

Lewis Edward Woolnough was born in 1943, in Halesworth, Suffolk and grew up in nearby Westleton. After completing his education at Bungay Grammar School for boys, as a boarder, Lewis began his professional career by enrolling on a teacher training course at the Marjonn College, in Chelsea, London. It was while attending a college dance that he met his future wife Janet, a native of Cornwall, who was also training to become a teacher at the nearby Southlands College in Wimbledon.

After successfully completing their respective courses, Janet returned home to Cornwall, where she then worked as a school teacher and Lewis moved, also to Cornwall, where he took-up his first appointment teaching science and biology at the Trescobeas County Secondary School (now Falmouth School) in Falmouth.

Lewis was a very good athlete and a very keen sportsman and during his time in Cornwall he was a hockey player for the county and also the opening bat for the Truro Second Eleven Cricket Team, in addition to playing league Table Tennis and Badminton.

By 1971 Lewis and Janet, had married and were now the proud parents of two boys; they now moved to Stowupland in Suffolk, from where Lewis took-up a new teaching appointment.

Lewis was a thoroughly decent man who was generous with his time for others, and he was tolerant and very patient, a quality which enabled him to successfully complete an Open University degree, whilst not neglecting the needs of a young family and his demanding new job as Year Tutor at Combs Middle School in Stowmarket.

After gaining further experience, Lewis accepted a new position as Deputy Headmaster of Hardwick Middle School and then as Acting Head of Parkway Middle School in Haverhill and finally, Lewis returned to Combs Middle School, where he held the post of Headmaster for around ten years until his retirement.

Even in retirement Lewis maintained his links with academia and spent time indulging in that occupation detested by most educators, namely marking examination papers. He also spent time as Chairman of his local Parish Council and was actively involved in his local village church. Despite these activities, Lewis found time to indulge in his favourite hobbies; these included beekeeping, goat keeping, wood-turning bell ringing and playing the clarinet, an instrument which he taught himself to play. Although now retired, Lewis continued to enjoy his love of competitive sport, by exchanging his fast bowling activities with the more sedate pace of carpet bowls, for which activity he was joined by Janet, who also accompanied Lewis when, each week, they attended the local hand-bell ringing group.

Like many people when they retire, Lewis also found time to indulge in yet another of his interests, microscopy, and in June 2001 he joined the Quekett Microscopical Club, and for a time, became the Club's Membership Secretary.

As already mentioned, Lewis was an enthusiastic beekeeper and he owned two thriving hives in his apiary in the garden of his home situated in a quiet Suffolk village.

He was therefore particularly interested in the application of microscopy to the art and science of beekeeping and although at times, this requires the use of a compound microscope, it was to the stereo microscope that Lewis was attracted. He always argued that although a compound microscope was required for the examination of pollen and the diagnoses of bee diseases, a stereo microscope was essential for the basic operations of pollen mounting and bee dissection. Lewis noted that, while there was a plethora of books describing the principles and use of the compound microscope, there was a dearth of books relating to the stereo microscope, particularly those aimed at beginners. Being a natural educator, he therefore set-about changing this situation by writing a profusely illustrated introductory text describing and illustrating the basic principles and operation of the stereo microscope, which was then published by the Quekett Microscopical Club.

Lewis was the consummate perfectionist and in 2016 he published a revised version of his book, which was then followed by a second, enlarged, edition, again published by Lewis, in 2017. Prompted by the success of this book, Lewis co-authored a companion volume, for the beginner, describing the construction and use of the compound microscope and this was followed by a collaboration to produce a series of instructional videos related to this book.

Lewis had an interest in stereo photography and stereo photomicrography. He would often entertain fellow microscopists with his stereo-pair images which he displayed at many of the QMC's 'Gossip' and other meetings.

Lewis was also the unofficial scribe of the Quekett Microscopical Club. His skill as a calligrapher made him invaluable when Club certificates were being issued. In the halcyon days when all meetings were 'real' and the word 'Zoom' was only used to describe a special feature of a camera lens, the QMC held its Annual Exhibition and awarded prize certificates for excellence in slide making and photomicrography. Anyone who is fortunate enough to own one of these certificates will testify to the excellence of Lewis' 'copperplate' writing used to inscribe their name on the certificate.

Lewis could produce a very competent mount of an insect on a microscope slide and on one occasion, Lewis was the recipient of an 'Eric Marson' award for his very fine mount of a Fairy Fly. He accepted the request to inscribe his own name on the certificate with his usual quiet, good natured humour.

In common with many other microscopists, Lewis was a regular attendee at the annual microscopy weekend held at Belstead House near Ipswich in Suffolk. It was at one of these weekend 'workshops' that Lewis met a fellow Suffolk Beekeeper who explained to Lewis that he wished to take the microscopists examination of the British Bee Keepers Association (BBKA). The gentleman explained that he was finding it very difficult to obtain any tutoring for this examination as there were no institutions in Suffolk offering a suitable course on microscopy. Lewis was a born natural teacher, and he invited the gentleman to visit his home for a day, where

Lewis showed him several of his microscopes and explained the operation of each one. The gentleman then explained that he was not alone in seeking tuition relating to the BBKA examination as there were many other Suffolk Beekeepers who were looking for the same type of course. Lewis' natural instincts as a teacher then surfaced and Lewis agreed to provide a complete series of courses for a growing group of Suffolk Beekeepers. The courses were held at premises provided by the Beekeepers with the result that a large group of Suffolk Beekeepers successfully achieved their BBKA certificates in microscopy. Under Lewis' guidance the group continued to flourish until it was agreed that it should be formalised and given a suitable name. Most of the members were Suffolk Beekeepers, and hence, the appropriately named "Iceni" was born. Members of the newly formed Iceni, having obtained their BBKA certificates and helped by Lewis, took over the role played by Lewis and were able to provide tuition to other members of the group. Many members of the Iceni, inspired by Lewis' dedication to microscopy became members of the QMC and its 'Sister' organisation, the Postal Microscopy Society.

Successful completion of the Microscopy examination of the BBKA requires a very comprehensive knowledge of both theoretical and practical aspects of the microscope and its application to beekeeping. A good knowledge of the construction of the microscope and its optical principles is required, together with the ability to demonstrate a proficiency in using the instrument and preparing and mounting a range of specimen slides. Right up to his untimely death, instrumental in their foundation, Lewis continued his association with the Iceni and left them a legacy of digitised Power Point presentations illustrating all aspects of the BBKA examination, which they will continue to use for many years to come.

In addition to mounting insects, Lewis developed a technique for using glycerine jelly in which to mount pollen and this is still in use by many of the Beekeepers that attended his microscopy classes.

When Lewis discovered the lack of microscopy education for Suffolk beekeepers, he did not restrict his time only to those who later became Iceni members; he also provided instruction at the homes of other individual beekeepers and provided some one-day courses at the Eastern and Otley College (now part of the Suffolk New College) in Ipswich.

Lewis did not limit his microscopy teaching to the county of Suffolk; a series of one-day course were provided by him for Beekeepers at the Apiary located on one of the campuses of the University of Hertfordshire; for many years he was a regular presenter of courses aimed at introducing Beekeepers to the basic optical principles of the microscope and how to use it to identify bee diseases, at the annual Spring Convention of the BBKA, held on the Shropshire campus of the Harper Adams Agricultural University.

The Quekett Microscopical Club provided each year, an industrially orientated microscopy course, held at the Natural History Museum, for student Scholars sponsored by the Arkwright Foundation. It was always Lewis who provided the opening presentation, introducing the students to the optical principles of microscopy. Lewis' natural talent for communication ensured that his presentations were always well received by students with a very diverse range of knowledge and

abilities. A bonus offered to these students, was the receipt of a copy of Lewis' Stereo Microscope book and its companion volume, co-authored by Lewis, on the compound microscope.

An annual event, popular with East-of-England microscopists, was the meeting hosted by the late Ernie Ives in the Village Hall at Sproughton in Suffolk. In October 2014 Lewis took over its stewardship for the following five years and found the meeting a new venue in the Village Hall in the Suffolk village of Bradfield Saint George, where hopefully, it will continue to flourish when government regulations concerning indoor meetings are relaxed. A very popular feature of this meeting was the excellent cooked lunch that Lewis was able to arrange!

When presented with a new idea, Lewis was not a man to let it ferment too long before putting it to the test. It was the custom of a group of East-of-England microscopists, all members of the QMC, to meet regularly at the house of one of the group. On one occasion, when all topics relating to microscopy had been exhausted, the conversation turned to other matters and the group discussed a recently published article which suggested that it was possible to estimate a person's physical age (and health) by sitting them, cross-legged, on the floor and noting the manner in which they regained their feet. Lewis announced that this proposition should put immediately to the test and he took-up the appropriate position on the lounge floor. Within seconds, to the accompaniment of the applause of the impressed onlookers, he was back on his feet, having achieved that position without the need of any external assistance or having to push himself up by placing his hands onto the floor

Although Lewis continued to use many of the traditional methods of microscopy, he was always keen to embrace modern methods whenever they provided a better alternative. Like many microscopists he was well aware of the problems of obtaining replacements for the tungsten-filament lamps used in the illumination systems of some of his microscopes. Although not an electronics engineer by training, he set-about, with his usual infectious enthusiasm, to understand the components and operation of an electronic unit to power a Light-Emitting Diode (LED) to replace his aging tungsten-illuminated microscope lamp. Under the guidance of a fellow microscopist Lewis very quickly constructed a working and reliable power supply to power the LED lighting that he then attached to his microscope.

Lewis' first attempt at this project was not without its interesting moments however, for Lewis had reckoned without the 'help' of the makers of his power supply. This power supply produced a variable voltage direct current (D.C.) output in response to an input directly from the 240 volt, alternative current (A.C.) mains supply. However, unknown to Lewis, the makers had very kindly labelled the input terminals as "OUTPUT" and the output terminals as "INPUT". The result was that Lewis, unaware of this application of an ancient logic, innocently applied the mains 240 volts to the output terminals of the unit. The result was a loud "Bang" and the appearance of some acrid-smelling smoke. However, Lewis was not a man to be distracted by such a trifling mishap and very soon a replacement power supply was obtained and, somewhat wiser about the perils of certain products, completed construction of an electronic unit that any qualified engineer would have been proud of.

This success led Lewis to seek to expand his electronics knowledge by turning his attention to understanding and programming one of the ubiquitous 'Arduino' microcomputers. Sadly, events transpired to prevent him from achieving this ambition but it may be safely assumed that it was Lewis' intention to use the Arduino to drive what is commonly known as a "Stepping Motor". This would have been attached to one of Lewis' microscopes for the purpose of using the microscope to obtain a series of 'stacked' photographic images, which would then have been combined into a single photomicrograph using the appropriate image processing, Lewis being a competent user of digital microscope cameras and their associated software.

Lewis would have argued that his association with microscopy was as a 'hobby', but his dedication and enthusiasm was more like that of a professional. In his desire to make microscopy accessible to those who needed it, in a practical and enjoyable way, Lewis was an excellent ambassador for the charitable objectives of the Quekett Microscopical Club, whose mission is to promote microscopy and provide education on the subject and all its aspects.

He was a self-deprecating person, who sought no reward, other than knowing that he was helping people. It is fitting to conclude this summary of the life of Lewis Woolnough by quoting the words of one of his many students.

"Lewis was a truly lovely man and very knowledgeable and generous. He was constantly thinking of others and made great personal efforts to support those, both old and new, to the hobby of microscopy. Lewis was very good at sharing his great knowledge of microscopy in a way that was easily accessible to those people wanting to improve their skills. He had a way of explaining complex ideas and concepts in an understandable and entertaining way. He never made his students feel anything other than capable of trying to reach his own high standards; he truly wanted them to succeed. His teaching style was co-operation before competition and he lived by very high personal standards. He was never ruffled or upset by challenging situations, he had a kind and thoughtful approach to problems and he had a unique way of getting people 'on-board'.

Lewis touched and enriched the lives of many people and he will be sorely missed.

He is survived by his wife Janet, and two sons.

*Written by James Rider, with contributions, gratefully received, from Janet and Ian Woolnough, Gordon Brown, Jane Corcoran, David Skeet, Peter Sunderland, and Dr Chris Thomas.*