UK engineering

Institutional scrap continues

Britain's 200,000 chartered engineers are currently voting in a postal ballot on a recommendation from the board of the Council of Engineering Institutions (CEI) that control of its register of accredited engineers should be handed over from its own Engineers' Registration Board to the new Engineering Council, set up in the wake of the Finniston report. The outcome of the vote is far from certain; however, it is clear that if the recommendation is approved, CEI, which represents members of all the chartered engineering institutions, will have little reason to continue its existence.

The objects of the Engineering Council, listed in its Royal Charter, are to "advance education in and promote the science and practice of engineering . . . for the public benefit". Its members, who are appointed initially by the Secretary of State for Industry, will form a number of standing committees. The main purpose of these committees is to consult with industrial companies and educational establishments as well the existing professional institutions. Engineering Council on 30 September detailed its future intentions in all its areas of responsibility including the setting up of a register of engineers. The statement clearly was influenced by the previously expressed concern of CEI that the views of its members should be assured of an adequate hearing on the new council and that existing titles would be protected. CEI will ask the existing professional institutions to oversee the awarding of titles, and their independence is explicitly recognized.

However, the Engineering Council's document fails to satisfy the expressed wishes of CEI that the titles of Technician Engineer and Engineering Technician should be awarded only to members of institutions. Furthermore, the document fails to guarantee the CEI's wish for self-regulation for the profession. Despite this, the CEI board approved the move with a 25 to 10 vote, although some members apparently felt they had very little choice. Now a two-thirds majority in the postal ballot of members is needed to implement the transfer.

Mr Gerald Mortimer, CEI chairman, is satisfied that "somehow or other" the views of professional engineers will gain an adequate hearing in the new Engineering Council. The move has been welcomed by the Fellowship of Engineering, which points, out that "it will be essential for professional engineers to use their influence in the institutions to maintain standards".

Tim Beardsley

US research

Basic physics in doldrums

Washington

Basic physics research in the United States is declining in quality compared with Europe, according to a new study by the US Office of Naval Research (ONR). Moreover, US industry is "just not playing the game" in basic physics, with the exceptions of Bell Laboratories and the IBM Corporation. Finally, the study suggests that the US Department of Defense has supported less and less of the important contributions to basic physics in the past decade.

These are the gloomy findings of a study counting the affiliations of all the contributors to *Physical Review Letters* (PRL), a leading journal of research in basic physics, between 1958 and 1979. Author Ted G. Berlincourt of ONR and his colleagues also counted the affiliations of contributors to the leading journal for applied physics, *Applied Physics Letters* (APL), from the time it was founded in 1962 until 1979 and found the same trend.

The accompanying figure shows the most striking finding of the PRL count. The journal published an increasing number of papers each year until 1968, when the number levelled off at approximately 1,000. Yet from the mid-1960s onward, the number of foreign contributors rose steadily and was still rising in 1979 when the count stopped. The number of US contributors to the journal decreased correspondingly.

The ONR study speculates that this dramatic shift in foreign contributions might be caused by editorial policy. But George Trigg, who has been editor of *Physical Review Letters* since 1966, says no decision was made either to take more foreign contributions or to level off at 1,000 papers per year. "It has always puzzled me, because in the last 15 years the numbers of articles in other journals has increased" Trigg said. Apparently, no more than 1,000 are good enough to get through PRL's review system. The probable conclusion is that fewer and fewer US papers have passed muster.

Institutions outside the United States whose scientists are most successful in publishing in PRL are, in order, the Kernforschungsanlage Jülich in West Germany, the Atomic Energy Agency of Canada, and IBM Switzerland.

Berlincourt and his co-authors see several alarming trends emerging from their study. The "vigor" shown by basic physics outside the United States, and the parallel "vigor" of applied physics, "will without doubt be translated into stiff competition in all technology-dependent international arenas".

The applied physics work of US industry, they note, is "near stagnation". Private companies in the United States have contributed a declining proportion of

the papers in *Applied Physics Letters*. There has also been a decline in industry's contributions to *Physical Review Letters*; when Bell Laboratories' and IBM's contributions to PRL are taken out, industry has been contributing only 20 papers per year to PRL. IBM's and Bell Laboratories' contributions have declined since 1975.

From: "Performer affiliations and funding sources for research" by Ted G. Berlincourt, Harold Weinstock, Francis Narin, and Samuel R. Reisher.

The paper also notes that the number of physicists supported by the Department of Defense (DoD) contributing to PRL, the basic journal, declined precipitously after 1967, the year when the Mansfield Amendment determined that DoD should support only research directly relevant to military requirements.

Although the Mansfield Amendment was in effect for only two years, the trend it accelerated "had not been reversed by 1979, some eight years after the expiration of the Mansfield Amendment", even though senior defence officials since the Ford Administration have been saying they wish to rebuild DoD's ties to the university basic science community.

"The very marked erosion of DoD support for PRL-type basic physics . . . implies a significant decoupling of the defence establishment from the cutting edge of the scientific discipline, which, probably more than any other, has yielded the seminal scientific advances on which revolutionary military development are based. . ." says the study.

The poor performance of industry and DoD in basic physics research may be correlated because each year DoD reimburses industry for some fraction of relevant research through the Independent Research and Development funds. So US industry has invested very little — even of its DoD money — in basic and applied physics. Overall, the study suggests that the recent rise in US defence research funds may not automatically reinvigorate US basic physics.

Deborah Shapley