main private schools sent representatives, as did various Government departments, but neither employers nor manufacturers were present. The meeting welcomed the introduction of a national qualification, and the City and Guilds Institute reports that a committee is hard at work on the details of a suitable scheme.

Private computer schools have recently met with heavy criticism. A typical school charges £150 for a six weeks crash course that gives beginners a working knowledge of a single computer language. Critics have alleged that some of the schools have taken on students in a profiteering spirit, regardless of the student's aptitude or his future employment prospects.

Despite this, the schools are thriving, and they handle thousands of students every year. The shortage of programmers in British industry is acute, and many companies apparently prefer to pay for their employees to go to a private computer school rather than send them to the City and Guilds programming course which costs next to nothing and is now on offer at more than sixty technical colleges. Industry prefers private courses largely because they are quicker. The City and Guilds course is fuller and more flexible but it lasts two years part-time.

It seems unlikely that expensive private computer courses will be a permanent feature of British industrial life. Technical colleges could easily set up their own crash programming courses, though they show little sign of doing so at present. But several schools teach programming now—three of them have a computer on the premises—and if this trend spreads through the secondary school system, the market for the private courses should shrink. Private computer schools face a longer term hazard too: future information systems may well absorb within themselves many of the present tasks of the programmer, and the demand for programmers is unlikely to keep pace with the demand for the more flexible profession of systems analysis. At any rate, the private computer schools are happy enough for the present, and they are willing accomplices in the City and Guild's efforts to bring their courses under national supervision.

ARCHAEOLOGY

High Lodge Palaeolithic Industry

from our Archaeology Correspondent

THE British Museum excavation of the palaeolithic industry at High Lodge near Mildenhall in Suffolk, which began in 1962, was completed this summer. Mr Gale Sievking, who directed the excavations, believes that the stratigraphy of this problematic site has at last been clarified. He identifies the main industry on the site as the earliest ancestor of Mousterian industries which can be dated with any certainty; the High Lodge type industry *sensu strictu* seems to be the product of *Homo sapiens*, people probably resembling Swanscombe man, working at the site during an interstadial period in the penultimate Gipping or Saale glaciation some 140,000 years ago.

The site at High Lodge was discovered in the 1870s during clay digging, and in the late nineteenth century, when flint tools were collectors' pieces, a large number of worked flints was excavated. By the 1920s the complex and apparently false stratigraphy of the site had been recognized. Flake tools, apparently from a mid-palaeolithic Mousterian industry, were found in a lacustrine clay sandwiched between two layers of glacial till, and hand axes, apparently from a lower palaeolithic Acheulean industry, were found in the gravels lying on the lake clay. This seemingly reversed stratigraphy was explained at the time as a result of solifluction; it was argued that the older hand axes had been carried in a layer of gravel from the top of a hill and had come to rest over the lacustrine deposit, containing flake tools, at its base. By 1962 it was clear that the hand axes need not antedate the flake tools and the stratigraphy could represent a straightforward succession. The only way to settle the issue was by widespread rather than piecemeal excavation.

What has emerged ? The flake tools, of which there seem to be three successive phases, are in lacustrine clay and silt filling a depression in the Gipping till.

A hand axe from the High Lodge site.

The hand axes occur on the upper surface of the lacustrine clay where it shows signs of weathering. Overlying the tool bearing layers are sterile layers of loam, glacial gravel, glacial sand and then another layer of till which on geochemical grounds is identified as Gipping till similar to that at the base of the deposit. Finally, on top of this upper till there are cover sands and the modern surface.

There are only two possible interpretations of this glacial succession. Either the layers between the lower and upper tills represent deposits laid down during an interstadial of the Gipping (Saale) glaciation, or they represent material deposited in the final Weichsel glaciation. All the evidence points to the first alternative. First, both lower and upper tills are similar and identified as Gipping (Saalian). Second, pollen analysis of fossil pollen in the lacustrine clay indicates

that the vegetation of the period was typical of a local interstadial and does not resemble Weichselian interstadial deposits. Third, the occurrence of glacial gravels and sands above the tool bearing layers rules out the possibility that they were deposited in the final Weichsel glaciation because in the breckland there is no evidence for Weichselian glacial deposits on this scale.

The flake tools of the characteristic High Lodge industry are stylistically related to Mousterian tools of the Weichsel and to ancestral types found in the Eemian interglacial, but they appear to have been made some 50,000 years earlier. On the other hand, they are quite distinct from and more sophisticated than the Clactonian flake tools found at Swanscombe. And the occurrence of flake tools before hand axes is no longer the problem it once seemed, for since the 1920s several sites have been discovered with alternating successions of flake and axe industries. Both types seem to have gone in and out of fashion and neither style necessarily predates the other.

UNIVERSITIES

Graduate Training

from a Correspondent

UNIVERSITY departments in Europe are usually smaller in numbers of staff than the larger schools in similar subjects in the United States. This tends to lead to the narrowing of the field covered in graduate courses, because there are not people available with first hand experience in all the areas which should ideally be covered. An interesting attempt to overcome these limitations has been initiated by the Department of Genetics at Edinburgh University. One of the graduate courses offered by this Department is in Epigenetics. This covers experimental embryology and related aspects of developmental biology, dealt with mainly in molecular terms as the working out of the instructions encoded in the genotype. The staff of the Edinburgh department has considerable research experience with embryos and other developmental systems derived from mammals, birds, amphibia, insects (particularly Drosophila), fungi and micro-organisms, but little with marine invertebrates such as echinoderms.

A grant from the Leverhulme Trust has now made it possible to organize an International Graduate School with participation of teaching staff from the department of Professor Alberto Monroy, one of the leading European workers on echinoderms, who is now at Palermo but is shortly moving to Naples; and from a leading American Department, that of Professor Eugene Bell at the Massachusetts Institute of Technology. The course, which will start with a restricted intake of only six students a year, probably four from Britain and two from Italy, will be organized on the basis of a three year period. The first will be equivalent to an English honours year, while the second two will be devoted to research projects, leading to the PhD. There will not only be visits of three or four weeks by members of the Naples and MIT staff to Edinburgh, but it is intended that all the students of the course shall at some time spend about one month in the Naples laboratory, becoming acquainted with the experimental techniques used there and the biological materials available.

Parliament in Britain

University of the Air

THE British Broadcasting Corporation and the Open University Planning Committee have agreed in principle about the Open University radio and television programmes up to 1975. Senior academic staff have been appointed and next year regional directors will be appointed who will organize study facilities in their regions. Miss Jennie Lee, Minister of State in the Department of Education and Science, assured members that provision would be made for laboratory studies. An advisory service was being set up to help students decide whether they would benefit from the courses. Discussing the need for additional library facilities for Open University students, Miss Lee said that arrangements would have to be discussed between the university and the library authorities. (Oral and written answers, December 5.)

Nuclear Accelerator

ASKED whether the Government would reconsider its decision not to participate in the CERN 300 GeV nuclear accelerator in the light of the Nuclear Physics Board's recommendation that it should do so and should pay for participation by spending less on existing obsolescent accelerators, Mrs Shirley Williams, Minister of State in the Department of Education and Science, said no. She argued that the board had based its proposals on the assumption that the site would be in Britain, but that it would probably not be. She emphasized that the CERN Convention which is being drawn up allows countries to join in at a later stage so that it was still possible that Britain might participate. (Oral answer, December 5.)

Aluminium Smelting

THE Government's decision to install capacity for smelting 320,000 tons of aluminium a year should save Britain an average of about £40 million a year on imports of raw materials. The three new aluminium plants will use imported alumina which together with other raw materials and fuel should cost about £20 million a year while it would cost about £60 million to import an equivalent amount of aluminium. (Written answer, December 4.)

Contraception in Scotland

SCOTTISH local authorities cannot supply contraceptive advice or appliances on purely social grounds. Mr William Ross, Secretary of State for Scotland, said that he would like to alter this, but he had not yet been asked by any Scottish local authorities to change the ruling. (Oral answer, December 4.)

Ronan Point

MR ROBERT MELLISH, the Minister of Public Building and Works, said that he wished to qualify his general acceptance of the Ronan Point Tribunal's report. The Building Research Station (BRS) had informed the British Standards Institution Committee about the Comité Européen du Béton's warning of the dangers of progressive collapse of large panel structures. The BRS has carried out experiments on joints in precast concrete structures and gave advice to designers of these structures. The tribunal did not take enough notice of the work done by the BRS and the NPL which may show that the risk of collapse from high wind loading is small compared with that from explosion. (Written answer, December 3.)