Xjenza 1998; 3:1, 32-33

Report

Young Scientist of the Year

Richard Muscat and Edgar White

Last year's 9th Young European Scientist of the year award winners hailed from the Dominican College in Belfast and were rewarded for their efforts in the study of decomposition of "bog bodies". All three young ladies are budding Forensic Pathologists. The 10th European Union Contest for Young Scientists will be held in Porto, Portugal this year between the 20-27th September. Representations from the 15 member states together with those of Iceland, Israel, Lichtenstein, Norway and under special arrangements, Bulgaria, The Czech Republic, Hungary, Latvia, Lithuania, Poland, Russia, Slovenia, Switzerland, Ukraine and Malta will be confirmed following National contests that take place during the months of April and May. The following might give some insight into what our own young scientists have been up to during the long winter months in their bid to represent Malta in Portugal later on this year.

Water, water everywhere and not a drop to drink !

Brian Azzopardi, from Junior College, based his study on the much publicised problem of "Water Resource Management". Like all marvelous ideas his basic concept was simple and straightforward. It concerned making better use of water within the typical Maltese household. Most of the panel of judges during the initial stages agreed that this was an excellent idea and would be worth pursuing but putting it into practice would take some hard work and lots of long hours. However, last week the fruits of Brian's labour were there for all to see, a model designed to illustrate the resourceful use of water either provided by the Water Services, that collected in a well or that recycled from your modern washing machine. Depending on the time of year and thus the demand for water, the use of well water and second class water can be made available therefore reducing the need for that provided by the Water Services by approximately 60% .

IDEA

Adam Bartolo and Edward Sammut, currently dental students at the University and frustrated by the lack of any educational tool available anywhere, for home use for the study of Dental Anatomy decided to put an end to their misery. IDEA or Interactive Dental Anatomy is the sum of their valiant efforts and it comprises a software package on CD that offers an integrated perspective of both morphology and histology. It would appear that following their astounding success the days of dental students hunting around dental clinics for extracted teeth will now or in the very near future become an extinct form of behaviour attributed to such a student cohort. The program is written in Microsoft Visual Basic 4.0 and is divided into three modules namely, tooth morphology, a tooth identifier and the virtual microscope. The graphics are excellent and importantly it is very user friendly unlike some academics!

Bionic limbs

Not to be outdone by their dental counterparts, Maryanne Caruana, Reuben Griscti and Maria Mallia all currently medical students at the University put foward their novel idea of using small motors to mimic the function of muscles following damage due to injury of the nerve fibres in the upper limb. The present solution to such a problem is the use of a prosthesis or a false arm. Normally this procedure involves the amputation of the damaged limb and replacement with the prosthesis. This is somewhat traumatic to the patient and is a relatively expensive procedure. The young trio suggested the retention of the problematic limb and the fitting of small motors to the bones which in turn can be manipulated by an external circuit. Their model was to say the least very convincing and if such a procedure could be utilised it would certainly attract those patients not prepared to undergo the trauma or expense involved with artificial limbs.

Talking plants

Communication in man at the cellular level is mainly an activity of our nervous system and as such the final marvel in the development of such a system is that wonderful thing we call our mind. In plants however, such a system is not to be found but botanists over the last century have been able to record some form of electrical signalling that resembles that found in man. Ernest Azzopardi, Andrea Biondo and Maria Blanco from the sixth form college of St. Aloysius gave themselves the undaunting task of establishing the nature of such signals and their function. Adopting a systematic approach they designed an electrode ' or Biosensor and built it in house to detect electrical impulses in plants under the following conditions; mechanical wounding and different lighting conditions. They observed that mechanical wounding produced signals similar to those found in the nervous system in man while changes in lighting produced electrical impulses that were more prolonged. These findings it was suggested could have economic implications in modern large-scale plant cultivation.

Computerised transformer tester

The final submission for our local contest which has already attracted significant commercial interest is that by Christopher Mangion, from the Fellenberg Training Centre. A transformer to most of us is that piece of apparatus one requires for example to run ones electrical

train set, scalectrics or more to the point that electrical item you purchased from America and now wish to use at home. Moreover, these gadgets are supposed to raise or lower the voltage within a given set of parameters over an extended period of time. To ensure that your commercially available transformer lives up to its specifications the Computerised Transformer Tester has been developed to do such a job. The output from a transformer under test is sent to a computer, which through clever software written by Christopher Mangion, analyses its performance and suggests what needs to be done in order that the gadget lives up to its expectations. The tester was built for the use in industries concerned with the manufacture of such transformers. It could become an indispensable tool to those seeking to produce a high quality product.

One final note, we would like to thank all the young budding scientists for their excellent efforts but we hope that next year we will see many more project proposals especially from those schools who for some reason or another were unable to participate in this inaugural science festival.

The Honourable Minister Evarist Bartolo talking to the Young Scientists during the finals of the Competition.