

PROJECT ONE

PRESENTATION OF LEAD PAPER 1 BY  
MR CAMPBELL AND SUMMARY REPORT OF PLENARY SESSION

In presenting the lead paper provided by the ILO, Mr Campbell asked that this should be taken as read, as he wished to make remarks of his own on topics not already covered by the paper. He first referred to the apparent confusion of terminology relating to various grades, for example, craftsmen, tradesmen, artisans and journeymen, and questioned what their relationship to technicians was. It had become increasingly recognized that there existed between the craftsman/tradesman and the technologist/engineer someone properly called a technician, who might also be a foreman or supervisor. In the case of the mining industry, he could also be a fireman, oversman, shift-boss, mine captain. Under whatever title, these men normally directed the work of the craftsmen/tradesmen, semi-skilled workers, operators and labourers.

The National Coal Board in the UK had, since 1954, a scheme of certification for mechanics and electricians of the mine, advanced mechanics and electricians of the mine, and unit or chief engineers. The mechanic of the mine was of craftsman level, the advanced mechanic of technician level, and the unit engineer invariably of professional or degree level.

The name 'technician' was not used much a few years ago except in laboratories. The mid-level man, or foreman/supervisor, was invariably a very competent tradesman/craftsman who was dedicated to his job, proficient in assembling and disassembling mechanical or electrical apparatus, and good at "trouble-shooting" because of his long practical experience. The NCB's "Codes and Rules" governing the installation, inspection and maintenance of certain mechanical and electrical apparatus such as winding engines, steam boilers, compressors, required that reliable men carried out these inspections, irrespective of whether their qualifications were informal or formal. Mr Campbell thought it a pity that a situation was arising that unless a person held a certificate, however low its academic standard, he was rated inferior even though he might be a very competent craftsman with long work experience and appreciation for his job, which might exceed that of the young, technically educated foreman or supervisor.

Mr Campbell drew the seminar's attention to the tri-partite structure of the ILO which had a bearing on vocational education and training. The ILO represented governments, employers, and workers' organizations, and these three parties should collaborate in establishing national plans, in devising schemes of certification and so on, so as to make training and educating for employment effective.

Technician level training raised questions that required careful thought, e.g., should it be terminal, or open-ended to allow persons to progress to be engineers? In one (non-Commonwealth) country problems had just arisen because students had recently demanded the upgrading of four technical institutes to engineer level. The national department of vocational education had requested the ILO to assist, and to train craft-based or industry-based instead of academic technicians. This was a delicate issue for both UNESCO and ILO.

Mr Campbell said he would be particularly interested in the findings of this seminar as he was working on a project document for a national department of vocational education. The project, which would attract international aid, was based on Modules of Employable Skill (MES), a concept which he fully supported.

Mr Campbell said he would like to add some thoughts on the subject of overall national planning and training in the planning area. He had attended a national seminar on "Needs and Priorities in Development Training and Research in Thailand" organized by the Asian Development Institute, and participants had made comments relevant to the present seminar such as: manpower planning was not an exact science in any country, consequently realism was difficult; economists were too dominant in planning, and there were often no technical specialists to evaluate projects; curricula must suit the real needs of the people; social, cultural, and economic differences between countries affected the transfer of ideas between countries; each country must therefore be selective about experiences of other countries unless properly adapted to its needs; ADI as an international body had resources which could help by comparative studies between countries. Among the conclusions of that seminar were that, at least in the field of planning, the trainers of trainers lacked work experience; training needed more follow-up and evaluation; and the private sector tended to be ignored - at the seminar one Fellow of the ADI was representing the private sector, but no other participant.

Mr Campbell said that, as a mechanical engineer by profession his work experience was mainly in the mining industry, in engineering education, and in technical and vocational training, in many different countries. He was not a national development planner, but had had to study national plans in order to determine training objectives. His experience had convinced him that more careful research was essential to planning; that National Plans should be rolling plans, reviewed annually as conditions changed; and that training effectiveness should not be judged on numbers passing through courses, but on the number who find relevant employment after training. He was also sure that, no matter how well a person was educated or trained, his ability to perform efficiently should be an important criterion for promotion, and that proven ability and work experience were vital when selecting planners in particular.

After thanking Mr Campbell, the Chairman invited preliminary questions and comments, and the following points were made:

### Modular Systems

One delegate suggested that "Modules of Employable Skill" (MES) might not be suitable for small countries where the need was for general repairers, another that the system might not be applicable to training at the higher technician level, and another that it could be flexibly used for up-grading

skilled technicians, but not for training the school leaver. Mr Campbell expressed the view that MES could in most cases provide what the employer wanted; UNESCO had proposed borrowing MES for use in secondary education, and the system had been described as a complete package for all training. It was also thought useful for curriculum development, taking this process away from the instructor and placing it in the hands of specialists. Turning from MES to the credit unitary system, which was based on the same principles, Dr Legg pointed out that the latter was now well established in the UK and could certainly be employed for advanced technician training. (He enlarged on the relevance of this system in his Lead Paper 3, section 6, "A Systems Approach to the Technical Education Process").

### Definition of a Technician

The view was expressed that the seminar (and the Commonwealth) need not accept the negative attitude adopted in the lead paper towards defining a technician. The important thing was that the roles that engineers and technicians had to play should be indicated by an identification of needs in each country. The view was also expressed that, since the technician level of work seemed to be generally understood by the seminar, not too much time should be spent in attempting to define a technician. It was agreed that, at least for the purpose of the seminar and probably more generally, the term "technician" should include the middle-level man and woman in commerce, agriculture, etc. Dr Legg pointed out that no amount of defining had yet removed certain obscurities; in some disciplines, like design, the relationship between a professional designer, a technician designer and a craftsman designer was by no means clear; and in spite of the establishment and the initial work of the Technician Education Council and the Business Education Council in the UK, there was still doubt about who was a technician.

### Status of Technicians

More than one delegate felt that the registration of technicians and the establishment of national registration boards would make an important contribution to technician status and to technician education. It was generally agreed that the aim should be the creation of a socially identifiable group of technicians, with mobility into and out of technician level; provided there was greater consensus about technician standards, geographical mobility (e.g., within EEC or the Commonwealth) could also be enhanced.

### Technical teachers

A delegate drew attention to the paramount importance of keeping technical teachers in teaching and not losing them to industry; the national bodies concerned ought to develop collaboration between technician education and industry in this matter.

### Planning

Referring to the needs for overall planning and for the joint planning of the technical education and industrial training systems emphasized in the lead paper, delegates reported that some of the existing boards and councils did not have the necessary overall responsibility for thinking about numbers of technically trained people required in the various categories, or for guarding against their over-provision or under-provision. There was complete agreement that only a close partnership between industry, educational institutions and government could bring about the correct balance. The point was made that it was vital to determine levels of responsibility and to

forecast skill requirements so as to ensure that these were provided for by the training establishments; also that the lead time between planning for the training of technicians and their qualification needed to be taken into account. Finally it was emphasized that technicians had an important role in helping to evolve the development plans not only of industries but also of countries.