11th Annual Public Lecture - 2002

Our Eroding Heritatage

Mr David Tomalin & Mr Robin McInnes

The subject of the well attended annual public lecture for 2002 was active changes in the Isle of Wight coastline. Robin McInnes of the Isle of Wight Council and David Tomalin, lecturer from the University of Southampton, enthralled the audience with a talk entitled 'Our Eroding Heritage - a lesson from LIFE'. Robin and David are the project co-ordinators for European Financial Instrument for the Environment (LIFE).

Robin began with an overview of the rock types found on the Isle of Wight which developed over millions of years. He contrasted the major landslide complex at Ventnor on the southern coast to the severed chalk ridge of the Needles with the creeks and estuaries of the north coast. He illustrated examples of how weathering and erosion caused by heavy rainfall has triggered ground instability, especially in densely populated areas such as Sandown Bay.

Ongoing land slips along the south western coastline have caused tension cracks under the Military Road, which has necessitated repairs. Stability schemes have been proposed which have cost over 2 million pounds over the last 2 years. On the northern side of the Island, where the land is low lying, flooding during wet periods presents a threat to economic assets. Robin outlined the cause and effects of natural hazards such as geological conditions, climate change, sea level rise and also those of human activity with the massive costs involved. We were also reminded that it is as important to leave some areas to the forces of nature. Eroding cliffs add to the sediment budget by being moved around by longshore drift and adding to coastline replenishment.

The Isle of Wight landslide management strategy was set up to try to understand the geology of the island and government funding enabled maps for underlying geology. A database was created to compile a record of damage. At Ventnor, study of the longest continuous rainfall records in the country (since 1837) against land movement has shown a direct correlation between land slip problems and wetter years.

Robin discussed the setting up of the LIFE programme and with impressive slides showed examples of landslides and coastal erosion in Britain, Italy and France. Finally we were warned of increasing temperatures and a predicted rise in winter rainfall, a cocktail that will increase the risk of rainfall in the years ahead.

A short break ensued to let the message sink in, while many of the audience partook in an ice cream reminiscent of the interval at the cinema (another thing that has been eroded away!). David Tomlin's talk continued with the theme of a continually changing coastline through coastal submergence and land instability. The drainage from the ancient lands around the island underlie many of the current ria inlets which can all be followed to a drowned river channel known as the Solent River. As far back as 1861, William Fox, rector of Brighstone, postulated the Solent River which started a debate still ongoing today. Now, modern technologies have enabled seismic

investigations to detect these ancient channels. In the 1970's French oceanographers found a complex of river channels in the English Channel.

Following the melting of the ice sheets at the end of the last Ice Age a great weight was removed from Northern Britain. As a result the area lifted while the south began to subside. It still continues to do so today. The question of how we measure these changes and their longevity was addressed. Sediment cores can be obtained from which dry years, wet years, drought and floods can be ascertained. David pointed out that we should remember that the past is a model of what could happen again tomorrow. Evidence of inundated Neolithic settlements exposed along the edge of modern estuaries, axe heads found well below the high water mark and wickerwork fencing of ancient fish traps were cited as archaeological examples testifying past change in sea level. Other regions containing early settlements effected by sea level change included the Medoc on the west coast of France and the River Shannon in Eire, all of which are outlined in detail in the LIFE report.

Back on the Isle of Wight site where archaeological material has aided our understanding of coastal evolution include ancient dune deposits located at Redcliffe east of Sandown, and Ladder Chine has yielded Bronze Age pottery. There is a sedimentary archive at the River Yar which dates back 12,000 years BC and a Neolithic track way dated around 3,000 BC located at Quarr beach. Investigation of the underwater cliffs off Yarmouth has yielded a landscape of ancient trees, and sediment samples show evidence of a 7m sea level rise between 6,000 and 4,000 BC. This is helping to find a primary date for the Solent.

David pointed out that the presence of undisturbed archaeology on ancient landscapes can demonstrate stability. This information can be invaluable to coastal planners when making informed decisions ahead of development.

Finally David showed pictures from the CZCM satellite passing over the English Channel illustrating sediment from erosion around the Isle of Wight and suggested that it seems to be dissolving like an old Alkaseltsa!!