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V. Gunson Thorpe, F.R.M.S, Surgeon in the Royal Navy A Microscopist with the World at His Feet

James D. Solliday

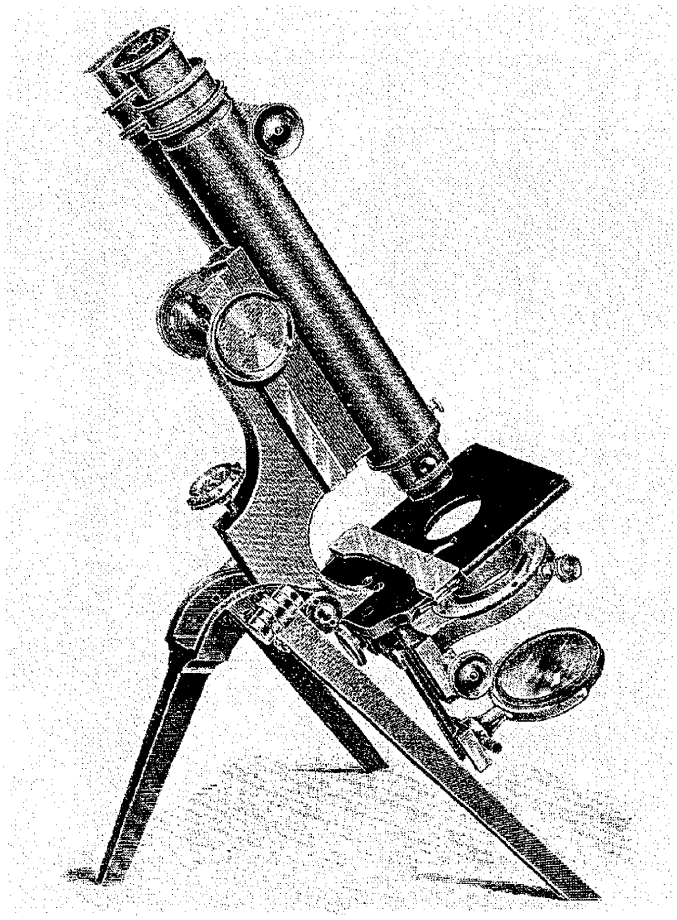

Fig.1, R&J. Beck's portable microscope, an example of which was used by Dr Thorpe.

Abstract:

Dr. V. Gunson Thorpe was a Surgeon in the Royal Navy serving on ships assigned to the Far East for the purpose of conducting surveys. It seems that Dr. Thorpe's service in the Royal Navy lasted from the mid 1880's to about 1908. His assignments afforded him the greatest opportunity to pursue his passion for natural history and to capitalize on his skills as a practicing microscopist. His high level of education and training as a physician made him a perfect candidate for the discovery and description of new species. His familiarity with the microscopic flora and fauna and use of proper taxonomy indicate he was well qualified for his work. The respect and confidence his contemporaries gave him indicate he was already well known for his work on the Rotifera. His name also shows up as a consultant to Mr. Arthur C. Cole, the well-known English slide maker. Dr. Thorpe contributed to Cole's series entitled *Studies in Microscopical Science*, published from 1882

to 1883. From his correspondence and publications it is clear that he was affiliated with a number of scientific organizations. We know without doubt that he was a member of both the Royal Microscopical Society and the Quekett Microscopical Club, both headquartered in London. It is also likely that he was associated with a number of scientific societies in Australia, at least as a regular visitor. In addition to his skill at describing his discoveries, his most important talent was his ability as an illustrator. His drawings are quite beautiful; especially those created as a result of his work with the microscope. The drawings as well as the notes are recorded in two elegant Victorian notebooks. Both were part of his small library, which included off-prints of his own publications. This collection also consists of publications sent to him by other workers as well as personal correspondence. The correspondence includes drawings sent to him and subsequently pasted into his notebooks for reference. However, the most important element of this treasure is the large number of Thorpe's original drawings scattered throughout the notebooks. These original drawings, which were made in the field, can now be compared with the engravings that illustrated his publications. Habitat information as well as dates and descriptions are also found near each drawing. Browsing through Dr. Thorpe's notebooks allows the reader to relive the discoveries and adventures of this extraordinary Victorian microscopist.

Introduction

A number of years ago I happily obtained a fine copy of *The Rotifera or Wheel-Animalcules* by Hudson and Gosse (1886). All three volumes were present including the supplement; however, the real treasure was the fact that it was accompanied by the personal effects of Dr. V. Gunson Thorpe. Because the Thorpe collection is in private hands, it becomes important to provide a systematic report on the contents. Dr. Thorpe was one of the earliest English microscopists to collect rotifers in the Far East, which includes Australia, New Guinea, Oceania (Coral Sea), China and Japan. He also collected in Ireland, South Africa and the African

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West Coast. He successfully extended the awareness of his English contemporaries to new and diverse Rotifers from the other side of the world.

This report includes an inventory of Dr.Thorpe's personal items acquired during his studies of foreign Rotifers. An effort has been made to establish which ships he was assigned to during his service in the Royal Navy. A list of the known scientists and individuals he corresponded with has also been provided. A bibliography of his publications as well as his methods and equipment has been described. Finally a systematic list of the locations in which he collected while travelling throughout the world has been established, this being the most important contribution of the report.

Of primary interest are Dr. Thorpe's two field notebooks written during his travels. Throughout the body of this report references associated with these items will be seen as abbreviations. I refer to the *Microscopical Sketchbook* as the Big Sketch Book or (BSB). The Smaller *Microscopical Notes* is referred to as the Small Note Book (SNB).

Inventory of Dr. Thorpe's Material

Large Microscopical Sketchbook (BSB). Artists drawing book with 88 pages, marbled boards, 3/4 leather.
Smaller booklet, *Microscopical Notes* (SNB). Originally a Coast Guard Order Book with blank pages, 8vo. Most of the personal correspondence received by Dr. Thorpe was pasted into this notebook.
Copy of *The Rotifera or Wheel-Animalcules* by Hudson & Gosse (1886), three vol. including supplement.
Off-Prints from the *Journal of the Royal Microscopical Society.*

- Description of a New Species of Megalotrocha, V.G. Thorpe, (1889, pp.613-616).
- New and Foreign Rotifera, V.G.Thorpe, (1891, 301-306).
- The Rotifera of China, V.G.Thorpe, (1893, pp.145-152).
- List of Some of the Rotifera of Natal, Thomas Kirkman (1901, pp.229-241).
- The Genus Synchaeta, Charles F. Rousselet, (1902, pp.269-290) (1902, pp.393-411).
- The Rotitorian Genus Diaschiza, F.R. Dixon-Nuttall and the Rev. R. Freeman (1903, pp.1-14), (1903, pp.129-141).

The Journal of the Quekett Microscopical Club, 2nd Series, Vol.IV, 1892-1894, bound copy.
Notes sur Quelques ROTATEURS Des Environs de Geneve, E. F.Weber, (1888). Signed by the author.
Faune ROTATORIENNE du Bassin du Léman, E. F.Weber, (1898). Geneve: Imprimerie & Malavallon.
ROTATORIEN Der Umgebung Basels, Carl Ternetz (1892), pp.54, pl. 1-3.
A Drama of the Microscope, by Roy Waldo Miner (1931), A.M.N.H, New York, Leaflet No.72.
Large envelope dated Jan 8, 1898, addressed to: Dr. V. Gunson Thorpe, 2 Naval Terrace, Sheerness.
Contents of the envelope include the following:

- A set of 14 lithographs (8"by 10") illustrating Rotifers, published by F.R. Dixon-Nuttall.
- Smaller envelope dated 1906 and addressed to Surgeon Thorpe, 16 St. Hilary Terrace, Stoke, Devonport. There is a postal correction changing the address to the H.M.S. Victorious, Atlantic Fleet. This smaller envelope contains a letter from Mr. F.R. Dixon-Nuttall and five additional lithographs (5" by 7").

Ship Assignments and Known Home Addresses

The following account is intended only to be a summary, as some of the information is a bit ambiguous and was taken from short collection entries in his notebooks. Many of his movements have been omitted, as the references to them are brief and any attempt to provide a complete account would be redundant. Dr. Thorpe's handwriting is very difficult to read, since after all he was a doctor. This may result in some of the localities and names being misspelled. As his biographical information is for the most part otherwise unavailable, this report deals primarily with his work as a microscopist.

As a naval surgeon, Dr.Thorpe was assigned to a number of different ships during his service. It seems that in 1886 Dr.Thorpe first left England for service in the Far East. From 1886-9, his primary assignment was on the H.M.S. Paluma. The mission of the Paluma was the survey of the waters between the East Coast of Queensland and the Great Australian Barrier Reef (*JRMS,* 1889, pp.613). Most of his work during the years of 1887 through the early months of 1889 was in locations in and around Queensland, Australia. By April of 1889, Dr.Thorpe reported that he was in the Mediterranean Sea near Gibraltar (*JRMS,* 1891, pp.839).

At some point in 1889, Dr.Thorpe returned home and on June 12, 1889, he read his own paper on the *Description of a New Species of Megalotrocha* before the Royal Microscopical Society (RMS). In October of 1889 and again in March of 1890, he collected at peat bogs in the mountains of Donegal, behind Moville, Ireland (JRMS, 1891, pp.304). In April of that same year (1890) he reported collecting at the Quarry pools in Bickleigh Vale, Devonshire (*JRMS,* 1891, pp.305). By October of 1890 his ship had returned to sea and was soon anchored in the waters off South Africa. In December of that same year he reported collecting at the Cape of Good Hope, South Africa. In January of 1891, he reported a visit to Ascension Island located in the South Atlantic Ocean (*JRMS,* 1891, pp.305). His final report from the South Atlantic was from Delagon Bay, East Africa, where he spent several days in May of 1891.

For one year during much of 1892 he was on the China station on board the H.M.S. Peacock. For part of that time he was in the neighborhood of the walled city of Wuhu, 260 miles up the Yangstze-Kiang (Yangtse), the largest river in China and one of the largest in the world (JQMC, 1896, pp.299). Although Wuhu is far upstream, the river at that location remains about three miles wide. It passes through the great central plain of China and supports the main rice-growing areas. The rice fields are irrigated by canals from which runoff waters collect into pools. From these pools Dr. Thorpe collected numerous new species of rotifers (JRMS, 1893, pp.145). He continued his stay in the area of China through most of the year of 1892. However, in April 1892 he was in Singapore and in May, Hong Kong. In August he was again in the Wuhu area of China. This period of time included collecting visits to the Wushan Creek, part of the Yangstze-Kiang river complex.

Among Dr. Thorpe's papers can be found stationery from the H.M.S. Impregnable, which was stationed at Devonport and dated from 1892 (see Thorpe's home address listed below). By 1893 he was assigned to the H.M.S. Penguin and was again in the southeast Pacific. In February of 1893 he reports collecting from the garden fountain of the Shinto Temple, Osuira, Nagasaki, Japan. In August he was on Sight Island, Rendova Harbor, Solomon Islands. The assignment of the H.M.S. Penguin was to do a survey of New Georgia (JQMC, 1896, pp.300). By 1894 he was again back on the West Coast of Australia where he reported collecting rotifers from fresh water near the hospital in Townsville, Queensland. By 1896, he had again managed to return to England where he attended the June 12th meeting of the Royal Microscopical Society, held at 20 Hanover Square W, London. There Dr. Thorpe exhibited his prepared rotifers, which he had collected while in the Far East (JRMS, 1896, pp.485). On June 19, 1896, he attended the meeting of the Quekett Club. There he said, "it had been his good fortune during his five year's absence from the meetings of the Club to visit several countries of the East" (JQMC, 1896, pp.299). At this point the details become quite sketchy but by 1897, he records in his notebook (SNB) collections taken from areas near Shephard, Victoria, Australia. For the next few years it seems he was less active as entries in his notebooks become scarce.

By 1906, he was assigned to the H.M.S. Victorious, Atlantic Fleet. This vessel was probably also stationed at Devonport as mail addressed to his home in Devonport was re-routed to H.M.S. Victorious. I was able to find just two home addresses among his correspondence. The first, from 1898, was to "Fleet Surgeon, V. Gunson Thorpe, 2 Naval Terrace, Sheerness." The second was from ca. 1906 and addressed to "Fleet Surgeon, Gunson Thorpe, 16 St. Hilury Terrace, Stoke, Devonport."

List of Other Workers Who Corresponded with Dr. Thorpe

Dr. Thorpe was very active within a small circle of individuals who specialized in the Rotifers. With few exceptions most of the work was performed by microscopists from England, France, Germany and the United States and at least three colleagues from Australia. I am confident that most of the names on the following list will be familiar to those interested in Rotifers. This list is limited to names extracted from the materials associated with Thorpe's inventory as listed above.

Prof. F. Jeffrey Bell (personal correspondent). Prof. Bell read some of Thorpe's papers before the RMS.
D. Bryce, Stoke Newington common, N. (correspondent).
John T. Carrington (correspondent).
Prof. J. W. Groves, F.R.M.S, Tunbridge Wells (correspondent).
Dr. Charles T. Hudson, M.A., LL.D., F.R.S, President of the RMS in 1888 (personal correspondent), 1889.
G.C. Karop, F.R.M.S., Kensington, W. (correspondent).
Dr. D. S. Kellicott (correspondent), President of the American Society of Microscopists.
H.W. King, Muswell hill, N.
Hon. Thomas Kirkman, M.L.C., F.R.M.S. (exchange of off-prints).
F.R. Dixon-Nuttall, F.R.M.S, 1998 (personal correspondence, exchange of off-prints).
W. Burnet Poole, Adelaide, Australia (correspondent) 1891.
C.J. Pound, F.R.M.S, Medical School, University, Sydney. (correspondent).
Charles F. Rousselet, F.R.M.S 1893. (Exchange of off-prints, personal correspondent, exchange of slides).
Carl Ternetz, 1892 (exchange of off-prints).
E. F. Weber, 1888 (exchange of off-prints).
E. Western, F.R.M.S, 1893, Putney, S.W. (personal correspondent, exchange).
Mr. Thomas Whitelegge, F.R.M.S., Sydney, N.S.W (correspondent with this Australian worker) 1888-94.
Note: Dr. Thorpe had taken notes on stationary from the Queensland Museum, Brisbane, ca. 1887.

Papers and Reports published by Dr. V. Gunson Thorpe

The following annotated list includes papers, reports and correspondence from Dr. Thorpe published in contemporary scientific journals. The confirmed publications in Dr. Thorpe's inventory were confined to the Journal of the Royal Microscopical Society (JRMS) and the Journal of the Quekett Microscopical Club (JQMC).

Publications in the Journal of the Quekett Microscopical Club (Thorpe)

Pond Life in China. 1893, Vol.V, pp.226-227. Read to the Club by Mr. G. Western on Nov 18, 1892 as an extract of a letter received from Dr.Thorpe, China Station, dated 19th Sept. 1892.
Note on the Construction of the Lorica in the Genus Brachionus, 1893, Vol.V, pp.229-231, China Station.
Note on the recorded localities for Rotifera, 1893, Vol.V, pp.312.
Reported item: *Chinese rotifers,* June 1896, Vol.VI, pp.299-301. Dr.Thorpe discussed before the Club his journeys in the east and his trip up the Yangstze River in China.

Publications in the Journal of the Royal Microscopical Society (Thorpe)

An account of the meeting where Dr.Thorpe read his paper on *Description of a New Species of Megalotrocha,* (1889, pp.610-611).
Description of a New Species of Megalotrocha, 1889, pp.613-616. From Brisbane Australia.
New and Foreign Rotifera, 1891, pp.301-306. Collections from the Fern Island pond of the Botanical Gardens, Brisbane, Australia. Read before the RMS on April 15, 1891.
Queensland Rotifera, 1891, pp.200. List of New *Queensland Rotifera,* first published in the *Proc. Roy. Soc. Queensland,* vii (1889), pp.70-75.
Report stating that Prof. Bell read an abstract from Dr. Thorpe on, Some New and Foreign Rotifera from the west coast of Africa, 1891, pp.431. A report consisting of one paragraph.
Colouring Power of Noctilucae, 1891, pp.839. In the Noctilucae report, Dr.Thorpe states that in April of 1889, he was in the Mediterranean Sea near Gibralter (correspondence).
The Rotifera of China, 1893, pp.145-152. The Peacock paper read March 15, 1893.
Construction of Lorica of Brachionus, 1893, pp.641. Proposal to include the term "basel" section on the "Dorsal" plate of the Brachionus. See paper in the *Quekett Journal,* 1893, pp.229.
Report on Dr.Thorpe's work, *On the Rotifera of China.* The President of the Society remarked that the Fellows must be somewhat envious of the opportunities enjoyed by Dr.Thorpe (1893, pp.287).

Methods and Equipment

Dr.Thorpe was a very experienced microscopist and was considered expert in slide preparation. As mentioned above he was a consultant to Arthur C. Cole for his prepared slide series. Mounting rotifers is a bit more challenging if the preparation is intended to be permanent. For short-term study the use of simple glycerin is acceptable. However, for permanent mounts intended to be returned to England for exhibit, a reliable proven method was needed. In his correspondence it was revealed that he used a method of preserving and mounting suggested by Mr. Rousselet (*JQMC,* 1896, pp.301). Rousselet sent a copy of his methods to Dr. Thorpe while he was still in China (*JQMC,* 1896, pp.303). Rousselet's methods were published in the *Journal of the Quekett Microscopical Club* and can be found under the following titles: Preserving Rotatoria (*JQMC,* 1895, pp.5) and a Spirit-Proof Micro-Cement for fluid-mounts (*JQMC,* 1895, pp.149). The microscope he carried with him was a portable travelling stand made by R & J. Beck (fig.1). At one point in his notes he expressed satisfaction with the improved resolving power of his instrument after adding an Abbe substage condenser. In 1892, he purchased a Rousselet compressorium from Charles Baker, the microscope maker in London.

Locations from which Dr. Thorpe Collected as described in his journals

Early in Dr.Thorpe's studies he realized that much of the work on the higher forms of both the flora and fauna of Queensland had already received considerable attention; however, the branch of natural history associated with the Rotifera remained virtually untouched. From the beginning of his travels he consistently made the effort to acquire water samples from diverse locations whenever the opportunity presented itself. He collected all the way from South Africa to the shores of Japan. However, his most concentrated work seems to have been performed in Australia and China. In one of his early articles he writes: *The localities in which Rotifera are to be found in Queensland are few and far between; water, except at certain times of the year, being scarce in that tropical climate. In May, soon after the rainy season, one occasionally comes across, in the midst of the dense Australian bush, a charmingly secluded little pond, shaded on all sides by Eucalypti, grass-trees, and acacias, with lilies, ferns, and orchids growing in great profusion around; brightly coloured dragonflies and other insects flitting across its surface; parakeets and cockatoos screaming overhead. The waters of such a pool teems with various species of rotifers. Three months afterwards, the same place may be found completely dried up, and the ground fissured in all directions by the fierce heat of the sun; and yet, in the following year, the same locality is as prolific as ever. Again, in marked contrast, at another time one meets with a tiny pool, not more than three or four feet across, on the bleak and rocky headland of an island out at sea, exposed to the storm and to the glare of a tropical sun, breakers beating on the rocks below within twenty feet of it, with no life to be seen but the eagle soaring overhead, and no sound to be heard but the mournful cry of the dingo as the sun goes down; and*

yet, strange to relate, I found the water of such a solitary and apparently lifeless pool literally swarming with the wonderful Pedalion rotifer (JRMS, 1889, pp.613).

Dr. Thorpe was able to paint a very romantic picture inspiring Mr. Michael, the President of the Royal Microscopical Society to remark that the Fellows must be somewhat envious of the opportunities enjoyed by Dr. Thorpe (JRMS, 1893, pp.287). It seems that Dr. Thorpe's reports and letters, made many of them wish that they were able to see the living specimens instead of having to be content with the drawings and descriptions *(JRMS*, 1893, pp.287).

Dr. Thorpe's work in Australia resulted in a number of interesting discoveries. His notes and drawings were dominated by two genera of rotifer known as *Megalotrocha (Sinantherina)* (Fig.2) and *Pedalion (Hexarthra)* (Fig.4). As one would expect, the material published in the Society Journals came directly from his notes. In my opinion his most beautiful illustration was of an early discovery of a new species designated *Megalotrocha semibullata (Sinantherina semibullata)* (Fig.3) *(JRMS,* 1889, pp.613). The published engraving was printed in black and white but the original drawing offers the additional dimension of color (BSB). His description of this discovery is worth reading: *It was whilst examining the water of a pond in the picturesque gardens of the Acclimatization Society, Brisbane, in February 1887, that I noticed the presence of a number of tiny white globes swimming freely in the water, which I at first took for Conochilus volvox. Further examination convinced me that I had found a new species of Megalotrocha, an opinion afterwards confirmed by Dr. Hudson* (JRMS, 1889, pp.614).

One of the Rotifers, which appeared frequently in his notes, was that of the genus *Pedalion* (now *Hexarthra*). He writes that in February of 1887, he found a small fresh water pool on Dunk Island where he discovered a swarm of the rotifer, *Pedalion*. Due to the influence of Dr. Thorpe, the promontory where this pool was discovered became known in the Admiralty charts as "Pedalion Point," Dunk Island, Queensland (JRMS, 1889, pp.614). His entry concerning this discovery reads as follows: *Pedalion mirum, Extreme Northeast point of Dunk Island, family group, in a fresh water pool on a rocky coast, about ten feet above high-water mark (paper insert*, SNB, 1887). While assigned to H.M.S. Penguin, and conducting the survey of New Georgia, Dr. Thorpe landed on one of the regional islands (1893). There he found a hole cut by the natives in the trunk of a coconut tree. The purpose of the cut was to catch rainwater where it retained an amount of about twelve to eighteen inches in depth. It was here that he again found the Rotifer *Pedalion (JQMC*, 1886, Vol. VI, pp.300). From Thorpe's sketchbook it reads: *a new Pedalion was found on August 13th, 1893 in hollows in the trunks of two cocoa-nut Palms on Sight Island, Rendova Harbor, Solomon Islands* (Fig.4). This discovery is probably identical with the *Pedalion* found on Dunk Island, Queensland on August 12th, 1887 (BSB, pp.20). The date of 1887 seems to have been a typographical error as elsewhere it is listed as 1888.

In addition to the above locations, Dr. Thorpe also found the genus *Pedalion* on the opposite side of the world. His account reads as follows: *The only water supply in the desolate volcanic island of Ascension is brought to the town from Green Mountain, an oasis in the midst of ashes and cinders, by an aqueduct of pipes, seven miles in length, broken at regular intervals by covered tanks or reservoirs. The water in the cattle trough in front of one of these tanks, known by the expressive name of "God-be-thanked" Tank, I found this January (1891), to be swarming with Pedalion mirum, in company with a species of Anuraea, which I believe to be new (JRMS*, 1891, pp.305) (BSB, pp.40). Most of the locations mentioned by Dr. Thorpe associated with this genus are listed as follows:

Pedalion: Dunk Island, Queensland, 8/12/88, (BSB, pp20). Genus is now known as Hexarthra.
Pedalion: Ascension Island, South Atlantic Ocean, (BSB, pp.40) *(JRMS*, 1891, pp.305).
Pedalion: At Wuchang Creek, China, 8/28/1892, (BSB, pp.25).
Pedalion: At Sight Island, Rendova Harbor, Solomon Islands, 8/13/1893, (BSB, pp.24b) (SNB, pp.37).

China was the second region where Dr. Thorpe spent considerable time. Here he made several important discoveries that resulted in a number of publications. In his paper entitled *The Rotifera of China* he described the area of the Yangstze-Kiang River as follows: *The extensive plains on either bank of the great Yangstze-Kiang River, intersected as they are by innumerable river-like creeks, ponds in which the sacred lotus flower blooms, and ditches which surround on all sides the "paddy" fields of rice and cotton, afford a happy hunting ground, hitherto unexplored as regards the Rotifera, to the microscopist. The richness of life in these waters is astonishing, and the store of new forms amongst all classes of fauna and flora which still awaits discovery, must be immense. This paper includes the work of three months during which H.M.S. Peacock was stationed in the river a Wuhu, a walled city about 260 miles from the mouth (JRMS*, 1893, pp.145-152) *(Proceedings of the Royal Society of Queensland,* 1889, pp.71).

The Location List

Unfortunately, Dr. Thorpe's notes and sketchbook were not arranged in chronological order. An effort has been

made to arrange the following list in the proper order. Again, I should remind the reader that Dr. Thorpe's handwriting is very difficult to follow making it likely that the list contains a number of spelling errors. Dr. Thorpe only recorded sites that contained something of interest. Most of the samples collected were either redundant or without something of sufficient interest for entry into his notebooks, thus only the noteworthy sites are logged. Thorpe references: Microscopical Sketchbook, the Big SketchBook or (BSB). The Smaller Microscopical Notes will be referred to as the Small Notebook (SNB).

1887 Captain Hentu's Estate, Norman Creek, Brisbane (Pond), 12/1886-04/1887, (found Melicerta conifera) (SNB).
1887 Royal Acclimatization Society, Brisbane, Queensland, 1/1887, 2/1887, pond in gardens of the Society (JRMS, 1891, pp.305). The greatest number of rotifer species found in Australia were in these ponds (SNB) (fig.3, 5,). This collection site was visited many time over the years (below).
1887 Pandora Reef, Queensland, surface collection, 7/9/1887 (BSB, pp.36, paper insert).
1887 Great Palm Island, off the coast of Townsville, Coral Sea, Queensland Australia, June/1887.
Brachionus found in a Marsh. Collected, 6/ 21/ 1887,also 5/26/1888, 7/6/1888 (BSB).
1887 Australian mainland off Gloucester Passage, near Bowen, freshwater pool, 6/1887 (SNB).
1888 Wood Island, Queensland, watering hole, collected 4/24 & 26/1888 (BSB).
1888 Gloucester, Queensland, small fresh water hole on mainland opposite Gloucester, 5/13 & 5/16/1888. Thorpe writes: Collection from a solitary bush pool on the shore of Gloucester Passage, the coast of Queensland, May 1888 (JRMS, 1891, pp.302).
1888 Gloster, fresh water hole, mainland opposite Gloster, Queensland, 5/14/1888, 6/9/1888 (BSB) (fig.6).
1888 Off Whilsunday Island, Queensland, (towing net), 5/15/1888 (BSB, pp.28).
1888 Great Palm Island, collected, 5/26/1888, 7/6/ 1888 (BSB).
1888 Gloucester Passage, fresh water pool on mainland. 6/1888 (BSB).
1888 S.W. Bay, Gloucester Island, Queensland, Australia (BSB, pp.42).
1888 Cardwell, Queensland, 9/25/1888 (BSB, pp.26).
1888 Dallachy Creek, north of Cardwell, Queensland. Freshwater pool (BSB, pp.16,20) (fig.7).
1888 Fountain at the Botanical Gardens, Brisbane, Australia, 8/1888 (SNB).
1888 Captain Hentu's Garden pond, Brisbane, 1/ 1888, & 8/1888 (BSB).
1888 Hinchiubrook Chaimel (?), Queensland, 8/8/ 1888 (BSB).
1888 Dunk Island, Queensland (Pedalion), 8/12/ 1888, 8/15/1888 (BSB) (fig.8).
1888 Whilsunday Island, Cid Harbor, Queensland, 11/2/1888, 11/4/1888 (BSB, pp.28).
1888 Royal Acclimatization Society Gardens, Brisbane, Queensland. Collected 1/2/1888, 2/1888, 12/6/1888, 12/20/1888 (BSB, pp.84) (JRMS, 1889, pp.614). The garden ponds (fig.2,3,5).
1888 Waters opposite the Acclimatization Gardens, Brisbane, 12/28/1888 (BSB, pp.36) (fig.9).
1889 Fern Island pond of Botanical Gardens, Brisbane, Queensland, 1/1/1889, 1/2/1889 (BSB, 36) (JRMS, 1891, pp.301). Found the free-swimming Trochosphaera solstitialis in a pond in Brisband, Jan 1889 (JRMS, 1893, pp.147).
1889 Brackish pool between Carrickferqus & Belfast, Ireland, 10/19/1889 (BSB, 43).
1889 Peat bog, top of hills behind Moville, Donegal, Ireland, 10/29/1889 (BSB, pp.43)(JRMS, 91,304).
1890 Bog water from Moville, Co. Donegal, Ireland, 3/8/1890 (BSB, pp.46) (JRMS, 1891, pp.304) (fig.10).
1890 Quarry pools at Bickleigh Vale, Devonshire, Ireland, 4/26/1890, 5/22/1890 (BSB, pp.40,47,48).
1890 Cliffs near Weymouth, Ireland, fresh water pool on cliff, 8/5/1890 (BSB, pp.49) (fig.11).
1890 Botanical Gardens, Belfast, Ireland, 10/3/1890 (BSB, pp.50).
1890 Beacon Point, near Simon's Town, Cape of Good Hope, South Africa. Roadside pool opposite Beacon Point, 12/1890 (BSB, pp.53). Pool near Simon's Bay, Cape of Good Hope, Dec, 1890 (JRMS, 1891, pp.302) (fig.13).
1891 Island of Ascension (So. Atlantic), God be thanked, tank, 01/91, 2/2/1991 (BSB, pp.40), (JRMS).
1891 The Cape of Good Hope, (Specimens: Brachionus furculatus, B. angularis, B. urceolaris, B. doreas, B. papa, Philodina citrina) (JRMS, 1891, pp.302) (SNB).
Muizruber, Cape of Good Hope, 3/25/1891. Road-side duck pool (SNB).
Beaion Point, 3/29/1891, pond near B. Point (SNB).
The Cape Peninsula? (SNB).
1891 Delagoa Bay, East Africa, 5/6 & 9/1891, (Metopidia solidus) (BSB, pp.54, 55).
1891 Keston Common, 10/8/1891 (BSB, pp.57).
1891 Near Maker Church, Mount Edgecombe, Philmonth, 11/16/1891 (BSB, pp.60).
1891 Adelaide, South Australia, West Burnet pool, 12/ 12/1891 (SNB).
1891 Sydney, Australia, Botanical Gardens, (Asplanchnopus myrmeleo) (SNB).
1892 Colombo, Ceylon, ca.1892, (BSB, pp.36, insert), (Brachionus sp.)
1892 Singapore, The Botanical Gardens, 4/24/1892 (BSB, pp.36, insert) (JRMS, 1893, pp.150).
1892 Kowloon China, 5/16/1892, 6/24/1892, (SNB) (BSB, pp.62). Megalotrocha spinosa was found in a pond at Kowloon, on the mainland opposite the island of Hong Kong, May 1892 (JRMS, 1893, pp.151).

1892 Personal notes were taken on a memorandum pad from "the Shanghai Club" in 1892 (BSB, 87).
1892 China Station, Wuhu, Yangstze-Kiang River, 6/22/92, 7/20 &27/1892, (BSB, 64). The rotifer, of the genus Rhinops found commonly in both China & Ceylon was first discovered in the bogs of Ireland (JQMC, 1896)(SNB)(BSB, pp.45,55,64). New sp. Dinocharis serica, from Wuhu(fig.14).
Wuchang Creek, China (Genus, Pedalion), 7/92, 8/28/92. Near Yangstze (SNB) (BSB, 25,55).
Wuhu City, China, 8/16/1892, pond near Ye-ki-Shan Hospital (BSB, pp.55) (SNB).
Ye-ki-shan, China, 8/16/1892 (BSB, pp.66). Trochosphaera sp. from a pond in Wuhu, Aug 1892 (JRMS, 1893, 147). Lacinularia racemovata was found in a pond at Ye-ki-shin near Wuhu, China, Aug 1892. Also discovered Megalotrocha procera, attached to water-plants in a lotus pond at Wu-shan, Aug 1892 (JRMS, 1893, pp.150) also see (Proc. Royal Society Victoria, Vol.4, part I, 1892, pp.74).
Wushan Creek, China, 8/28/1892 (BSB, pp.65). Octotrocha sp. found attached to plants in the Wushan Creek, Yangstze-Kiang River area, Aug 1892 (JRMS, 1893, pp.146, 150) (fig.15).
Wushan, China, 10/1892. Rotifers on the antenna of a fresh water shrimp (BSB, pp.59).
1893 Shinto Temple, Nagasaki, Japan, 2/6/1893. The Osuma or Osuwa Gardens on Temple grounds (Hydatina senta, Brachionas sp.) (BSB, pp.72b).
1893 Dinner Island, near New Guinea, diagnosed skin disease of one of the natives, 7/19/1893 (BSB).

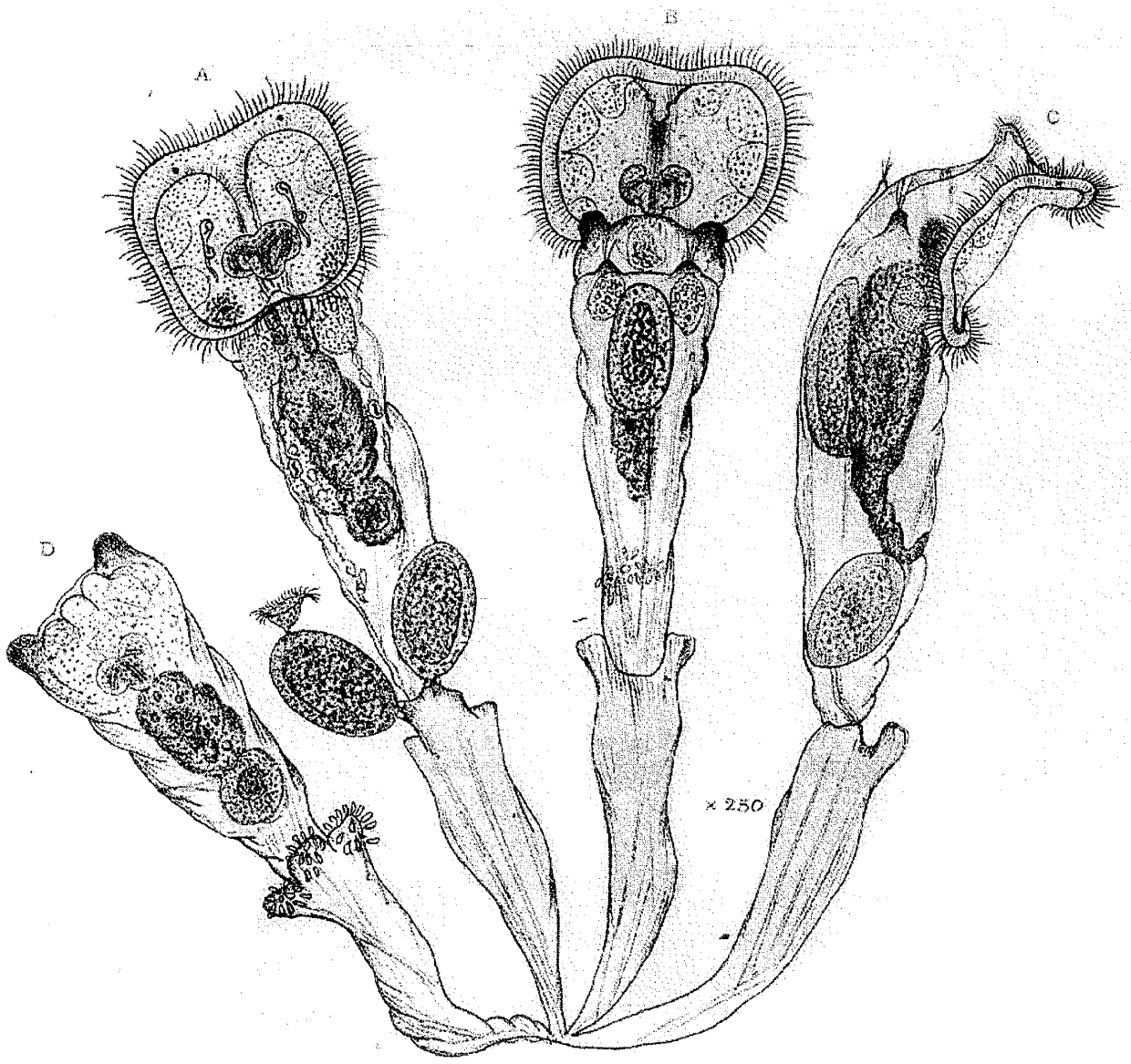

Fig.2, Megalotrocha semibullata (Sinantherina semibullata), from published engraving (JRMS, 1889, pp.610-611).

(Pedalion), 8/13/1893 (BSB, pp.25).
1894 Huskinson, Jervic Bay, N.S.W, fresh water marsh, 6/4/1894 (BSB, pp.36b).
1894 Townsville, Queensland, Australia, from fresh water pool near the hospital, 11/30/1894,(BSB,74).
1895 Toagatabu (?), 7/28/1895 (BSB, pp.75).
1897 Shephard, Victoria, Australia, ca.1897 (Lacianlaria elliptica).

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Cole, Arthur C. (1883). *Studies in Microscopical Science*, Vol.1, London.

Thorpe, V. Gunson (1888-1893). *Journal of the Royal Microscopical Society*, articles & correspondence.

Thorpe, V. Gunson (1893-1896). *Journal of the Quekett Microscopical Club*, articles & correspondence.

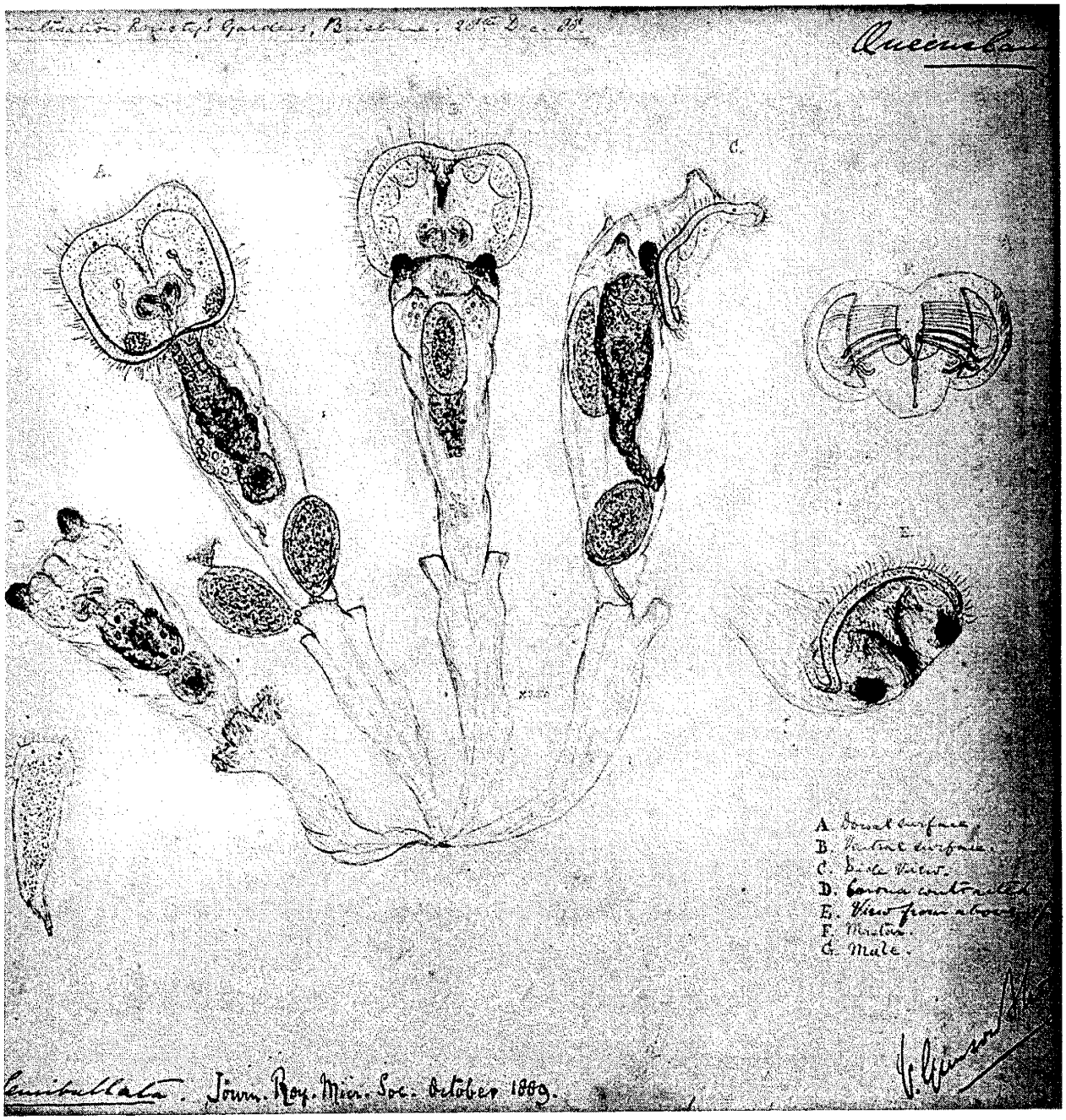

Fig.3, Megalotrocha semibullata (Sinantherina semibullata), from Thorpe's sketchbook. Collected at the Acclimatization Gardens, Brisbane, on Dec 20, 1888.

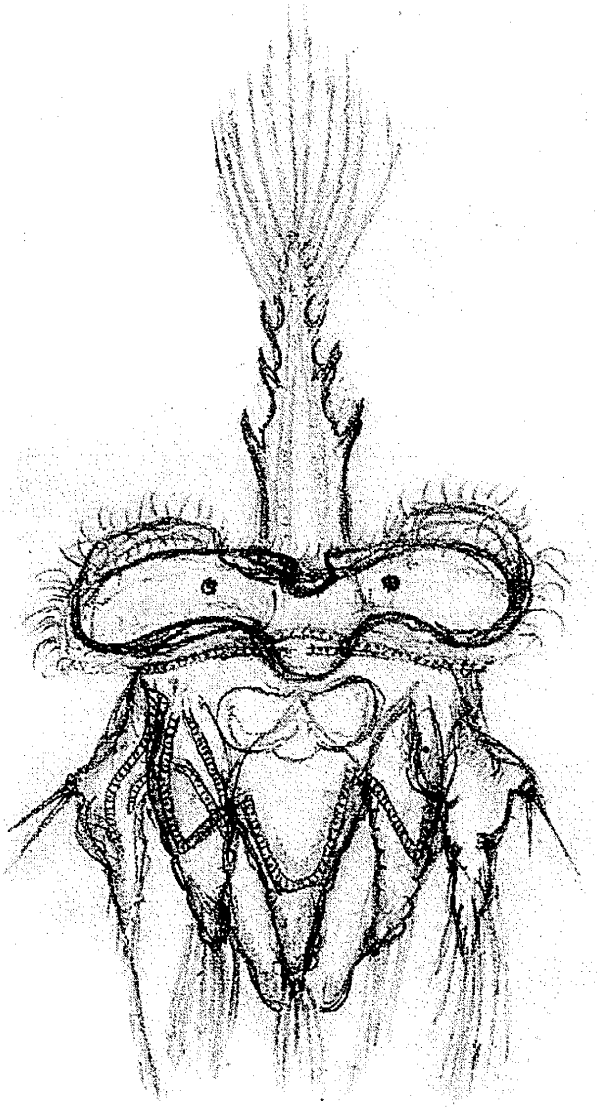

Fig.4, Pedalion (Hexarthra intermedia sp.), Thorpe's sketchbook. Collected from Sight Island, Aug 13, 1893.

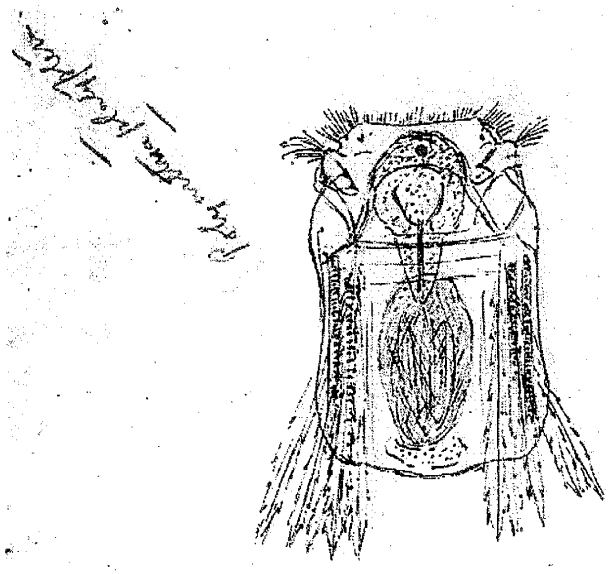

Fig.5, Polyarthra sp., Thorpe's sketchbook. Collected from Acclimatization Gardens, Brisbane, Jan 1888.

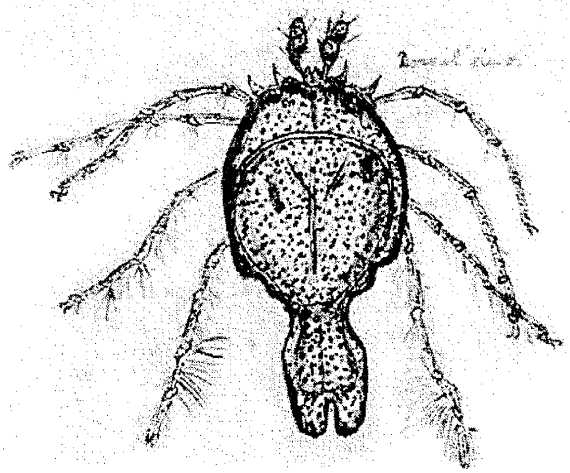

Fig.6, Gloster Spider Mite, Thorpe's sketchbook. Collected form mainland off Gloster Passage, Queensland, June 12, 1888.

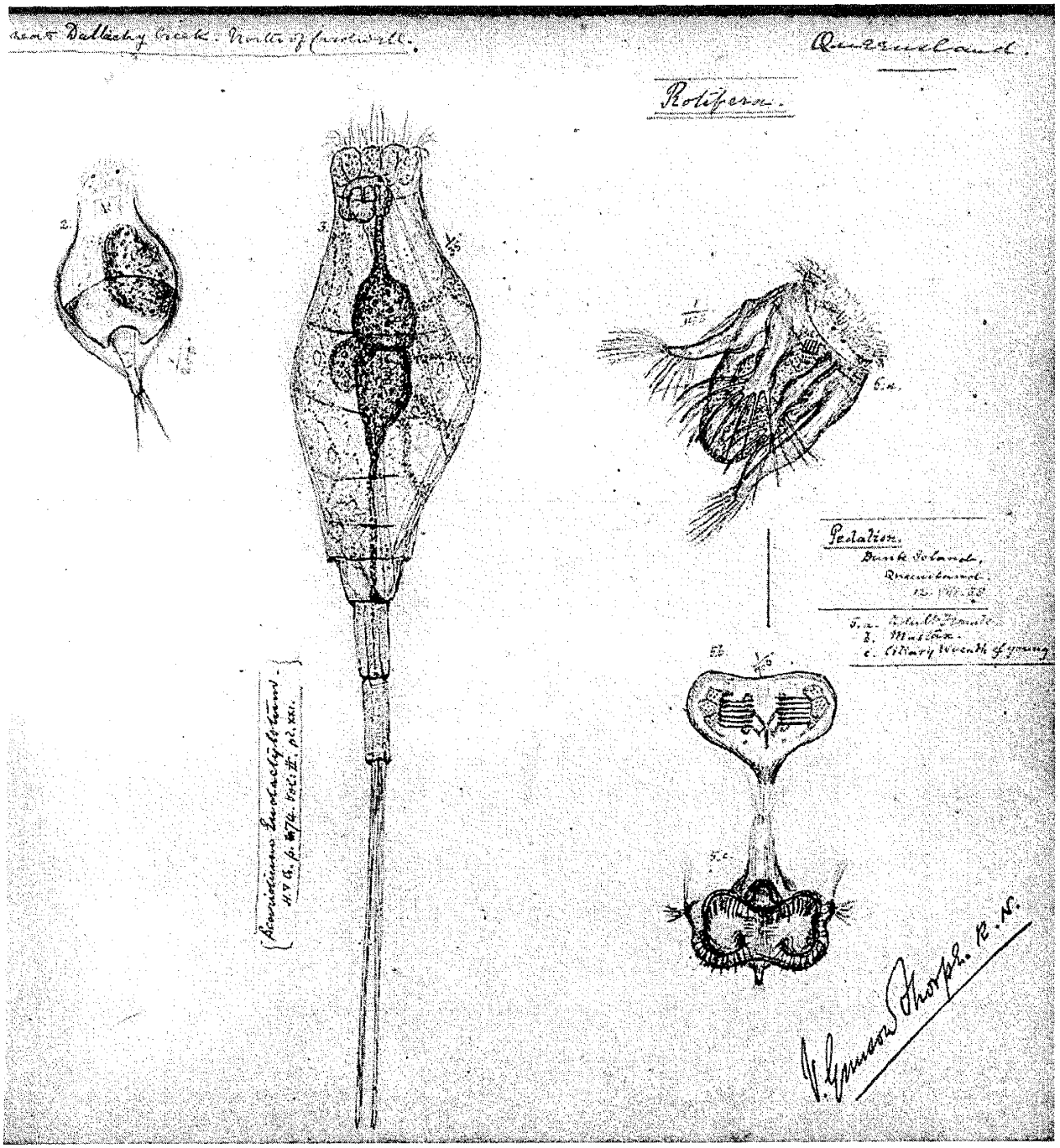

Fig.7, Various species of Rotifer, Thorpe's sketchbook. From near Dallachy Creek, North of Cardwell.

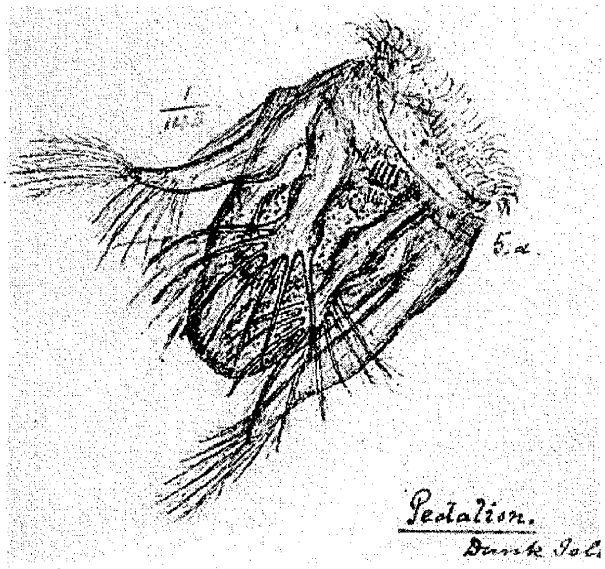

Fig.8, Pedalion (Hexarthra Sp.), Thorpe's sketchbook. From Dunk Island, Aug 12, 1888.

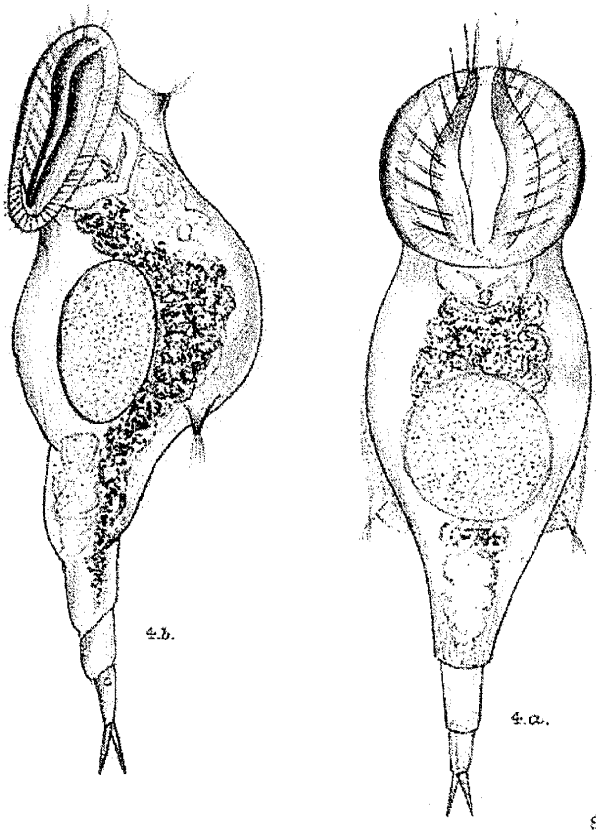

Fig.10, Rhinops orbiculodiscus, Thorpe's sketchbook. From bog water, Moville, Co. Donegal, Ireland, also found at Wuhu, China on July 22, 1892.

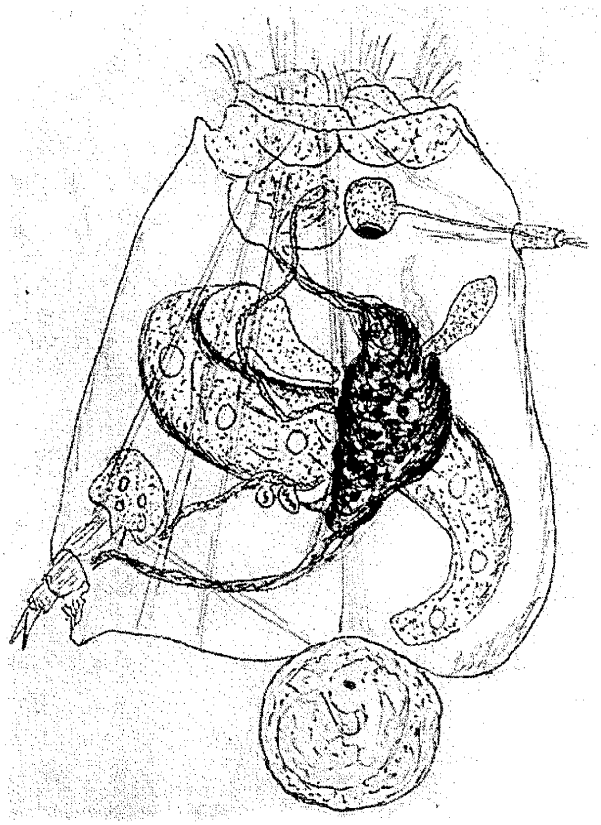

Fig.9, Notops Sp., (Gastropus Sp.), Thorpe's sketchbook. From pond opposite the Acclimatization Gardens, Brisbane, Queensland, Dec 28, 1888.

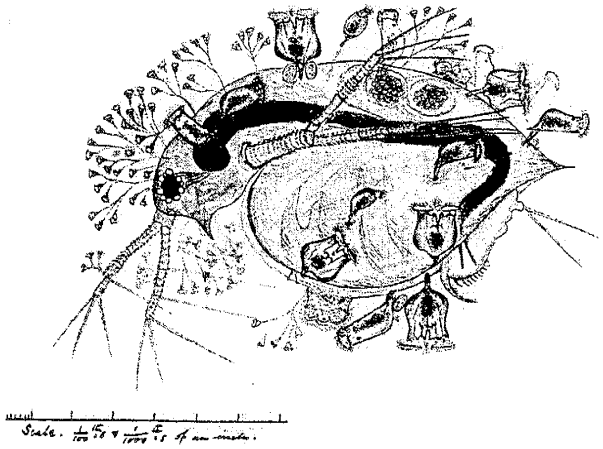

Fig.11, Daphnia pulex, with Brachionus Rotifers attached, Thorpe's sketchbook. From cliffs near Weymouth, Ireland, Aug 5, 1890.

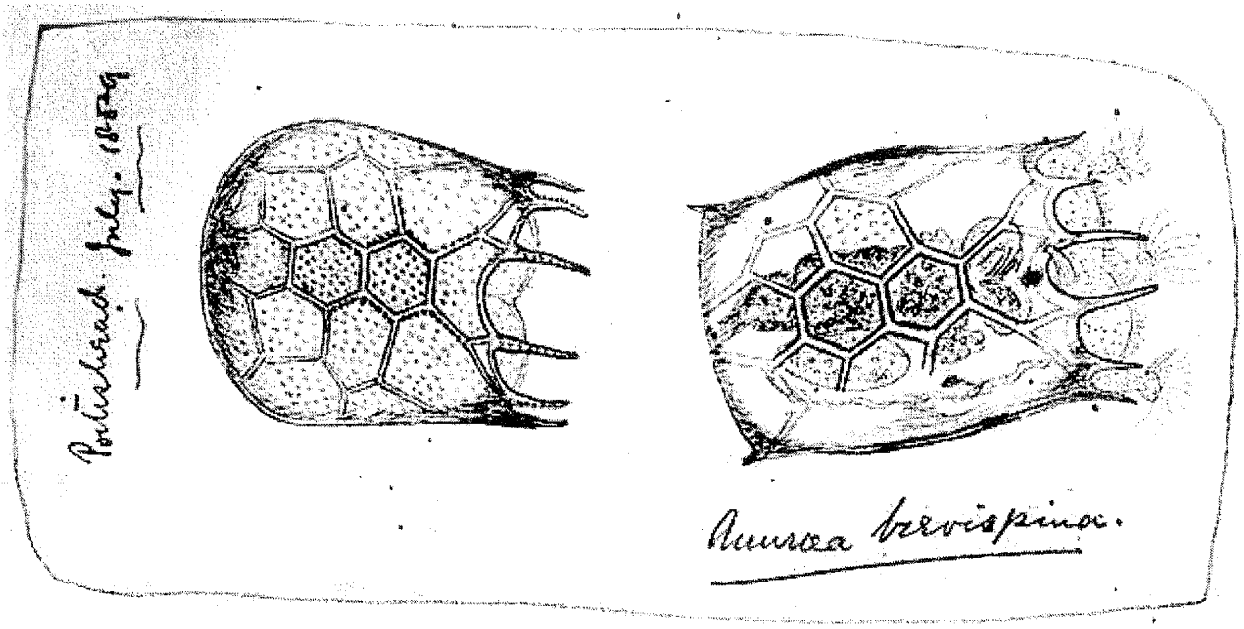

Fig.12, Rotifers, Anuraea scutata (Keratella Sp.), Thorpe's sketchbook, July 1889, no location.

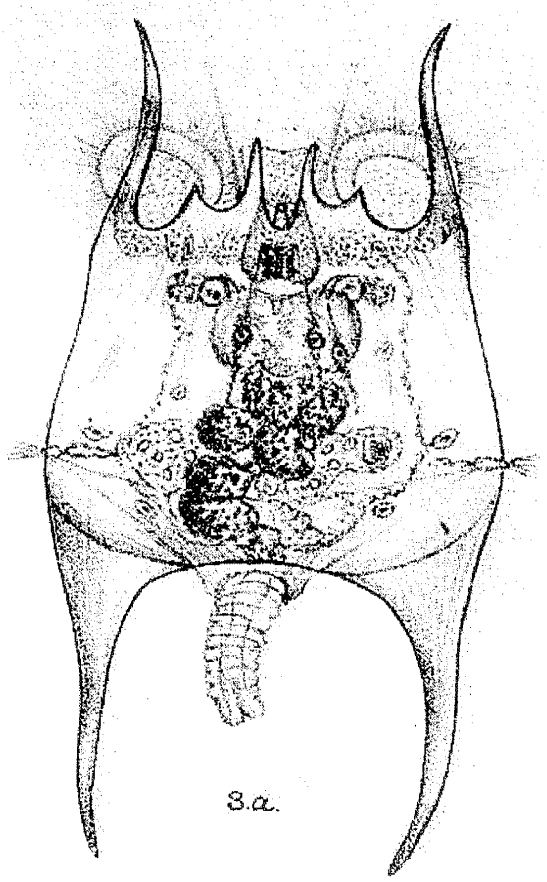

Fig.13, Brachionus furculatus, Thorpe's sketchbook. From opposite Beacon Point, Cape of Good Hope.

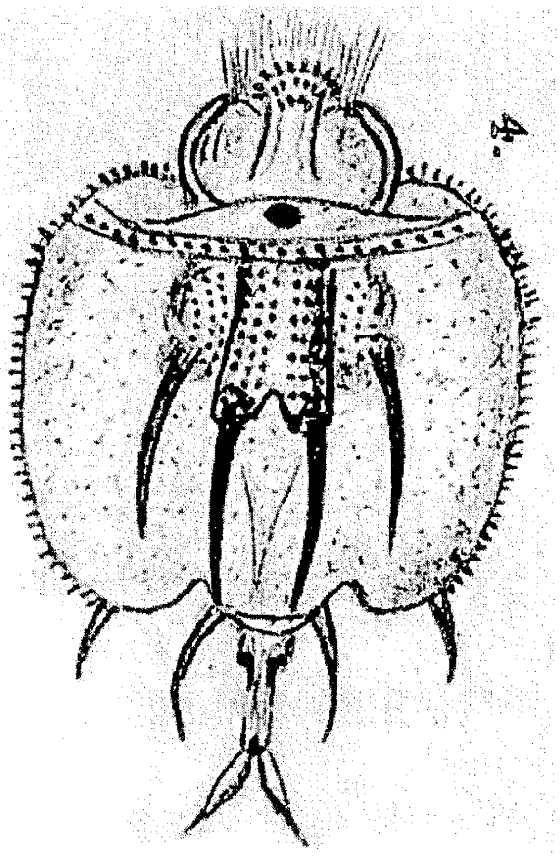

Fig.14, Octotrocha speciosa, Thorpe's sketchbook. From Wushan Creek area, China, Aug 1892.

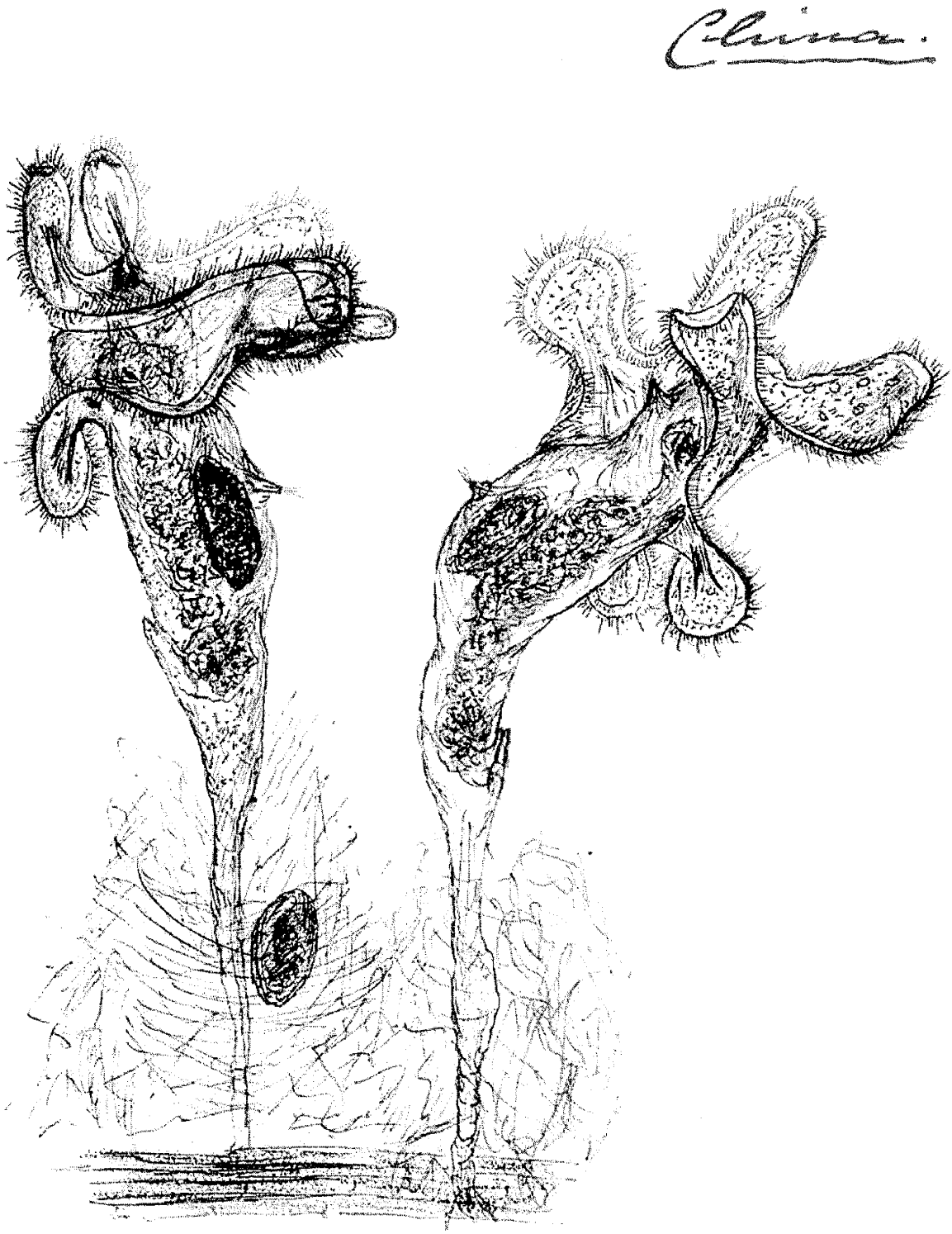

Fig.15, Dinocharis serica, (Macrochaetus sericus), Thorpe's sketchbook. From Wuhu China, Yangstze-Kiang River, July 20, 1892.

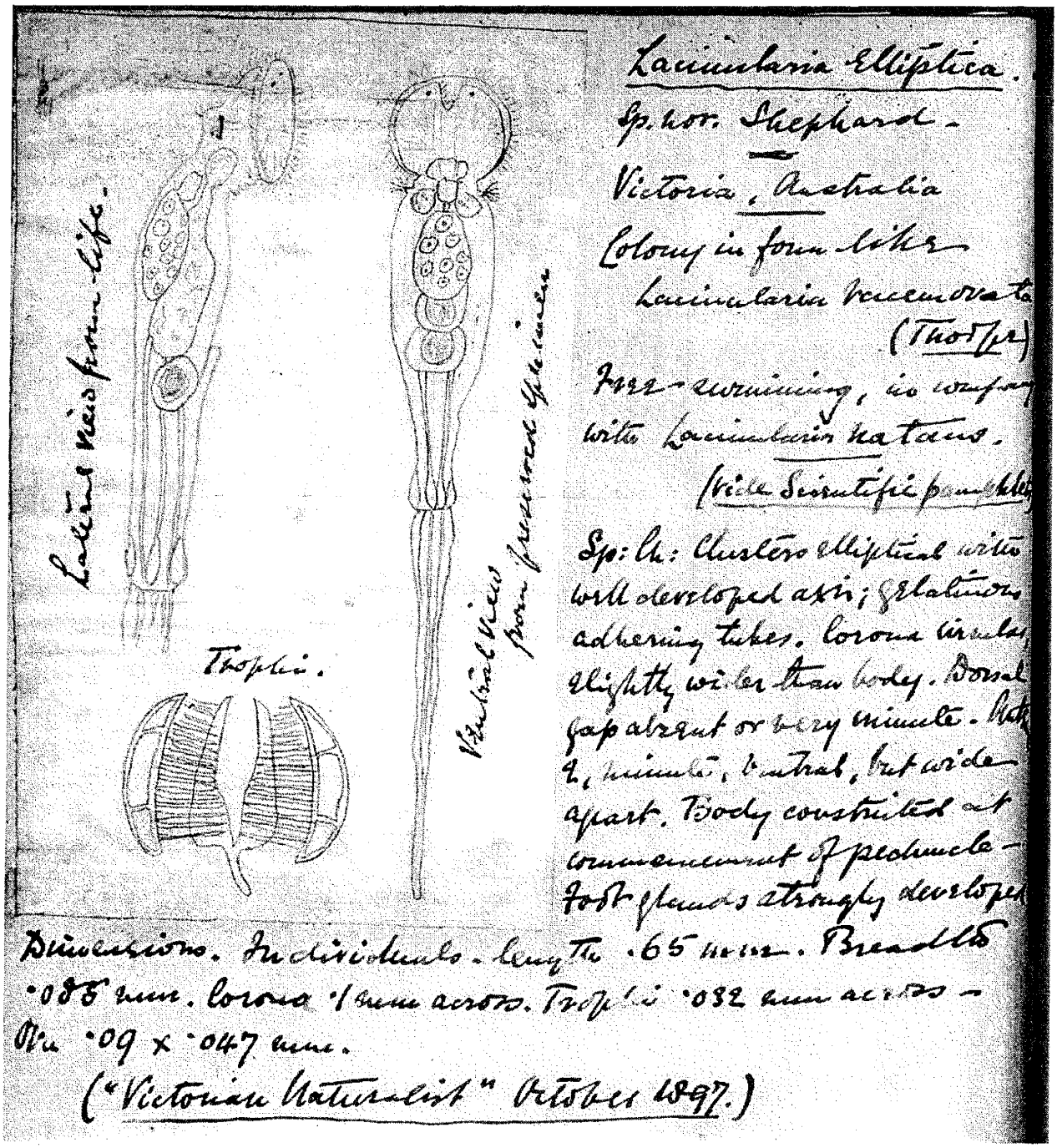

Fig. 16 Page from small notebook.

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WORKSHOP of the Microscopical Society of Southern California

George G. Vitt, Jr.

Date: Saturday, 5 February 2000
Location: Ernie Meadows' residence - 26 persons attended

1. **Jim Solliday** announced that: the next Workshop will be held on 11 March 2000 because, during the previous Saturday, there is a conflict with the Scientific Instrument Show;The next meeting at the Crossroads School will be in the Darwin room when Alan de Haas will give his second talk on optics and microscopy. (There was a round of applause for Alan). Jim then described the large number of slides by early American makers that Larry Albright had brought and which were for sale at $2 each.

2. **George Vitt** announced that he would give a demonstration of Photoshop operations at the next meeting, bringing a computer for this purpose.

3. **Ken Gregory** showed a c.1929 B&L comparison mic.that can also be used as a split-field colorimeter by mounting the samples within special compartments within the body tube, above the objectives, while using a white card as a light source.

4. **Stuart Warter** brought a microscope (unsigned) made by a previously unknown maker, Samuel Merced of Philadelphia, sold by Queen of Philadelphia during 1859-1879. Stuart reported that the Federal Archives, and the Census at Laguna Niguel (CA) showed Merced as a mic. maker. He also showed two other microscopes: one with a hidden signature "Merced, Phila". The third example may have Nachet imported brasswork, while the base is American. In the first two microscopes, the rack coarse focus mechanism is unique.

5. **Jim Solliday** showed a c.1902 B&L model BB microscope with continental style focus, 3/4" Zeiss Planar objective, NA=0.54, and with the rarely encountered finish in matte black lacquer with extremely fine-grained crackle surface. Jim said that this was a standard lacquer with lamp black added. The original idea for such a finish was presented by a Prof.Gage to B&L and became quite popular for a time. An interesting feature of this microscope is that it is equipped with the rare B&L version of a 'universal stage' - a very clever and handy arrangement, especially for viewing solid specimens from all angles by incident light. The stage has x-y movement by conventional rack & pinion. Onto this stage is mounted an assembly with two horizontal spring-loaded plungers, the ends facing each other and separated sufficiently to allow a small disk assembly (which holds the opaque specimen) to be held between them. The disk can be rotated (like a phono record) within its own mount and also along its diameter, via the rotatable opposing plungers. A very clever arrangement, indeed.

6. **Stuart Ziff** showed a special assembly of 12 GRIN (gradient index) glass fibers, each 0.005" in diameter, made by Corning. He then described how he had witnessed the production of GRIN fibers and described how they are registered and connected by machine, and their use in data transmission at rates of 10 Ghz. There ensued a general discussion of GRINs and George Vitt described the repetitive focusing action of GRINs, down their length, and their clever use in tonertype copy machines where they image the original onto the copy paper, and keep the object and image in registration as the original and copy are moving in opposite directions during the copy process.

7. **Jim Clark** displayed a Spencer table microtome with its wrench for tightening the moving pivots. He also described his trip East and the cold weather he encountered there.

8. **Gaylord Moss** described his week-long attendance at the Photonics Conference in San Jose, CA where he saw the Nye (New Bedford, MA) exhibit of optical cements (gel, hard). He stated that the new line of Olympus microscope optics was astounding - citing their 50X objective with 1.5" working distance, and their 26mm eyepieces. He described the proceedings of the Digital Camera Session where it was stated that 75% of the color information imaged by digital cameras is estimated (guessed) and not precise!

9. **Dave Hirsch** described the 'toy digital microscope' produced by Mattel and Intel, and selling for $81 at Costco.

10. **Ellen Cohen** announced that there is a symposium on digital art at the L.A. County Museum. George

Vitt, Chris Brunt and Allen de Haas launched on a short discussion on the factors of resolution criteria and eyesight as they relate to the perception of images.

11. Gary Legel displayed a humorous glass sculpture he constructed of lab glass, depicting a 'glass man' who is looking through an all-glass mic. that Gary had constructed previously. A most whimsical exhibit!

12. Izzy Lieberman displayed and demonstrated his recently acquired and restored Wimshurst electrostatic machine, made by Central Scientific Co. Izzy had constructed the two missing glass disks and all the foil electrodes attached thereto. A fine job of restoration. The proof of the pudding was his ability to generate 1" sparks, even in the somewhat humid atmosphere of a morning in the Pacific Palisades!

13. Alan de Haas showed a Busch dark field condenser and then described an Apo process lens made by Spencer, with 72" focal length, a 5" clear aperture (f/15), which sold for $1,000 in 1917! Alan then displayed a small (3.5" high) Zeiss microscope with the eyepiece being a negative lens and where focusing was extremely critical because of the shallow depth of field. He then showed a Zeiss DF cardioid condenser s/n 169, made in the first year of manufacture.

14. Larry Albright offered for sale, at $2 ea., a large number of slides made by early American (1880-90) slide makers. There was a large number of fine wood sections.

15. Gaylord Moss recommended the following WEB sites which presents a large number of images taken by different brands and models of digital cameras, thus enabling one to make judgements as to their relative quality: <http://www.imaging-resource.com> and <http://www.stevesdigicams.com>.

There was a coffee break at 11:00am.

16. Larry McDavid recounted his attendance at the Photonics West optics show. He described various adhesives by Gelpak of Sunnyvale, CA <<www.gelpak.com>, optical fluids by Nye of New Bedford, MA, and replicated microlens optics by POC. Larry then showed some f-o cables he is using for connecting his various pieces of audio-visual equipment.

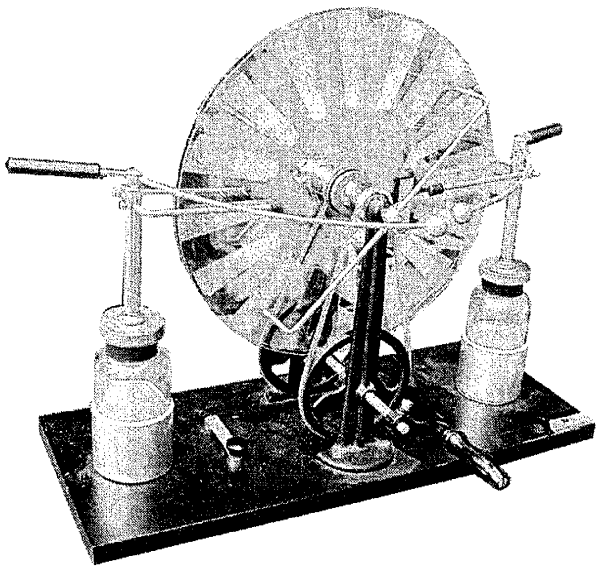
17. Gaylord Moss described the characteristics of a holographic rear projection screen which can be made to have a designed screen gain and directivity in one or more directions.

18. John de Haas brought for sale a cased Trichinoscope by Meopta in excellent condition. Price=$100.

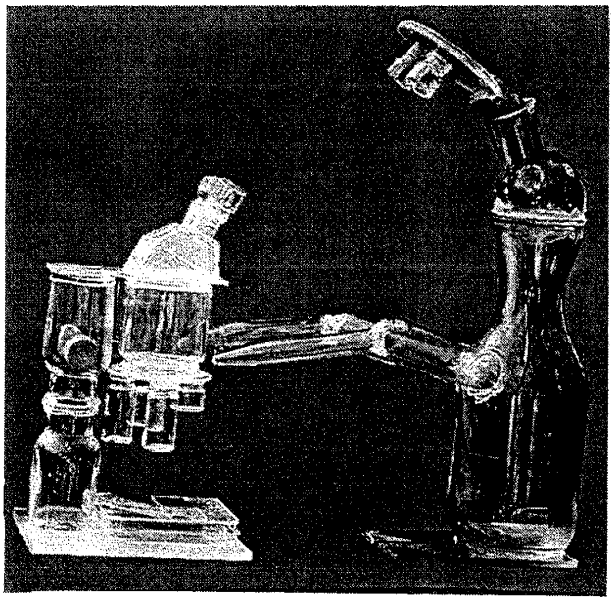
19. Larry Albright, our Program Chairman, announced that at the next meeting of MSSC, there would be a swap meet, George Vitt will demonstrate Photoshop techniques, and Alan de Haas will continue his talks on optics.

20. Jim Solliday announced that the following items are available for sale: Bulloch Congress stand, 1883, (about 12 in existence); Collins, perfect, 100% complete; Hartnack drum, signed; Colorimeter by Laurent; Ladd microscope with chain drive and magnetic stage; Soleil miniature cased microscope(very rare).

The workshop adjourned at 12:30.



Izzy Lieberman's Wimshurst machine.



Gary Legel's glass sculpture.

Two More
TRAVELLING MICROSCOPES

Brian Wilkinson

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Articles by Loxton 1,2 and Warren 3 have described the Watson Club Portable, the Baker Naturalist and the Baker Plantation microscopes. This has stimulated interest in these early portable instruments. Two further examples c1900, by Baker and Zeiss are described here together with the experience of more than twelve months using them in the manner intended - away from base. This may be summarised as 'The Practical versus The Impractical'.

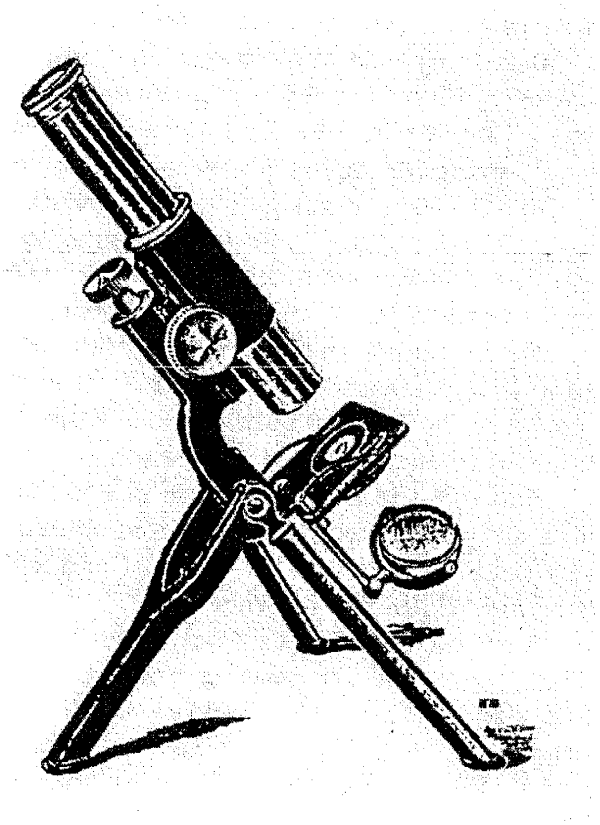
Baker Travelling Microscope

My example corresponds to the small No. 2 Diagnostic stand referred to in Warren's 3 article. Having a vertical screw fine focus dates it between 1897 and 1911, as mentioned by Warren. It also has the sliding and rack-and-pinion coarse adjustment. It is as the catalogue illustration shown opposite.

When unfolded for use, the foot is 6 3/4" wide and 7" in depth giving great stability. On a level surface it is almost impossible to knock it over - even deliberately - it simply slides away, even on a tablecloth.

On irregular surfaces - often atop a dry stone wall - the essential beauty of design of the wide tripod foot is appreciated to the full. It is as sure-footed as the proverbial mountain goat if elementary care is taken with its initial placement. With the ungraduated draw tube extended, approximately 160mm, and the stand inclined 30 deg. from vertical, the eyepiece height is 11", a good and comfortable height for most tables and chairs in holiday accommodation. It packs into a seemingly impossibly narrow box 11" x 3 3/4" wide x 3 1/4" deep; of 3/8" mahogany. This box has a platform at one end for 2 objective cans and 2 eyepieces. The space left for the folded microscope is then 6 1/16" X 3 1/16"- It seems impossible to get it back in, once you have taken it out. I made the initial mistake of not noticing precisely and now, even after 2 years, keep a filing card with a reminder of the disposition necessary. A legacy of weeks of frustration at first when I could not refit it and get the lid to close.

The box is beautifully made, dovetailed and with 36 brass countersunk screws to additionally secure the sides, top and bottom. A very strong box! Is this for tropical use I wonder?



The 1911 Baker catalogue lists a solid leather case for this No. 2 stand, or a metal alternative for the larger No. 1 stand. No mention of this very well made slim wooden box - which will even go into an Anorak pocket.

Optics - It was bought at auction and no optics were present. Fortunately, within the lid is a 'copper-plate' hand-written specification/magnification chart. This shows the outfit was at some stage: Zeiss aa; Swift 1/2"; Leitz No. 7 with oculars No. 2 (x4), No. 4 (x7) and xlO Holos (Watson). An excellent combination for algae - my own interest coincidentally - but surely not a Baker original outfit? However, Baker offered objectives by Zeiss and Leitz (also Reichert) at that time and I have a price list for the medical version of the Diagnostic, with 2/3", 1/6", 1/12", giving the higher prices for these alternative optics.

In the 1911 catalogue the Diagnostic is listed only with Baker 3/4", 1/6", 1/12"- The practice of offering the imported objectives is no longer listed. Also in 1911 an alternative outfit 'suitable for amateur use' of objectives 2", 1", and 1/4" with the same No. 2 and No. 4 oculars is given.

As my stand would have been first sold at the earlier time when Baker was supplying Zeiss and Leitz objectives, it is just possible that the outfit listed in the box lid is the original specification; Baker also supplied Swift and Watson items4. It would be nice to know, as always!

Beneath the stage is an iris in a sliding cylinder and a plane/concave mirror on a sliding rod focus. I have fitted similar replacement objectives by Zeiss, Swift and Leitz and oculars No. 2, No. 4 and xlO thus forging a sympathetic link with the original unknown owner.

A crossed back lens from a non-standard Abbe condenser was found to fit neatly upon the pre-existing flange in the substage tube. It was secured with a thin ring of Eukitt and could easily be removed if desired to restore the original condition - or if a genuine Baker 27mm diameter condenser is ever found. As stated, there were no optical components with it when I acquired it. It would have needed a condenser for the No. 7 objective.

Finally, a very small (1 7/8" diameter) light alloy triple nosepiece, believed to be Watson, was found by a friend in the USA. This completes the outfit very well and amazingly, it will even fit in this small box whilst still attached to the microscope - if simply turned aside. Easy with the sliding tube within the coarse focus collar. The microscope weighs 1060g; its slim box 800g; a total of 1860g (4.1 lb.) with all optics.
This c1900 Baker Travelling microscopq is now in regular use. It is an excellent and competent travelling companion. I like to think its original owner would have approved. The apparently strange mixture of Zeiss, Swift, Leitz and Watson components on a Baker stand is intriguing. It may just be authentic at this period when you could visit Bakers showroom and compare these makers and were invited to do so before making your selection.

Zeiss Travelling Microscope VI

This model appears in an earlier design in the 1889 catalogue (also as VH; non-inclining), and inclining only, in an updated model in the 1906 and 1913 catalogues. It had been replaced by the time of the 1927 catalogue with a version with the new 'tooth-wheel' horizontal fine focus. (The Mayer cog-wheel slow motion).

My example corresponds to the 1906/13 type, including the hard leather case, and is thus contemporaneous with the Baker Diagnostic described above. It is as the illustration shown, and the case is identical.

In use, the microscope is simply lifted from its horizontal case and the objectives fitted. My stand has the Zeiss small clover-leaf nosepiece that remains in place when in its case. The illustration however shows a double nosepiece for the travelling microscope and the clover-triple for the standard version, which appears identical apart from this and the case. No other assembly is required, i.e. it does not fold.

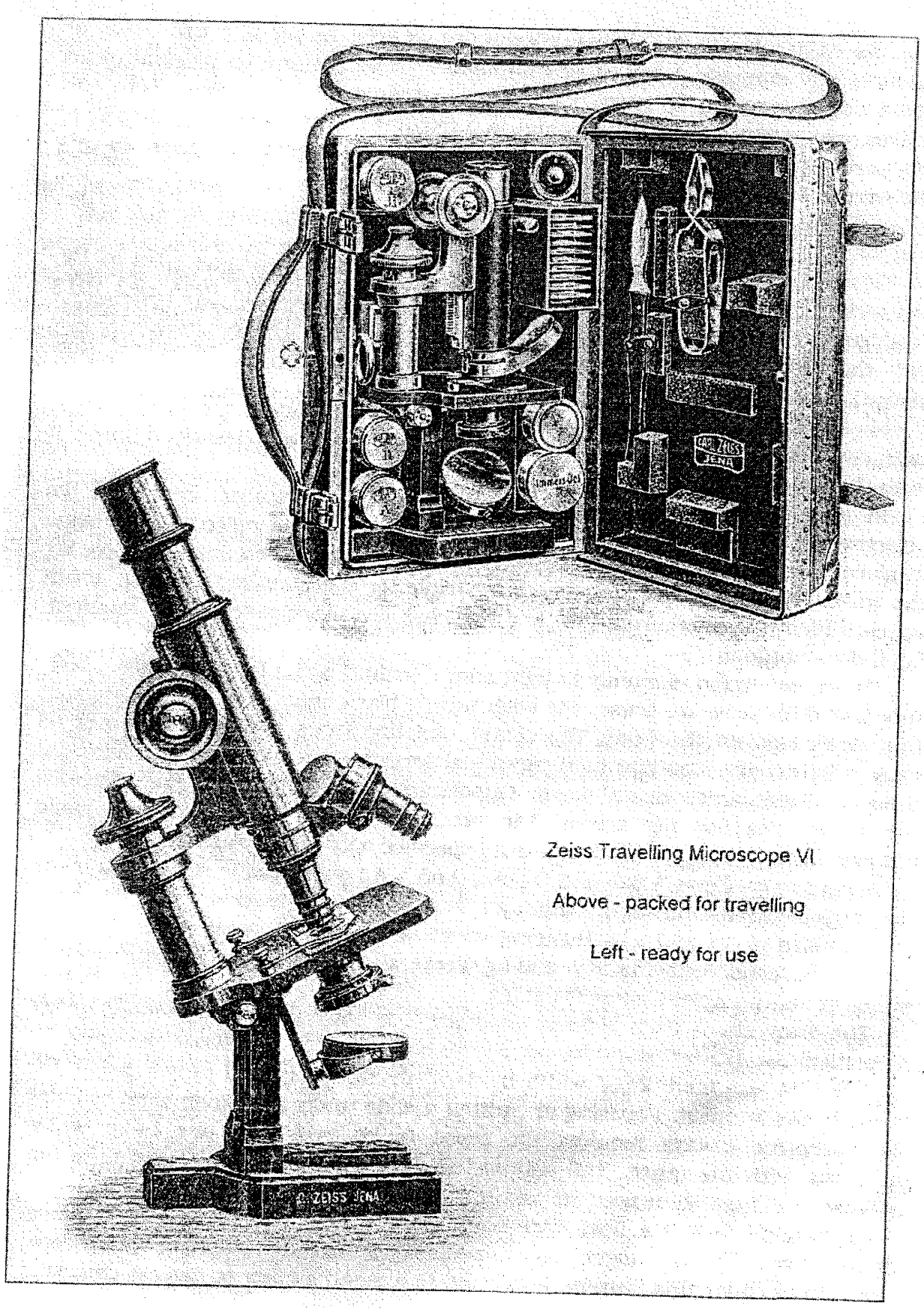
The construction is mainly of light alloy - including the foot. The pillar, body tube and draw tube are brass. The body tube is black enamel with the customary Carl Zeiss logo on the front. The coarse and fine focus knobs are likewise all alloy. Whether the standard (non-travelling) version featured the more traditional brass in these areas is unknown. Opportunity to examine standard (wooden cased) versions has not arisen. The catalogue implies it is the same stand however, merely the type of case is to be specified according to intended use.

It came with Zeiss A (x8) and D (x4O, 0.65 N.A.) objectives in cans. This is the correct original specification. (Although there is no confirmation these are they). Also oculars of x5 and x16 Huygens which are odd and possibly not Zeiss. A small Abbe condenser/iris in a sliding sleeve and a plane/concave mirror on a swinging arm complete below the stage.

The drawtube is from 105mm, graduated, to 160 min. When inclined at 300 off vertical the focused stand has an eyepiece height of 11 1/2" above the table.

The foot is a mere 2 7/8" width by 4 1/2" depth. Even on a proper bench the stand is easily upset. Focusing or putting a slide under the stage clips or using the nosepiece always requires the stand to be held with one hand whilst adjusting with the other. It is a thoroughly unstable instrument, tiring to use because of the constant need for care over its safety.

It certainly is not a field microscope, even a camp table would be a likely disaster area. The catalogue says 'makes a convenient travelling microscope; when supplied for this purpose it is fitted in a small leather or canvas case with shoulder straps .." Mine has the hard leather case; beneath the stitching appears to be a rigid case, of impregnated resin boards? The comers are metal protected. Inside is the typical beautiful Zeiss dark blue velvet; fittings and accessory compartments as in the illustration. It is a handsome job, The case measures 9 7/8" x 6 1/2" x 3 7/8" height. I covet all things Carl Zeiss. This led to my being offered the instrument and, inevitably, buying it. Yet in use it proves so unsatisfying, indeed irritating. It offends.



Zeiss Travelling Microscope VI

Above - packed for travelling

Left - ready for use

For a two-week holiday near Harlech Bay I adapted a flat horizontal box by screwing guide blocks on the lid and a stout brass strip to form a clamp over the horseshoe foot of the Zeiss VI. This has totally transformed the handling of the instrument in use. It is now possible to use picnic tables or flat outcrops of rock without undue anxiety. And the size of my box? 10 1/2" x 6 3/4" x 3" - almost the size of the Zeiss hard leather case. What a missed opportunity by Zeiss! To have put a metal plate top centre of the leather case and a captive bolt through to screw into the foot of this unstable stand. It could should - have been thought through and offered 'all-right instead of 'all-wrong. (There is no screw hole in the microscope foot; neither would I mutilate the leather box if there were). There are precedents from the 18th century of using the microscope case as its base.

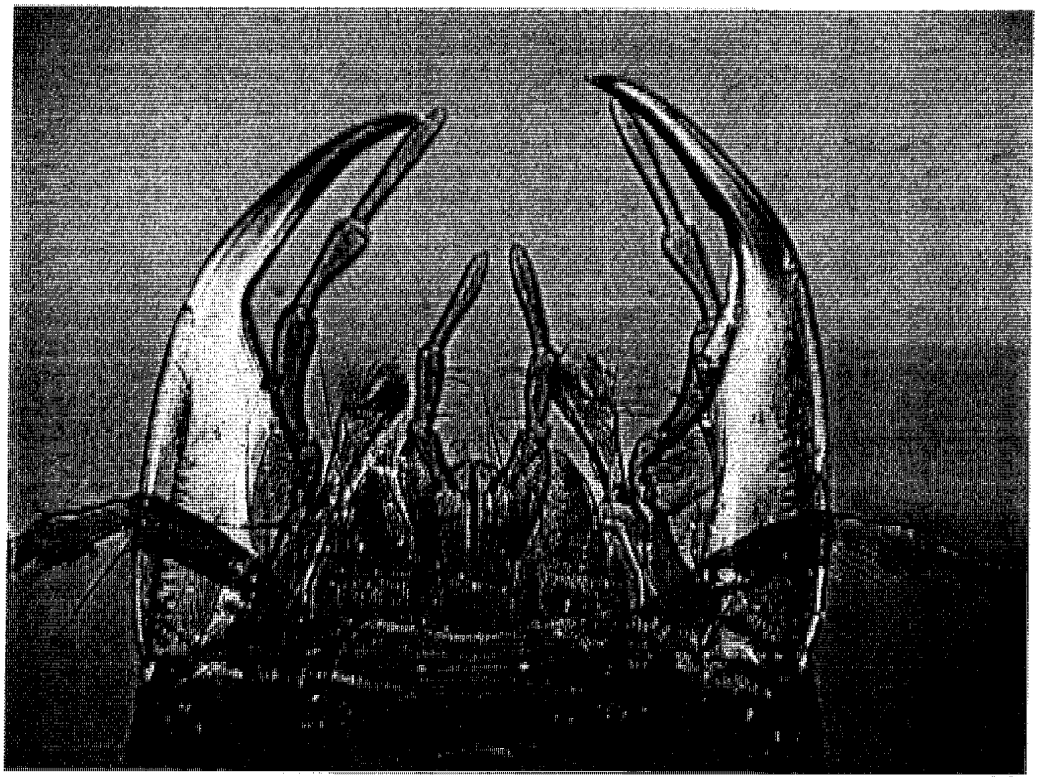
Finally I have added a third objective, the Zeiss A2 (x3), which is listed in some of the alternative optical outfits in the 1913 catalogue for this stand. Also I have replaced the eyepieces with genuine Zeiss x6 and a xl5 Zeiss/Winkel, thus completing a measure of authenticity to the outfit. It weighs 1400 g and the leather case 1560g. (6.5 lb. Total). It is now a nice and usable travelling microscope (with the addition of the wooden box base).

Summary

Both c1900 travelling microscopes by Baker and Zeiss have been compared. The Baker is much smaller in its case, lighter by far and yet a thoroughly stable, usable field microscope of good height (11") when in use. The Zeiss is of similar height but there the comparison of convenience ends. It is heavier (despite the alloys) and its box even heavier and much larger and the result is still a microscope unsatisfactory for field, or even camp use due to gross instability. This was inexcusable of Zeiss. A simple solution (suggested) was obvious. The weight penalty was pardonable, however weight unlike mass - is perceived as a function of time and the social order. An Edwardian doctor or wealthy naturalist on expedition travelled with much bulky equipment - Bell Tents, folding beds, and table and chairs; a kitchenette, etc. Things seem not so heavy when it is intended they be carried all day by bearers or one's personal manservant. My holiday lacked thisl

References:

1. Loxton, F. Watson Club Portable; *Balsam Post* 31, p10
2. Loxton, F. Baker Nature Microscope; Balsam Post 45, p11
3. Warren, S. The Plantation Microscope, *Balsam Post* 26, p22
4. Baker, C. *Microscopes and Accessories* (1911) p62



Digital photograph through the microscope by Larry Albright. PMS slide of Coleptera beetle by Ernie Ives. Camera: Olympus 2000 digital camera hand held above the eyepiece.

MSSC May Meeting

Wednesday, May 17 at 7 PM.
Crossroads School, 1714 21st Street
Santa Monica, CA.

Annual Pond Life Meeting

ROTIFERS ROTIFERS ROTIFERS

Want some excitement? See amazing creatures? Pretend you are Gunston Thorpe? Come to the May POND LIFE MEETING.

This is one of the most-loved MSSC events of the year. Members set up their microscopes on tables arranged in rows in the recital room. Everyone brings their scummiest pond water to share for examination. Some members are, even now, culturing their own in stagnant beakers in corners of the garden.

Amidst the general excitement of seeing strange and wonderful creatures, there is the advantage of having experts on hand to identify them. Try to find something to stump the experts.

Also, this is a superb opportunity to compare the performance of a wide variety of optical equipment. Clear differences between objectives and illumination systems and even ergonomic niceties become apparent when one is moving from one scope to another in a busy environment. This is one of the best chances you will have to compare equipment that you already have or plan to buy with other instruments. If every person starting a microscopy hobby could attend such a meeting, there would be many fewer mistakes made in instrument purchase. It might even eliminate the manufacture of the abominable toys sold to children that kill any interest they may ever have in the microscope.

Bring a bottle of the foulest water you can find, your favorite microscope, illumination source and power cord and any literature on pond animals. Perhaps, bring a classic brass instrument to compare its performance with the later models.

At the last Pond Meeting, there were over 40 microscopes set up and the educational and fun filled evening seemed much too short. This is a perfect meeting at which to introduce a family member or friend to what is fascinating about the microscope. Don't miss it.