CONFRONTATION OF GEOLOGIC STRATIGRAPHY AND RADIOMETRIC DATES FROM UPPER PLEISTOCENE SITES IN THE LEVANT

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It is difficult to reconcile the lithostratigraphy and paleoenvironmental interpretations of some major sites (Tabun, Skhul, Qafzeh) with recently determined radiometric (ESR, TL) ages. Additional comparative material is available from Yabrud rockshelter in Syria where Acheulian-Yabrudian levels have been dated ca 225,000 years (ESR on horse teeth), ca 150,000 years (ESR on burned flint) and ca 200,000 years (TL on burned flint). The stratigraphic positions of the Amudian (Pre-Aurignacian) components at Yabrud, Tabun and Adlun also can shed some light on the credibility of the radiometric dates. It is interesting, moreover, that the ESR/TL dates for those sites all cluster around the same value (100,000 years), in spite of quite different paleoenvironmental settings and different cultural associations and human physical types. This raises the question of the lack of sensitivity of those dating techniques, reminiscent of radiocarbon dating of many marine mollusks that formerly clustered around 30,000 years before methodological refinements and cross-dating with other methods showed them to be spurious.

ACCELERATOR MASS SPECTROMETRY OF $^{14}$C AT THE AUSTRALIAN NATIONAL UNIVERSITY

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The accelerator mass spectrometry program based on the 14UD Pelletron accelerator at the Australian National University has historically been committed to the measurement of $^{36}$Cl in environmental samples. Recently, however, motivated by a need within the university for a small-sample capability to complement the existing decay-counting facility at the Radiocarbon Laboratory, a $^{14}$C capability has also been implemented. At the present time, this system is operated on a medium-precision, low-throughput basis with slow cycling between isotopes. The beam currents of the stable isotopes are measured in a Faraday cup, which is located immediately in front of the $^{14}$C detector. The special features of the system will be described, our experience with this mode of operation and with sample preparation will be reviewed, some early projects will be discussed, and envisaged developments will be outlined.

A COMPARISON OF $^{14}$C AND U/Th AGES ON CONTINENTAL CARBONATES

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A basin of internal drainage is located in a discharge of a large confined aquifer from Northern Sahara. Lacustrine deposits of Holocene age were dated by both radiocarbon and U/Th methods on inorganic carbonates and on mollusk shells (Cardium). Small crystals of inorganic calcite were