original investigators, but the discrepancy remained unresolved.

A successful fit to the infrared data based on more conventional materials was provided by Dr D. A. Williams (University of Manchester Institute of Science and Technology), who offered hydrogenated amorphous carbons (HAC) as candidates. They contain carbon both in benzene-ring and in tetrahedral bonds, with hydrogen atoms also present; Williams used them to deny claims for the uniqueness of biological material without claiming that HAC is actually "up there".

To Greenberg's calculation that, given

photochemical processes in grains, bacteria would be destroyed within a few thousand years at the most, Hoyle replied that he and Wickramasinghe did not claim that all the bacteria in space are alive, but that colonies of bacteria might enjoy a degree of protection in the nuclei of comets.

Briefly, the meeting allowed participants the opportunity to state their positions for and against the idea that life exists in the interstellar medium. Many direct questions were left in the air for lack of time. An hour of unplanned debate might have done everybody involved a great deal of good.

Philip Campbell

Paranormal weapons

Congress flirts with psychic war

Washington

THE Soviet Union is making "significant progress" on military uses of psychic phenomena, according to a US Army study which recommends that the United States should begin work on defensive measures. The report, disclosed in a new book on "psychic warfare"*, seems certain to find at least a few receptive ears on Capitol Hill. Earlier this year, several legislators commissioned a study by the Congressional Research Service (CRS), an arm of the Library of Congress, on the status and potential of "psi" research, and the resulting document, no doubt reflecting the congressmen's hopes, is remarkably optimistic.

After summarizing the "relatively consistent informal replication" of psi phenomena, which include extrasensory perception, psychokinesis, miscellaneous apparitions, out-of-body experiences, and reincarnations, the CRS report offers some "conservative" speculation on possible applications. Besides the rather mundane possibilities in animal training and finding lost wallets, the report notes that "remote perception, precognition, and retrocognition are of potential interest to intelligence agencies, law enforcement units, and activities involving surveillance". The report also warns that "low-level of micro-PK" effects might cause malfunctions in microelectronic circuits, and that before sensitive equipment becomes even more dependent on microchips, the phenomenon should be better understood.

The Soviet Union, CRS says, has already shown interest in dowsing for water, oil and minerals (dowsing is taught to professional mineralogists at Tomsk Polytechnic Institute). The Soviets are also widely suspected of investing tens of millions of roubles in psi research directed at military applications such as "remote hypnotic manipulation".

The US Government, by contrast, supported only four psi research projects, totalling \$179,500 between 1971 and 1978. The largest source of funding for such research in the United States is a private group, the McDonnell Foundation,

which donated \$500,000 to Washington University to establish a psychic research laboratory. That laboratory last year became one of the many victims of James "the amazing" Randi, a professional magician who specializes in exposing psychic research. Randi sent two of his protégés to amaze the researchers with their "psychic" abilities at spoon bending and other tricks, and then revealed at a press conference their true identities — after the researchers had published several papers on the subjects.

The CRS report dismisses such sceptics in a few paragraphs, noting that "the quality of criticism of psi research is often poor" and that polls of both the general public and the scientific community show a "generally positive attitude" towards psi research.

A CRS staff member refused to identify the congressmen who commissioned the study; the report itself, however, notes that a workshop on the subject conducted by the "Congressional Clearinghouse on the Future" elicited considerable interest on the part of "certain members and their staffs".

Senator Claiborne Pell (Democrat, Rhode Island) who is known to support psychic research (although a staff member, perhaps trying to play down the issue, attributed the senator's interest to the eclectic mind of a "renaissance man"), was quoted last week by the Associated Press as saying, "I personally have never experienced or seen a psychic event, but it seems to me that there have been adequate scientific articles written that would indicate that they do occur".

Stephen Budiansky

**Psychic Warfare: Threat or Illusion?*, Martin Ebon.

UK higher education

Oxbridge scraps the old rules

THE universities of Oxford and Cambridge have now introduced changes in their admissions procedures intended to increase the proportion of their undergraduates coming from British state schools.

Traditionally, applicants for Oxford and Cambridge have taken a special entrance examination peculiar to those universities, but in recent years more places have been awarded on the basis of performance in school-leaving A-level examinations. In both universities, about half the applicants for places have attended independent fee-paying schools, as have about half of those who are successful, although only five per cent of sixth-formers attend such schools.

The more radical of the changes agreed are at Oxford, where the undergraduate colleges have decided after a long and difficult review that candidates applying to the university after their school-leaving examinations should not in future sit the entrance examination. Candidates applying before finishing school study will retain the option of taking the examination. The practice of allowing post-A-level candidates to compete against others with less experience has been widely criticized, not least because few state schools are able to provide post-A-level coaching. This may be one reason why many state schools do not at present encourage applications to Oxford or Cambridge.

But the Oxford colleges failed to agree on a recommendation from Sir Kenneth Dover, chairman of the committee set up to review the admissions procedure, that pre-A-level candidates should be free to choose whether or not to sit the entrance examination. Some admissions tutors are reluctant to admit undergraduates without having seen their performance in the examination, and they have insisted on the right to advertise their preferred method of entry in particular subjects.

In another move which will increase the incentive for state school applicants, both Oxford and Cambridge have decided to stop giving awards to candidates who excel in the entrance examination. This feature of the admissions system has been criticized for encouraging premature specialization and, again, for seeming to favour candidates from independent schools, which are better able to provide the sort of special tuition likely to result in awards.

For the time being, Cambridge intends to keep the post-A-level entrance examination. If the two universities go their separate ways, with only Cambridge allowing post-A-level examination candidates, some independent school candidates may see Cambridge as the better bet: only there will they have the opportunity to make amends for disappointing school results.

Tim Beardsley