransom Humanities Research Center Collection

Last Will and Testament of John Benjamin Dancer of Manchester, 16 October 1872.

Bracegirdle & McCormick

In
of
EDWARD S. PETTITT
AGED 43 YEARS.
MARY ANN, (POLLY)
AGED 32 YEARS.
THOMAS HORROCKS


Carnforth Dr
Stanley Mount
Walton Rd
St. Davids Close
St. James Dr
Simons Close
A6144
Marsland Rd
Hope Rd
© 2012 Google
© 2012 Infoterra Ltd & Bluesky
Google earth
Imagery Date: 6/2/2009
2000
53°25'03.70" N 2°19'40.07" W elev 30 m
Eye alt 443 m


IN AFFECTIONATE REMEMBRANCE OF
JOHN BENJAMIN DANGER,
OF MANCHESTER
BORN OCT 8TH 1812
DIED NOV 24TH 1887.
AND OF ELIZABETH, HIS WIFE
WHO DIED MARCH 5TH 1889,
AGED 70 YEARS.
ALSO OF JOHN, SECOND SON OF THE ABOVE
WHO DIED AUGUST 12TH 1876,
AGED 37 YEARS.
ALSO OF LOUIE, DAUGHTER OF THE ABOVE JOHN
WHO DIED AUGUST 24TH 1876,
AGED 3 YEARS.
ALSO OF JAMES, FOURTH SON OF THE ABOVE
WHO DIED JULY 17TH 1868,
IN THE 47TH YEAR OF HIS AGE.
D2244


IN AFFECTIONATE REMEMBRANCE OF
JOHN BENJAMIN DANCER
OF MANCHESTER
BORN OCT 8TH 1812
DIED NOV 24TH 1887.

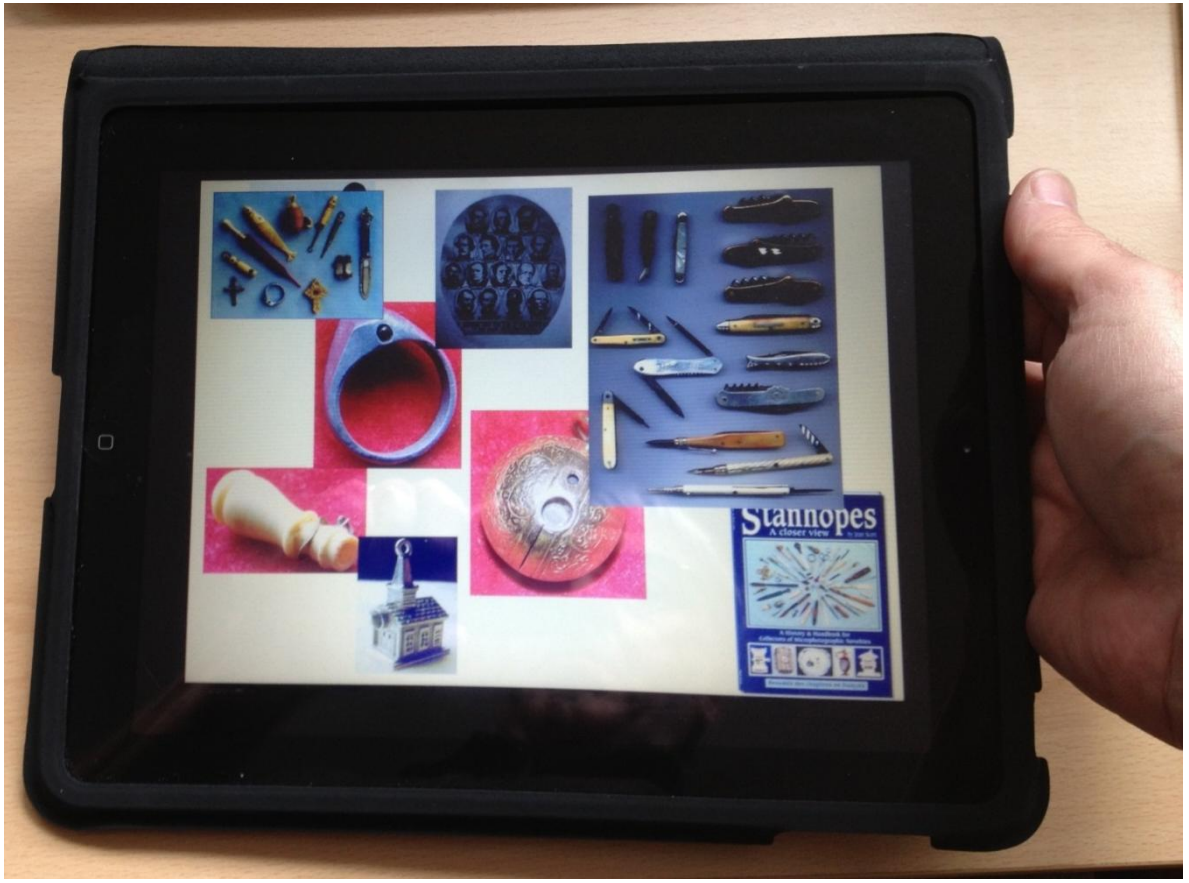
McCormick Collection

Self portrait, from Dancer slide no. 33.

1960 National Microfilm Association of USA – Posthumous Pioneer Medal citation …..

To **JOHN BENJAMIN DANCER**,
a man of strong character and immense energy; alert and practical, a skilled craftsman and manipulator; sympathetic, ever ready to help the youthful searcher and the Inventor of Microphotography

End


Stannopes
A closer view


iPhone
morpeth mobiles

BBC News 13/03/2013

Technology

iPhone turned into microscope for £5

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13 March 2013 Last updated at 16:23

2.1K Share

Worms detected by converted iPhone microscope

Scientists used an iPhone 4S to diagnose intestinal worm infections in schoolchildren in rural Tanzania.

They attached an $8 (£5) ball lens to the handset camera lens, and used a cheap torch and double-sided tape to create an improvised microscope.

Pictures were then taken of stool samples placed on lab slides, wrapped in cellophane and taped to the phone.

Slides were stuck to the lens with double sided tape and lit with a cheap torch

They were studied for the presence of eggs, the main symptom of the parasites.

When the results were double-checked with a laboratory light microscope, the device had managed to pick up 70% of the samples with infections present - and 90% of the heavier infections.

Related Stories

Smartphone app tests users' urine

Device to fight anaemia in India