

THIRD NATIONAL CONFERENCE ON EXCHANGE OF PERSONS

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Report of Workshop #I - 13: SCIENCE AND ENGINEERING

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Many diversified programs were discussed by the panel members and delegates in a variety of fields of science and engineering. These have been supported by foundations, government and NATO groups, as well as a few financed entirely by private industry. It was evident to the group that there is a need for correlation of information on exchanges in engineering and science since many of the groups presenting data would not be included in any known list.

The balance of exchange students is at present heavily weighted on the side of foreign persons being trained in the United States. It was felt that there was need for a more equitable balance by encouraging American students to undertake study abroad. It has been evident to students and the general public that advantages accrue from European graduate education, but at the under-graduate level these are not so apparent or universally accepted. The American student going abroad must learn to command adequately the foreign language and this appears to be one of the major barriers. Many more opportunities are available than we have qualified American language students to fill. This language training must begin earlier in the educational process and intensified at all levels.

It was felt that the criteria for selection of European trainees coming to the United States, and United States trainees going to Europe, should be very carefully examined. Proper match between secondary training, early university study, and environmental background, does much to aid the student in getting the most from his exchange experience. Some of the most effective selections have been accomplished by professional groups who know both the universities and the field of study. An excellent example is the selection of Indian students to study under fellowships sponsored by U.S. steel companies. The universities concerned are well selected as outstanding in engineering and ferrous metallurgy.

Attention was given to the need for exchanges at other than university level, particularly in the Asian and Middle Eastern countries. After discussion it was recommended that exchanges of teachers from these under-developed countries, as well as members of qualified professional groups, would be more advantageous. It was also noted that the training should be matched to the particular need of the country; for example, civil engineers and sanitary engineers are much needed in the Middle Eastern and Asian countries, and often better knowledge is obtainable in these fields from state health and road building departments. Often exchange

education of a foreign citizen teaches him how our work is done with adequate service facilities. When he returns to his country these facilities are usually not furnished. We must match the exchange experience to the limitations he will meet when he returns.

Note was made that cultural exchange is often separated from scientific exchange, and after discussions, the group felt that the science and engineering exchanges were truly cultural exchanges in the proper sense and should be such.

Travel for these students and the expense involved has been a major deterrent to increasing the numbers of exchange students. Any methods of utilizing off-season travel with standard carriers should be helpful in promoting exchanges.

The members of the group felt optimistic about the number of persons involved in engineering and science exchanges in the past, but hope that industrial participation could increase the numbers substantially in the next few years.

Addendum

The following major problems peculiar to exchanges in science and engineering were isolated and stressed for serious attention:

1. Language limitations among American students;
2. Characteristic differences in background training that make exchanges at the college level difficult and precarious;
3. Personnel, equipment, and technological limitations, especially in underdeveloped countries, that make some of the training in this country inapplicable even unusable;
4. Contrasts in income, living standards, and living conditions that make exchanges to certain countries unattractive to Americans;
5. Vocational interest of most students from abroad, hence the cultural aspects, though no less important, are secondary and incidental.