SCIENTIFIC AND TECHNICAL EDUCATION IN SCOTLAND

THE Staff Association of Paisley Technical College is to be commended for the way it has made a critical examination of the Scottish system of education with particular reference to advanced technical education. A memorandum submitted to the Robbins Committee on Higher Education is concerned mainly with the present system and the possible future structure of higher education in relation to the technological and technical training provided in Scottish Central Institutions. The Staff Association considers that there is no general lack of opportunity for higher education in science and technology as there appear to be only rare cases of qualified students not being accepted for the course of their choice. On the other hand, there is a distinct lack of information of the kind which would enable a potential student to make the most suitable choice.

The present courses in scientific and technological subjects are suitable, on the whole, for those attending them. If better guidance were available for students there would be fewer instances of students attending courses not suited to their abilities and inclinations. The ordinary B.Sc. in pure science, awarded by the Scottish universities, does not give a satisfactory qualification for teaching science, except at lower levels, nor does it provide a suitable qualification for any other career in science. Many students who are at present directed into pure science may have more aptitude and likelihood of success in a branch of applied science. There is insufficient opportunity for those who have demonstrated abilities above their chosen level to change to a higher level of education. The admission requirements and the exemptions allowed for entry to higher courses and professional institutions are unrealistic in some cases and should be rationalized.

The Association considers that there should be more opportunities for people who have already gained higher education qualifications to add to these; many older people who have not received any higher education could successfully complete courses in higher education if given the opportunity. Lack of information and guidance often prevent suitable people from starting on a new career. The various forms of membership offered by professional institutions safeguard the standards within the professions but, like educational institutions making external awards, they are slow to change syllabuses, examination procedures and admission qualifications to suit changing conditions.

There is sufficient freedom of academic and administrative policies at lower levels, but many higher educational establishments would function more efficiently if they had a greater degree of autonomy at the higher planning levels. This would encourage some much-needed integrative planning among higher education institutions and would lead naturally to over-all integration of the higher education system.

Copies of the memorandum are available from the Secretary, Staff Association, Technical College, Paisley.

WORLD-WIDE MICROSEISMIC STUDY

By DR. H. M. IYER*

Meteorological Office, Bracknell, Berks.

EVEN though the over-emphasized importance of microseisms for meteorological and oceanographical investigations has waned fast over the past decade the geophysical implications still remain interesting. The following are some interesting possibilities:

(1) The energy in microseisms is predominantly contained in the 0·25–0·1 c.p.s. band[1], with a peak in the neighbourhood of 0·15 c.p.s. Considering that microseisms contain an appreciable amount of surface waves of the Rayleigh type travelling in one or more directions[2] and in the frequency-range covered by them earthquake surface waves are seldom observed, it seems logical to use microseismic data to supplement investigations of earthquakes.

(2) The well-known idiosyncrasy of certain sources (usually intense storms) in the ocean giving entirely different microseismic intensities at two seismograph stations on the same coastline suggests strong refraction effects. When this observation is taken in conjunction with the characteristic peaking of the microseismic spectrum, it makes sense to postulate that the Rayleigh waves in microseisms are strongly affected by the transition from the ocean to the continent. The dispersion relation for such transition is very well known[3] even though its application to the examination of propagation of microseisms is often overlooked. I have suggested that the continental margin acts as a low-pass filter for microseisms[4]. The direct verification of this has to wait until a seismograph station is established in the deep ocean. However, a preliminary Russian experiment of recording microseisms on the floor of the Black Sea[5] and comparing it with simultaneous recording on land showed that 2-sec. microseisms were twenty times stronger under the sea than on land.

(3) The third interesting fact about microseisms is that they seem to be always present everywhere. In island stations like the United Kingdom, the basic background of microseisms is of the order of 2–3μ peak to peak, the activity rising to several times this value under certain meteorological conditions. On the other hand, there are places like California where the background of the order of 1-μ movement, with the usual spectral peak, occurs day after day with no specific source to which this could be attributed. The interesting possibility of the Earth being filled with 'seismic noise' cannot be over-ruled.

(4) For the very practically minded, the immediate problem of detecting low-level seismic signals calls for a knowledge of the directional spectrum of 'seismic noise'.

(5) Last, but not the least in importance, is the classical problem of the origin of microseisms. Several well-known theories of origin are in existence;

* Gassiot Fellow in Seismology.