SUMMARY OF DISCUSSIONS

Discussions were held in group and plenary sessions and led to the Project Three conclusions and recommendations set out on page 6.

In considering the special characteristics of technical education in an industrializing society, the seminar adopted a cautious attitude towards setting up new educational facilities or courses at the technician level, having in mind the very high capital and recurrent costs of most courses at this level. It was felt that, in the long or even the medium term, better service was often done to the cause of developing a high quality cadre of technicians by tackling the problem where it first arises, in the schools. Most delegates felt that investment in the overall improvement of both primary and secondary schools was a high priority. Questions of school curriculum content related to further education or employment were not considered owing to shortage of time. Where facilities were clearly too expensive or the numbers of a particular category of technician required were not sufficient to justify them, the seminar felt that there should be more general exploitation than at present of existing facilities in other countries, through neighbourly co-operation. Methods of regional co-operation were considered separately.

The seminar adopted the views of the group concerned with scholarship policy. They emphasized that the criteria for scholarships should include the relevance of the prospective scholar's proposed course of study to the country's economic development as well as his academic attainments - which, it was noted incidentally, were sometimes too high rather than too low for the particular purposes that a scholarship board had in mind. Personal qualities such as the student's ability and determination to complete the selected course of study were also considered important, as were an inquiring mind and the ability to work with minimum supervision. Delegates referred to somewhat haphazard or even chaotic arrangements in some countries for considering alternative offers of scholarships from different donors. It was agreed that there should be so far as possible a positive but realistic response to offers from bilateral, international, charitable and industrial agencies, and that the scholarships offered by home governments and other home authorities should be intelligently slotted in with these; also that the official machinery - normally a committee - should be so constituted as to ensure co-ordination.

Another process which should begin before the boy or girl left school was counselling or guidance about careers. Wherever possible this should be offered to children from the age of 14, and methods of getting it across effectively should include special training for selected prospective and in-service secondary teachers, career talks by industrialists, technical

teachers and other educators, open days or careers weeks in technical institutions (to which secondary school staff, school children, students and parents should all be invited), and careers exhibitions organized jointly by government departments and industry.

The importance of including general studies in the technician course curriculum was emphasized by two groups. Provision, at the larger technical institutions, should include a separate department with responsibility for general studies, liaising closely with other departments. In smaller institutions it was recommended that a senior member of staff should have specific responsibility for promoting and operating general studies throughout the institution; his or her enthusiasm and motivation were considered extremely important. This responsibility should include authority to draw within reason upon the services of other members of staff, and to use the resources of local industry. In most countries it was felt that the present situation as regards recruitment and training of staff to teach general studies left a lot to be desired. Recommendations were made on these lines.

Under this project, the seminar returned to the question of status for technicians. The seminar noted reminders by Dr Legg and Dr Chandrakant that it was unworthy for technicians to campaign militantly for higher pay if their quality and competence could not be seen to match it. Often they could be; and educational and technical attainment of technicians was often of a high order. If young people were to be encouraged to embark upon the courses which led to this attainment, the incentives must be there; and this meant that salary scales and conditions of service should reflect a recognition that when technicians were doing jobs at near-professional levels, which they often were, the differential between their own salaries and the professionals' should not be great. This recognition would come gradually with the successful performance by technicians of jobs that matched their education and training. In some countries, a lead needed to come from governments: several of them had for years been using for middle-level jobs either promoted tradesmen who could not quite cope with them, or professional engineers who would be better employed at a higher level and supported by people to whom they could delegate with confidence.

Along with salary scales pitched at a more appropriate level, which had to be adopted both by governments and by other employers, delegates agreed that systematic promotion opportunities must be made available; and that other contributions to the enhancement of the technician's status could be made through the establishment and recognition of technician societies or associations, or the expansion (as in the UK) of existing professional bodies to embrace the interests of technicians. "Post-technician" courses should also be provided to meet special needs, and these would help to promote status.

It was agreed that special measures were required to provide for the education and training of prospective self-employed entrepreneurs, in the interests of promoting small-scale industry generally and of getting individual enterprises set up on sound business lines; and that the entrepreneur who was already self-employed could be helped in a number of ways through informal courses for which the media of radio, television and correspondence could often be effectively used.

The group concerned, and the plenary session, recognized that there were still barriers to women becoming technicians in industry. Some of the traditional barriers might be broken down through the educational system,

but others not. The seminar considered that governments had a heavy responsibility for ensuring that the schools did not contribute to the preservation of such barriers; and that the authorities running polytechnics and other technical institutions had a less difficult job in ensuring that women and girls were not excluded from technician courses simply through the absence of appropriate facilities and arrangements or through administrative inertia.

One group, and the plenary session, considered the special requirements, in terms of areas of technician activity, of the Asian and Pacific regions. It was felt that transport, agriculture, the sea and the air were very significant areas; all the activities that went with these - for example mapping and surveying, oceanography and ocean engineering, telecommunications, aircraft and marine-craft, airports and sea ports, and technologies associated with the exploitation of water and other natural resources and the mitigation of natural disasters - gave rise to very substantial technician-level employment and therefore to technician education and training requirements. It was agreed to suggest that a regional clearing house or clearing houses might be set up which would have the function of collecting, sifting and disseminating information and ideas, solutions to problems and the results of research, in the areas of technologies particularly important to the region.

The seminar felt that although advanced technologies need not always be used and intermediate technologies were often more suited to the social and labour conditions obtaining in a particular country, it could not attempt to lay down any guidelines about what technologies were appropriate or how such technologies should be served by appropriate educational and training facilities. Often a new technology, and perhaps an advanced one, needed to be transferred to a developing country, and in that case the promoters of the industry or the individual enterprise concerned had the responsibility of providing specialist training; but governments should consider whether the provision of educational courses relating to the technology concerned was a public responsibility.

The seminar felt that technician courses had so far tended to be constructed too much in water-tight compartments, and that an interdisciplinary approach was greatly to be preferred in the interests of industry, of society, and of the individual. It was therefore urged that, when planning technician courses, the authorities concerned should always consider whether an interdisciplinary approach was desirable and feasible. This approach carried with it a requirement that teachers themselves be trained in an interdisciplinary way, and exposed to diversified subject areas. It was felt that only in this way would the technician be given the flexibility of mind that would make his knowledge and skills relevant to a variety of work situations and opportunities.