# ELECTRON MICROSCOPY UNIT

### Klaus W. Wolf, PhD – Head of Unit

#### WORK OF THE UNIT

The Electron Microscopy (EM) Unit, UWI, Mona maintained its main focus of research during the 2006/2007 academic year and ensured that researchers, postgraduate students, undergraduate students and other interested persons continued to benefit from the facilities of the Unit. The clients mentioned, obtained results from optical microscopy (OM), macro-photography (MP), or transmission electron microscopy (TEM), as well as gained better understanding of electron microscopy via



tours and demonstrations. Table 1 shows some of the services that the EM Unit provided during the year.

Tab. 1: Services provided by the EM Unit during the 2006/2007 academic year

| Amphibian lungOMDept. Life SciencesForaminifera (marineOMDept. Geol. & Geographymicro-organisms withDept. Geol. & Geographyperforated, calcareousShell)Fresh water snailsOMFungi, reared in flasksMPHuman genital tissueMP, OMIgneous rocksOMIgneous rocksOMOMDept. Geol. & GeographyLimestoneOMMarine wormOMMetamorphic rocksOMDept. Life SciencesMetamorphic rocksOMDept. Geol. & GeographyPig helminthsOMDept. Life Sciences | Specimen   | Technique                                  | Institution  |
|---|--|--|--|
| Fresh water snailsOMDept. Life SciencesFungi, reared in flasksMPDept. Life SciencesHuman genital tissueMP, OMDept. Basic Med. SciencesIgneous rocksOMDept. Geol. & GeographyLimestoneOMDept. Geol. & GeographyMarine wormOMDept. Life SciencesMetamorphic rocksOMDept. Geol. & GeographyPig helminthsOMDept. Geol. & Geography  | Amphibian lung<br>Foraminifera (marine<br>micro-organisms with<br>perforated, calcareous<br>shell)   | OM<br>OM                                   | Dept. Life Sciences<br>Dept. Geol. & Geography   |
| rig neminitation of the Depti Dife Sciences   | Fresh water snails<br>Fungi, reared in flasks<br>Human genital tissue<br>Igneous rocks<br>Limestone<br>Marine worm<br>Metamorphic rocks<br>Pig helminths | OM<br>MP<br>MP, OM<br>OM<br>OM<br>OM<br>OM | Dept. Life Sciences<br>Dept. Life Sciences<br>Dept. Basic Med. Sciences<br>Dept. Geol. & Geography<br>Dept. Geol. & Geography<br>Dept. Life Sciences<br>Dept. Geol. & Geography<br>Dept. Life Sciences |
|   | r ig neminitis   | UNI  | Dept. Life Sciences  |

| Pinned insects      | OM     | Dept. Life Sciences       |
|---------------------|--------|---------------------------|
| Pumice rocks        | OM     | Dept. Geol. & Geography   |
| Thiara snails       | OM     | Dept. Life Sciences       |
| Rat synovial joints | OM     | Dept. Basic Med. Sciences |
| Rat liver           |        |                           |
| (2 different        | OM     | Dept. Basic Med. Sciences |
| researchers)        |        |                           |
| Rat heart, aorta    | OM     | Dept. Basic Med. Sciences |
| Rocks from Trinidad | OM     | Dept. Geol. & Geography   |
| Sand Stone          | OM     | Dept. Geol. & Geography   |
| Sedimentary Rock    | OM     | Dept. Geol. & Geography   |
| Samples             |        |                           |
| Snail shells        | MP, OM | Dept. Life Sciences       |
| Vertebrate Tissue   | OM     | Dept. Life Sciences       |
|                     |        |                           |

The EM Unit organized and conducted laboratory sessions in the virology course "BL38A" offered by the Department of Life Sciences. The 25 undergraduate students involved this year were given hands-on training in the negative staining of viruses, which had infected various plant materials. These viral particles were then identified using TEM. Other students in their first year at the Department of Life Sciences were exposed to the operations of the TEM.

The EM Unit contributed a laboratory session (including the marking of assignments) to the postgraduate course "Research Methods (C60M)" offered by the Department of Chemistry. The laboratory dealt with electron diffraction and polarization microscopy. Additionally, the Unit undertook the guidance of one PhD student in the EM module of the research project.

Collaborations continued with researchers abroad, as indicated in Table 2.

Tab. 2 Collaborations of the EM Unit in the academic year 2006/2007

| Subject  | Collaborator   |
|--|--|
| Ciliates in the water body<br>of tank Bromeliads | Zoologist at the "Institut fur<br>organismische Biologie", Universitat<br>Salzburg (Austria) |

| Kinetics of spermatogenesis<br>local lizards | Zoologist at the Department of in<br>Zoology, Wittenberg University,<br>Ohio, USA |
|--|---|
| Photoreceptors in a water scavenger beetle   | Zoologist at the University of Oulu,<br>Finland                                   |

#### **Teaching Targets**

During the coming year, the EM Unit hopes to undertake teaching assignments and the supervision of at least one postgraduate student.

# PUBLICATIONS

With a staff complement of two, the per capita publication = 1.

### Refereed

\* Lowell Dilworth, Felix Omoruyi, Walton Reid and Helen Asemota. "Bone and faecal minerals and scanning electron microscopic assessments of femur in rats fed phytic acid extract from sweet potato (Ipomoea batatas)". Biometals (2007): published online at

http://www.springerlink.com/content/4t85552145160772/ link date: June 12, 2007.

\* Vitali, F., Wolf, K.W. and Haxaire, J. "Biological and faunistic notes on the Jamaican population of Steirastoma histrionicum White, 1855 (Coleoptera, Cerambycidae)". Lambillionea 106 (2006): 661-667.

# PUBLIC SERVICE

Dr. Wolf

- Ad Hoc referee, Entomological News

Mr Reid

– Ad Hoc referee, Acta Zoologica