

WAC Warriors!

Juno McEnroe speaks to UCD archaeologist, Dr Barry Molloy, about how Irish Bronze Age warriors fought on the battlefield. His research paper on this subject was presented at the largest ever international gathering of archaeologists in Ireland - the World Archaeological Congress, which was hosted by UCD in June-July 2008

The crafting of replica ancient swords and shields, using the knowledge of martial arts experts and then testing these replica weapons on materials replicating human physiology, is helping researchers to gain new insights into the fighting skills of warriors thousands of years ago. The new findings are dispelling previous beliefs that these ancient warriors were untrained and brutish in combat. It's a project that has involved taking measurements from sword remains in museums across Europe and lead researcher, Dr Barry Molloy, is set to release a book on the findings. "Most of the time, history has focused on the broad strategic picture of how armies operated. We wanted to look at it more from the aspect of how people moved, how people operated, the practicalities of what actually happened on a battlefield. It is about understanding the mechanics of the swords and shields, what they can and can't do. From this perspective, we assess movement and patterns of action on the battlefield," explains the UCD School of Archaeology researcher, who has worked on a number of excavations since 1997 in Ireland, Britain, the Czech Republic and Greece.

Dr Molloy's current research position, a two-year post-doctoral fellowship in UCD's School of Archaeology, is being funded by the Irish Research Council for Humanities and Social Sciences. His current research on warfare links in with his PhD, which focused on the practical use of Bronze Age weaponry in the Aegean and in Ireland. This led to publication last January of his findings in the international journal, *World Archaeology*. But archaeology wasn't his first passion. Initially, he embarked on a computer science degree at Trinity College Dublin in 1995, but he soon discovered his passion for archaeology and switched courses. Graduating in 2000, he worked in contract archaeology until 2001, when he began his PhD in the School of Classics, University College Dublin. Over 2006-7 he worked full-time as a research associate on the *Keros and the international spirit of the Cycladic Early Bronze Age* project at the McDonald Institute for Archaeological Research in Cambridge. He is presently co-director of the Priniatikos Pyrgos excavations in the Gulf of Mirabello region of East Crete, which will continue until 2011.

His presentation on combat archaeology was made at the World Archaeological Congress this summer with his UCD colleague, Dr Alan Peatfield. In a practical display of their findings, they demonstrated the effectiveness of bronze swords with a series of cutting tests. But long before this work got to the presentation and cutting test stage, a precise process was needed to actually reproduce these replica swords, both Irish and Aegean, to the specifications of those which would have been used broadly from c.1800 – c.800BC. Looking at the weight of the swords, their balance and the biomechanics behind their use in battle, the researchers were able to piece together just how warriors handled the weapons. Tests included using the replicas to cut flesh and also in sparring matches. Dr Molloy took detailed measurements of sword remains in museums in Ireland, the UK and Greece including their width

and the thickness of the weapons' handles. "The manufacturing process is very important because that dictates how hard and tough the sword will be. We tried to take that into account to make replicas as accurate as possible," he explains.

Dr Molloy's research took him to Dublin's National Museum, Belfast's Ulster Museum, Oxford's Ashmolean Museum and London's British Museum. He also visited museums in Athens, Heraklion and Pylos. Then, passing the measurements to a craftsman in Cornwall, Niall Burrige, the researchers were able to make the replica weapons. Other replicas were recreated at foundries in Dublin using wooden templates. In total, the UCD team crafted some 14 swords ranging in size from 35 centimetres up to 70 centimetres. Each of the weapons weighs between 300 and 600 grams. The team also made five shields including a leather one and others made of copper alloy. They then consulted a UCD martial arts Tai Chi class, whose expertise enabled them piece together how the weapons might have been used. To reproduce the effect of the swords cutting through flesh, the team also used an ancient Japanese method called *tameshigiri*. The replicas cut through water-soaked rolled straw mats to simulate the feel of the blades slashing flesh. Once the team had perfected the way the swords cut best, the researchers went on to test the weapons on the bodies of dead pigs. "We did some test cutting against the forelegs and against the chest of some recently slaughtered pigs. We got them literally when they had been slaughtered within an hour so there was no chance of rigor mortis setting in," recalls Dr Molloy.

With no texts from the era describing the swords, the UCD team looked to the Medieval period for clues on similar fighting methods. "It was basic information on how people used swords because it's quite different from swords used in the Hollywood movie kind of thing. It demonstrated the limitations of the swords, that they weren't

quite as robust as might be thought and they had to be used in a particular fashion to be effective at all. Previous literature said these were used like an axe and it was basically - clobber clobber clobber! But we were able to show that it was much more subtle than that," continues the archaeologist. "They used these swords effectively. It wasn't a case of just twice a year picking them up and going into battle. It took a daily training regime to be effective. We learnt that even with our training they were liable to bend, and get damaged if you struck them the wrong way at all. So you had to be very fluid and very skilled to use them in a fashion which ensured that they wouldn't get broken in battle," he adds.

Examining the remains of damaged swords in museums showed evidence of where they might have struck a bone, or a shield or where they clashed with other sharp edged weapons like spears. This has led researchers to speculate that each time warriors fought with swords, the weapons are likely to have come away damaged. "It seems likely that they would have had to be heavily re-sharpened after every use. That would suggest that the life cycle of a sword might not have been as long as has sometimes been suggested – it is possible that it was a matter that you bring it out, use it once or twice and after that it was recast again," says Dr Molloy. The significance of the warfare research lies in the fact that it would seem to reinforce previous theories on Bronze Age Ireland and mainland Greece, which suggest that there were no hierarchical ruling structures in settlements and that the swords would have been commonly used. This is based on the sheer numbers and types of remains which have been recovered by archaeologists. "Martial arts types of activities would have been a daily part of their life," explains Dr Molloy. But it changes the picture of Bronze Age Crete, which is believed to have been a peaceful society.

Further insights into this practical and social approach to combat archaeology will be found in Dr Molloy's forthcoming book on Irish Bronze Age warfare, entitled *'The Birth of the Sword'*, which is expected to be on bookshelves in 2010. In the meantime, the UCD archaeologist is currently working on a number of digs, including a major excavation in Greece.

Dr Barry Molloy is IRCHSS Postdoctoral Fellow, at the School of Archaeology, University College Dublin and IJHSA Director: Priniatikos Pyrgos excavation project - www.priniatikos.net as well as Project coordinator: Combat Archaeology Research Project - www.combat-archaeology.org

Juno McEnroe (BA 2000 and MA in Journalism [DCU] 2001) is currently a journalist with the Irish Examiner.

Dr Barry Molloy (3rd l) with UCD colleagues, Dr Alan Peatfield (1st l) and Professor Gabriel Cooney, Professor of Celtic Archaeology, (2nd l) and Dr Aidan O'Sullivan (4th l), try out their replica swords during the WAC conference at UCD



A Bronze Age Mycenaean ring depicting a battle

World Archaeological Congress

The World Archaeological Congress (WAC) is a non-governmental, not-for-profit organisation and is the only elected international body of practising archaeologists.

WAC holds an international congress every four years to promote the exchange of the results of archaeological research; professional training and public education for disadvantaged nations, groups and communities; the empowerment and betterment of Indigenous groups and First Nations peoples; and the conservation of archaeological sites.

The Sixth World Archaeological Congress (WAC-6) was held at University College Dublin from 29th June - 4th July 2008. This was the first World Archaeological Congress to be held in Ireland. It was attended by over 1,800 archaeologists, native peoples and international scholars from 74 nations. Motions from the Plenary Session of the Congress were considered by subsequent meetings of the World Archaeological Congress Council and Executive.

The Congress Patron for WAC-6 was the President of Ireland, Mary McAleese. Previous Congress Patrons include Prince Charles and Nelson Mandela.

