

CENTRES AND INFORMATION SOURCES

An important resource is the science education centre or teachers' centre, and it seems appropriate to report briefly on those that exist in the Caribbean.

The oldest and best-known centre regionally and internationally is the Science Education Centre of UWI Mona. Created by and situated in the Physics Department, staffed by a variety of science teacher-educator members of the regional university, and funded by a grant from the Jamaica Ministry of Education to the University, the Centre finds itself in an ambiguous position. Funded by only one government, the Centre has a special responsibility to Jamaica - and there are more than enough issues in that country to keep the staff fully occupied. Meanwhile the Centre, by not being tied to any specific programme or project in the University, could fulfil a regional co-ordination role not provided by any other body or individual in the Caribbean.

The southern Caribbean would welcome some regional or international finance for the Science Education Centre, so that contributions from it to the region would be seen as a legitimate activity. Other science-educators in the region, however, welcome the regular Science Education Centre Newsletter (more of a journal, really); the speed and care with which it responds to requests for advisory services; and its dissemination of publications from outside Jamaica (23).

The history of the Centre reflects in an interesting way the science education developments in the region : first a Physics Centre, (it was renamed the Physics and Maths Centre), then the Science Centre for Schools, and eventually the Science Education Centre, which name without further modification allowed it to accommodate staff and activities for primary science.

Jamaica also has rural centres, first conceived in the early 1970s as a cupboard or two in strategically located schools, a small stock of equipment from UNESCO, and a science teacher willing to organise the loan of equipment to secondary schools in the locality. The current primary science centres, though not the same centres, and equipped with OAS materials, have the same general aims and strategies and one of them now has, additionally, a delivery van envisaged but not obtained at the beginning of the decade (22).

In Barbados, the Barbados Association for Science Education (BASE) established its Science Centre with the co-operation of the Faculty of Natural Science of UWI Cave Hill. The equipment was solicited by BASE, the room was provided by the Natural Science Faculty, and the staff of the School of Education were willing to open up the room for teachers on request. The very useful resources collected by BASE were only used as long as teachers could find someone in the office

to handle their requests, but School of Education staff, by their very nature, are more often out of the office than in it, and teachers are often unwilling to trail out to the university on the off-chance that they can get what they want. Eventually, Natural Science needed the space, and the Centre moved to Erdiston Teachers' College. The move was a successful one, and the Science Centre is now maintained jointly by BASE, the College and the Ministry of Education. It is well equipped with power saws, drills and other tools, and teachers attend ad hoc workshops at which they construct circuit boards and similar equipment (3).

In Trinidad, proposals for a science centre were laid in turn by Iolo Williams as he developed WISCIP, by the UWI/UNESCO regional teacher training project, and by the UWI St Augustine in-service Diploma in Education programme. Apparatus and materials came from UNESCO, books and audio-visual aids came from the British Books Development Programme, and the space and furniture were made ready by the University. Free and low-cost sources of materials were approached, publishers were invited to put the School on their list for review copies, and contacts with curriculum developers were established.

Donors proved generous, and the centre was quickly and easily set up without any money at all. It has become not so much a science centre as a science component within a Teachers' Centre, but the opportunities for borrowing equipment and books are limited to the unpredictable occasions when a science-educator is in the office. Interestingly, teachers make much more use of the printed resources than of the apparatus and materials, perhaps because they are more visible and also form a more comprehensive collection. The centre serves as a focus for science teachers - there they have meetings, direct their inquiries, convey their ideas, renew old acquaintances and make new friends. Perhaps it would be more accurate to describe the Trinidad and Tobago science centre as a concept rather than a physical reality, for its library is a staff member's office, its laboratory/meeting room is primarily a School of Education teaching room, and its staff member is employed full time to teach students of School.

While Guyana has no science centre, its Curriculum Development Centre with secondary and primary science components serves many of the functions provided by Jamaica's Science Education Centre. Its proposed Equipment Production Centre and rather more distant Resource Centre should meet any remaining needs (7, 8).

Two science teachers associations are known to maintain small libraries rather than centres. ASETT, allocated space by the Trinidad and Tobago National Commission for UNESCO, built shelves and is developing a collection of books, reports and periodicals. StVAST has a room at the University Centre in St Vincent. Assistance for these libraries has come in the form of materials provided by the Caribbean Regional Science Project (53), publishers' agents, and many international organisations.

Teachers of integrated science and life science need access to information about local flora and fauna. Jamaica is particularly well served in this respect. The celebrated Institute of Jamaica has a museum whose insect collection is especially comprehensive and whose herbarium is very fine indeed, the collection covering a great part of the Caribbean (54). The Natural History Society, an associate of the Institute, publishes Natural History Notes, a readable and

respected periodical (55). The ASTJ has for decades conducted an annual Easter ecology field trip, collecting an enormous amount of information about one river and two sea shore habitats, although this, until recently, has never been compiled into a form which can be readily consulted. However, in 1981, the UWI Mona Biology Diploma in Education students, as part of their course work, sifted the materials and compiled a dossier which deserves to be entered for a CASME award. The Herbaria at UWI Mona and UWI St Augustine are very willing to receive visits and request for identification from teachers (56).

Two major science education conference reports have been produced in the Caribbean. The first (Reay, 1974) reports the UNESCO/CEDO Workshop on Integrated Science and Teacher Education in Barbados in 1973, and this has been found a useful resource for teachers, student teachers and teacher-educators in the Caribbean and elsewhere. The second (Lancaster and King, 1979) reports the CROASE/NSTA regional Conference on Science Education for Progress in Barbados in 1979. Consisting largely of abridged versions of papers presented at the Conference by Caribbean and North American science-educators, this report promises to be a much-used resource in the future.

An important component of the CXC integrated science syllabus is a knowledge of nature resources in the Caribbean, not yet documented for the secondary school level. Guyana brought teachers together in workshops to prepare resource materials on Guyanese industries (e.g. rice, bauxite, wood), and these were distributed to local schools preparing children for CXC. They are currently in the process of editing for wider distribution and may stimulate the production of similar booklets about the resources of other countries (24).

Science education journals are an excellent resource for science teaching. Perceiving a need for a listing of what is available, or at least what has been read by individuals, the School of Education at UWI St Augustine has begun the publication of a regular series of Annotated Bibliographies for Science Education. Once again, here is an opportunity for educators at various levels to collaborate, and contributions are invited from any science-educator anywhere. The method of preparation and production is relatively simple, and financing has so far not proved difficult. There are indications locally, regionally and internationally that the Bibliography series fills a need first perceived by the British Council and ICASE although libraries and teacher-educators have responded better than teachers (57). Dalgety and Farley have suggested the need for annotated bibliographies on texts and tradebooks.

In the Bahamas, Belize and Guyana, great distances separate teachers from other teachers, workshops and teacher-educators. Even in Jamaica, many teachers would have to travel half a day to reach the Science Education Centre. While a Centre in each country ought to be high on the priority list of resources for science education, teachers (especially those in the large countries) cannot expect to be kept up to date unless they are stimulated in school. At least one senior member of the science staff should read; but the post of Head of Department is not institutionalised in the Caribbean, and teachers anyway tend to give low priority to the reading of professional literature. Special attention should be given to 'customer appeal'; while local science teachers' association journals and newsletters seem to be read fairly well, the most successful formula, whatever it is, appears to have been found by Chem 13 News, published by the

University of Waterloo in Canada. Any sixth-form chemistry teacher who receives the monthly periodical really seems to use it.