

# ELECTRON MICROSCOPY UNIT

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## WORK OF THE UNIT



The Electron Microscopy (EM) Unit, Mona, continued to assist Researchers and Students in obtaining results in and gaining a better understanding of optical and electron microscopy throughout the 2004/2005 academic year. Services and tuition in Transmission Electron Microscopy (TEM), various forms of Optical Microscopy (OM) and Macro-Photography (MP) were provided. Researchers on and off the Mona Campus, postgraduate and undergraduate students benefited from the EM Unit. Table 1 indicates the technical services that the EM Unit provided throughout the year. A digital camera, which was obtained in summer of 2004 for the advanced research light microscope of the EM Unit, was extensively used by the Interest Groups. Hundreds of digital images have been recorded either under close supervision of staff of the EM Unit or after appropriate training of the users. The EM Unit assisted in the calibration of an optical microscope at the Department of Chemistry (Mona) in April 2005.

Tab. 1: Services provided by the EM Unit during the academic year 2004/2005

Specimen	Technique	Institution
Anatomical study of anencephalic neonate	MP	Dept. of Basic. Med. Sci. (Anatomy Section), Mona
Aquatic animals	MP	Dept. of Life. Sci., U.W.I., Mona
Aquatic bugs	OM	Dept. of Life. Sci., U.W.I., Mona
Basalt rocks	OM (bright field, polarization)	Dept. of Geography & Geology, U.W.I., Mona
Black corals	OM	Center for Marine Sciences, Mona

Carbonate sands	OM (bright field, polarization)	Dept. of Geography & Geology, U.W.I., Mona
Cotton callus	OM	The Biotechnology Centre, U.W.I., Mona
Eggs, caterpillars and pupae of butterflies and moths	OM	Dept. of Life. Sci., U.W.I., Mona
Herbarium specimen	MP	Dept. of Life. Sci., U.W.I., Mona
Intestinal parasites of dogs	MP, OM (bright field)	Dept. of Life. Sci., U.W.I., Mona
Limestone rocks	OM (bright field, polarization)	Dept. of Geography & Geology, U.W.I., Mona
Microtiter plates	MP	Dept. of Life. Sci., U.W.I., Mona

Organic compounds	OM (polarization)	Dept. of Chemistry, U.W.I., Mona
Plant callus	TEM	The Biotechnology Centre, U.W.I., Mona
Plant fibers	OM (bright field)	University of Technology, Jamaica
Shells of aquatic snails	OM	Dept. of Life. Sci., U.W.I., Mona
Shells of terrestrial snails	MP	Dept. of Life. Sci., U.W.I., Mona
Small intestine of rats	OM (bright field)	Dept. of Basic Med. Sciences (Biochemistry section), U.W.I., Mona
Soil fungi	OM (bright field)	Dept. of Life. Sci., U.W.I., Mona
Tissue-cultured plant material	OM	The Biotechnology Centre, U.W.I., Mona

Thirty undergraduate students of Plant Virology (Dept. Life Sci., #BL 38A) had laboratory sessions in the EM Unit, focusing on Negative Staining and identification of viruses. In addition, ten postgraduate students of Chemistry (spectroscopy course, #C60L) were introduced to polarization microscopy and electron diffraction. The EM Unit contributed to the Research Days of the Mona Campus by providing posters and exhibits for a booth in the Assembly Hall. A poster was presented at the 7<sup>th</sup> conference of the Faculty of Pure and Applied Sciences at the Mona Campus of the University of the West Indies (May 17 -19, 2005). A tour of the EM Unit was conducted with members of the Liguanea Chess Club.

The research conducted by the staff of the EM Unit, focused on the morphology of insect eggs and invertebrate photoreceptors and resulted in the publication of one peer-reviewed article in the latter field. New collaborations were established with researchers on-campus and abroad, as indicated in Table 2.

Tab. 2: Collaborations with the EM Unit in the academic year 2004/2005

Subject	Collaborator
Ciliate population in bromeliad phytotelmata	Zoologist at the Institute of Zoology, Univ. Salzburg, Austria
Dynamics of spermatogenesis in local lizards	Zoologists at the Dept. Biol. (Wittenberg University, Springfield, Ohio) and Dept. Life Sci. (UWI, Mona)

## RESEARCH IN PROGRESS

Gamete structure and development in insects using various microscopic techniques

## PAPER PRESENTED

- “Morphological diversity of material covering clefts between thoracic segments in stink bugs“, **K. W. Wolf** and W. Reid, 7<sup>th</sup> conference of the Faculty of Pure and Applied Sciences at the Mona Campus of the University of the West Indies, May 17 19, 2005
- “Impressionen aus Jamaika (Jamaican impressions)”, **K.W. Wolf**, seminar at the Institute of Zoology University of Salzburg, June 29, 2005

### **Publications (Refereed)**

- \* “An ultrastructural study of the eye of *Gomphiocephalus hodgsoni*, a collembolan from Antarctica.” **V.B. Meyer-Rochow**, W. Reid, *Polar Biology* (2005) 28: 111 -118.

### **PUBLIC SERVICE**

#### **Dr. Wolf**

- ad hoc referee, “*Entomological News*”, scientific journal published by “The American Entomological Society” at the “Academy of Natural Sciences of Philadelphia”