SUMMARY OF DISCUSSIONS

THE STATE OF SCIENCE TEACHING IN COMMONWEALTH CARIBBEAN SCHOOLS

In order to achieve a good exchange of information at this seminar/workshop, participating governments were asked to provide country papers on the state of science education in their countries. In general, these papers dealt with the status of science education at the primary, secondary, and teacher training levels. They were presented by representatives of the various countries during the first two plenary sessions of the meeting.

Among other things, the difficulties and problems which Caribbean countries encounter in their efforts to equip their school science laboratories, and the attempts of the various Ministries of Education and other bodies in the development of locally produced items of equipment were highlighted.

Primary School Level

Until recently, the type of science taught in the majority of the countries was "Nature Study". Although most countries suffer from lack of a common policy for science teaching in their primary schools, it appears that attempts are being made in some of the countries to develop and introduce into their school systems a structured science programme which is related to their local environment.

Professional support has been or is being given in most territories by science specialists from the secondary schools, teachers' colleges, and officers of Curriculum Development Units where such bodies exist, and by advisers from such agencies as UNESCO, UNICEF and the British Council.

Most of the programmes already being developed are discovery method oriented; they involve experimentation by pupil participation and consequently require an adequate supply of equipment. Unfortunately, however, basic equipment needed for this type of approach to science learning is sparse or, as in most cases, non-existent. Most primary school teachers have had little or no special training in teaching science at this level. As a result of this poor background in science, teachers lack the confidence, knowledge and the skills that are necessary for effective science teaching, and are unable to identify potential sources in their environment that might be used in the classroom for teaching the subject. Hence the improvization which ought to be a common feature of science teaching is often absent. It is only in recent years that attempts have been made to make science a compulsory subject in the first year of most of the primary teacher education programmes in the teacher training colleges. Even now, though science programmes are compulsory for first year students in almost all teacher training colleges, they are optional in the second year.

Judging from the poor priority accorded to this subject, science as a subject in the school curriculum is rated low by teachers and by the Ministries of Education. The needs identified in the various Country Papers presented

were as follows: (a) in-service teacher training; (b) provision of basic scier e equipment; (c) facilities for improvisation of basic science equipment; (d) provision of science rooms; (e) adequate reading material; (f) provision of science resource persons.

Secondary School Level

In most schools in all territories, science is taught as General Science, and separately as Physics, Biology, and Chemistry, mostly by specialist teachers in these areas.

At the junior secondary level, General Science is compulsory for all pupils, and currently West Indian Science curriculum materials are being used in a number of the schools in most territories.

At present most of the schools gear their senior high school programmes to the examination requirements of external examining bodies like Cambridge and London Universities. It is expected that pilot schools, selected from throughout the Caribbean, will take the Caribbean Examination in 1979, in the subject area of integrated science; the Caribbean Integrated Science Curriculum will be introduced into these pilot schools in the 1977/78 academic year.

In most schools, there is a heavy reliance on teacher demonstrations and chalk and talk exercises. Students have very little opportunity to handle equipment and to carry out practical work in science. By and large, this state of affairs was attributed to a number of reasons including the following:

(a) lack of sufficient equipment;

(b) shortage of adequately trained teachers;

(c) large class enrolments.

Participants highlighted a number of difficulties and problems they encountered in providing their schools with suitable science equipment.

The only choice that teachers have is to select materials that are listed, and sometimes briefly described, in foreign catalogues, usually of UK or US origin. A few schools use sources in Canada and Japan. In almost all cases, the equipment is ordered without prior experience of the suitability of the equipment for the local situation.

Apart from the fact that items are costly and foreign exchange is hard to come by, it was noted that the ordering of equipment for schools is generally beset by delays of up to two years in some cases. These delays tend to arise for a number of reasons, such as poor processing of orders by schools or purchasing agents, cumbersome procedure within the various government ministries involved in importing equipment, and the need in most cases, of having to order through the Crown Agents.

Furthermore, apart from these delays it was noted that rapid teacher turnover leads to ordering of equipment by teachers who leave before the order arrives.

Some participants thought that increasing the grants given to schools might help alleviate these difficulties. Others were of the opinion that a central purchasing unit ought to be set up within each country to handle bulk

orders despite the problems of organization, personnel, storage and distribution that this might pose.

Efforts of Countries in the Production of Low-Cost Equipment

At present no definite organized effort is being made in any of the countries to mass produce equipment for schools. None of the countries has, established units for producing locally-made science equipment to support local curricula, although improvization has been encouraged. Reasons given for this state of affairs includes the following: unavailability of competent teachers, the small school population in most territories, and the small margin of saving. Some attempts are now being made, however, by a few of the countries to produce prototype equipment such as test-tube racks, circuit boards, tripod stands and cell holders. These have generally been produced during teacher in-service training courses and, where they exist, by the Industrial Art Departments of some schools.

One thing that is greatly needed in the Caribbean is the development of equipment related to the curricula currently in use or in the process of being developed. Efforts in this direction, it was noted, ought to involve teachers in all stages of production. Since, in some cases, available equipment is either not used at all or used ineffectively, courses should be organized for teachers on the use of science teaching equipment.