

THE CULPEPER MICROSCOPE

THE pride of the College's museum collection is undoubtedly the eighteenth century Culpeper microscope which is currently being restored.

The combination of a shagreen covered body, polished brass base and mahogany fittings makes the Culpeper one of the most attractive of the old microscope and a popular collector's piece.

Surprisingly little is known about the inventor Edmund Culpeper, but it is thought that he developed his microscope sometime between 1725 and 1730. Culpeper was apprenticed to the instrument maker Walter Hayes, who traded from the sign of the 'Cross Daggers' in Moorfields, and took over the business when Hayes died in 1685. It is probable that at first Culpeper, like his former master, specialized in mathematical instruments though he later diversified into microscopes.

The College knows little about the history of its microscope apart from the fact that it was generously donated by Dr Arthur Watts, a fellow and founder member, in the 1950s. Dr Watts said that he inherited the microscope from his grandfather the Rev. Arthur Watts, an enthusiastic amateur scientist, who died in 1933 at the age of 94.

Dr Watts remembers his grandfather as a good scientist but a hard character who found it difficult to get on well with people.

"As children we all adored him because he taught us so much about science, but we were also frightened because he seemed so rigid," said Dr Watts.

The unique pillar construction of Culpeper's microscopes makes his work easy to identify. From the round base three slender legs rise to support a stage and from this three further legs rise to terminate in a brass ring which supports the microscope's body.

One of Culpeper's most significant advances was to introduce a 'substage mirror' which for the first time avoided the necessity of having to hold the instrument up to the light. But the microscopes could never have been very satisfactory, even when new, because Culpeper's method of focusing was to crudely slide one cardboard tube inside another. These were affected by the slightest change in temperature. Martin later solved this problem by inventing a 'seamless' brass tube.

The College's microscope is covered in

a remarkably hard substance called shagreen which is derived from the skin of shark's belly. This has had its bony knobs rubbed down, polished and the spaces between coloured green.

The College's microscope is packed away into a pyramid-shaped oak case which resembles the modern metronome case and it unusual in still having a trade card signed by Culpeper. This depicts his 'cross daggers' surrounded by surveying instruments, reading glasses, spectacles and a screw-barrel microscope.

Dr Brian Bracegirdle, the head of the Department of Medical Sciences at the Wellcome museum and a world expert on microscopes, said: "These microscopes were designed as gentlemen's play things and not for serious science."

They came complete with a selection of mica slides containing things like bits of cork, the leg of a moth, a louse, bits of feather, grains of sand, fish scales and a quill pen.

"These microscopes were designed as gentlemen's playthings and not for serious science."

"The world of the magnified was a fascinating revelation to them," said Dr Bracegirdle.

The College microscope has a 'fish-plate' that can be clipped to the stage which is inscribed with the words: "This glass is to lay ye fish on to see ye circulation of ye blood."

Dr Bracegirdle said that this enabled people to see blood corpuscles coursing through the web of a frog's foot.

But eighteenth century scientists viewed the results of investigations carried out using these microscopes with scepticism. In his book *The Evolution of the Microscope*, S. Bradbury says that the poor optical corrections of the lenses and the very low apertures then in use resulted in indistinct images. This caused structures to be described which were in fact false like, for example, throughout the eighteenth century the spermatozoa was pictured as containing a fully formed human being.

Culpeper's instruments, which were easy to construct and cheap to produce, rapidly became a commercial success and had many imitators. Culpeper was well aware of the danger of rivals and at the



The microscope and its pyramid shaped case.

bottom of one of his pamphlets describing the microscope he added the following appeal:

"It is desired of the Gentlemen who purchase these Microscopes to keep them secret from Persons of the same Trade with the Inventor, lest they should steal his Invention, as they have too often done, imposing upon the World by their awkward Imitations, and bereaving him of the Fruits of his own Industry, which 'tis hoped therefore all lovers of Art will endeavour to prevent."

Paul Bowskill, the antique scientific instrument restorer — who is restoring the College's microscope — said that it was important to resist the temptation to over preserve old microscopes.

"I'm trying to prevent any further deterioration from taking place and when I'm finished the microscope should at least be functional," said Mr Bowskill.

Mr Bowskill has redyed the shagreen which faded in the light, replaced the lenses, cleaned the trade label and treated the brass with shellac varnish to prevent oxidation. □

Janet Fricker

Correction

In the November Journal article on practice computers an error was made in the list of general practice specialist computer systems available for demonstration at the RCGP's Information Technology Centre. The correct list should have included the Vamp, Abies and Ciba-Geigy systems. It is hoped that the Update system will be available by the end of 1986. □