EDUCATION IN THE COMMONWEALTH

SPECIAL EDUCATION IN THE DEVELOPING COUNTRIES OF THE COMMONWEALTH

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SPECIAL EDUCATION

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OF THE COMMONWEALTH

This publication, prepared at the request of the Commonwealth Secretariat is derived from a thesis submitted to the University of London by J.H. Eedle.

The views expressed are not necessarily those of the Commonwealth Secretariat.

Other titles in this series:

1. Examinations at Secondary Level (1970)
2. Directory of Educational Provision for Handicapped Children in Developing Commonwealth Countries (1971)
3. Education in the Developing Countries of the Commonwealth - Research Register 1970-71 (1972)
4. School Building and Design in the Commonwealth (1972)

FOREWORD

The study covers the independent developing countries of the Commonwealth and a number of dependencies.

The major types of handicap are described. For each, an attempt is made to assess the dimension of the problem, and estimated incidences are discussed. The causes of each type of handicap are listed and its manifestations described. Problems relating to handicap in developing countries, including difficulties of diagnosis and assessment and adverse public attitudes, are considered. Descriptions are given of educational provision in the developing countries for the major forms of handicap. Suggestions for future educational development are made.

Malnutrition is considered separately as a contributory factor to handicap.

The study then deals with some related questions, the provision of buildings and equipment for handicapped children, the promotion of positive attitudes towards handicap by the public at large, and the role of agencies other than national governments in the special education programme.

The final chapter suggests possible lines of development for special education in the low-income countries. A list of proposals derived from the body of the workd concludes the study.

The study recognises the many claims on governments for educational funds and the unlikelihood of handicapped children being given high priority. The case is made for increased efficiency in the existing provision through greater co-ordination of effort, more effective staffing, and the concentration of effort in a limited range of projects commensurate with resources. It is suggested that governments might consider supporting a basic system of special education which can be expanded as resources become available. Such a system would be both modest in its demands on public funds and a valuable area for experimentation, the results of which could well benefit the education process as a whole.

SPECIAL EDUCATION
IN THE DEVELOPING COUNTRIES OF THE COMMONWEALTH

INTRODUCTION

"1. Everyone has the right to education. Education shall be free at least in the elementary and fundamental stages....

"2. Education shall be directed to the full development of the human personality."

Universal Declaration of Human Rights: Article 26.

"The child who is physically, mentally or socially handicapped shall be given the special treatment, education and care required by his particular condition."

Third Declaration of the Rights of the Child: Principle 5.

"Educational programmes should take into account the special problems of disabled children and young persons and their need of opportunities, equal to those of non-disabled children and young persons, to receive education and vocational preparation best suited to their age, abilities, aptitudes and interests."

International Labour Conference, 1955, Recommendation 99: Recommendation concerning Vocational Rehabilitation of the Disabled, IX Special Provisions for Disabled Children and Young Persons, paragraph 37.

The handicapped exert little political influence. In the developing countries, particularly, governments beset by political, social, financial and economic problems on a formidable scale, have been unable to allocate high priority to the education, training and rehabilitation of their handicapped citizens. In the three declarations cited above, most members of the United Nations acknowledge implicitly and explicitly that the care and development

of the handicapped are essentially governmental responsibilities, yet the allocation of funds for those handicapped physically or mentally through birth, disease or accident, lags all too far behind expressions of official goodwill. Few governments in poorer countries feel able to implement these undertakings by making provision on any considerable scale for the handicapped when preparing national development plans. By no means all current plans contain even a passing reference to the handicapped: of those which do, few express more than a statement in principle of the desirability of some provision being made.

Some would doubt the advisability of promoting at this juncture the cause of the handicapped in developing countries, pointing to the great problems facing governments in their attempt to provide educational facilities for ordinary children. Faced by serious and growing problems of unemployed school leavers, governments may easily consider that developments in special education must be delayed until a more propitious time. Many poor countries are falling well behind their educational targets and yet at the same time are rapidly approaching their budgetary ceiling for educational expenditure. The increase in school-age population is nullifying benefits which would otherwise accrue from growth in the national economy. Very soon a number of these countries will reach the point at which either they accept a decreasing percentage of children in school or they evolve less costly methods of providing education. In the context of such a stark situation the case for inclusion of the handicapped in the overall state provision of education will be heeded only if it is advanced soberly and convincingly, with skill and persistence. Facilities for the handicapped should be shown as in the national interest as well as in the interest of the sufferers and their families. Appeals for provision on behalf of the handicapped will be more effectively based on economic advantage to the country than on humanitarian and emotional grounds.

1970 saw the beginning of the Second Development Decade and the International Rehabilitation Decade. The Fifth Commonwealth Education Conference, meeting in Australia in February 1971, had special education on its agenda for the first time, and accepted in principle that provision should be made within the resources available. The moment, therefore, seems propitious for action to be started. During the coming decade the number of handicapped children in developing countries of the Commonwealth (some five millions in all) will increase by about one third. If they are to be given the slenderest hope of enjoying education and training to fit them for an independent and self-confident adult life as fully participating members of their community, the plans should be formulated without delay. Many of the handicapped children who will need help and education during the decade are already born. Only a comprehensive approach to their problems and a radical reassessment of special educational provision can ensure that their lives will be worth living.

This study attempts to bring together information about all the major types of physical and mental handicap affecting children in the developing countries of the Commonwealth. Until the problem has been defined strategies cannot effectively be determined. Until realistic aims are formulated programmes cannot efficiently be evolved.

It will be apparent that information about the incidence and distribution of handicap is, in the case of many countries, slight or non-existent. The degree of disability which constitutes a handicap will in any case vary according to the society and the location. Nevertheless, it may be assumed that the incidence of handicapped children in need of special educational

provision will be not lower than that in a richer country such as Britain. The Isle of Wight survey (1) indicated that about 16% of all children could benefit from special educational treatment for a greater or lesser period. This implies that the efficiency of the schools in developing countries are at present adversely affected by the presence of undiagnosed mildly handicapped children. Governments in these countries might well consider the probable extent to which they are already devoting scarce funds to the unwitting and unprofitable support of an appreciable number of these children. Primary schools usually have unselective intakes; the teaching quality in lower primary classes is rarely high. These two factors make it certain that slightly backward children, visually-handicapped, hearing-impaired, mildly epileptic children, and children with slight motor malfunction, with minor cerebral disfunctions, are already in the ordinary schools unrecognised, undiagnosed, unassessed. They can gain little for themselves and may prejudice the chances of their classmates. The numbers of children who drop out of school because of ill-health, disability, backwardness, deprivation or prejudice has not yet been investigated in depth. They could well prove disturbingly high.

The study puts forward for each type of handicap proposals for appropriate educational provision based on practices which appear to have had most success. The case for special education is strengthened by the potential value of developments in this field to general educational practice. For example, research undertaken into the learning processes of mentally handicapped children can provide valuable guidance to teaching methods in all schools. Techniques for diagnosis, assessment, measurement and testing can have validity beyond their original purpose among handicapped children. Teaching techniques, curriculum construction, programmed learning, educational materials, school building design, prevocational and vocational training methods can all benefit from research and experimentation undertaken initially on behalf of restricted numbers of exceptional children. The developing countries, faced with the choice either of making no provision for handicapped children or of using them as pilot groups for new educational developments, might well decide on the latter.

Although it has not been possible to investigate the problems in depth, three major problems associated with handicap have become apparent in the course of the study. These are the problems of malnutrition, adverse public opinion and employment after finishing at school. All the evidence points to malnutrition as the direct origin or the aggravating factor of a wide range of physical and mental handicap in the poor countries. It would not be difficult to regard whole school populations in such countries as "at risk" from malnutrition and to assume that to some extent every child's performance must be adversely affected. Public opinion and social attitudes vary by country and type of handicap. Recent research indicates that deformity occasions greater prejudice than less obvious handicaps, but that the greatest revulsion is accorded to those afflictions which cause most fear in others, leprosy and epilepsy. Campaigns of public enlightenment are essential if handicapped children are to be brought forward for treatment and education, and if they are to be accepted eventually into their communities. The third major problem is that of employment. With such a high proportion of unemployed school leavers in most developing countries, the claims of the handicapped seem very weak. On the other hand, to raise hopes by providing education and then dash them by making no provision for the useful employment of the handicapped school leaver, may be worse than making no provision. The solution in many cases must lie in sheltered workshops or co-operative rural settlements. This progression from school to employment should be planned in detail before a project in special education is started.

The study concludes with some suggestions for co-operative action in an attempt to ensure that maximum administrative effectiveness is obtained. An extensive reconsideration of the preconceptions and traditions in activities among the handicapped is called for, especially with regard to the presentation of a common case on behalf of all forms of handicap. Despite the very real fears about possible disadvantages of such grouping, it seems essential for co-ordinated activities to be undertaken by both governments and agencies working with the handicapped. A combined approach to a government has more prospect of success than a multiplicity of appeals from separate groups. On the government side, too, if overall responsibility for all aspects of the education and training of the handicapped is vested in one Ministry, working with an inter-Ministerial committee, effective negotiations are facilitated between official and non-official bodies.

The longer the delay in incorporating provision for the handicapped into national education and employment programmes, the more intractable will the problem appear. The number of handicapped children surviving infancy in the developing countries is increasing. At the same time, school-age populations are expanding faster than the national resources from which schools and teachers can be supplied. In these circumstances the limited funds available for the handicapped will tend increasingly to appear so inadequate in the face of the obvious need as to make their allocation seem futile. Before this stage is reached, the basic framework of a system of special education should be built, to be expanded as and when resources become available. Such a policy has much to commend it in comparison with the ad hoc involvement of governments characteristic of so many countries. Reasons of economy and efficiency suggest that countries could benefit considerably from an early official consideration of means by which special educational services can best be initiated and developed within the resources available and within the context of the overall planning for education, health, social welfare and labour programmes.

The purpose of this study is to provide background information and some details of comparative practices as a basis for that co-ordinated and comprehensive planning which will be necessary if the handicapped in the developing countries of the Commonwealth are to enjoy as full participation as possible in their societies.

Reference

(1) "One in six need help". Times Ed. Supp. 24 July 1970.

VISUAL HANDICAP

Dimension of the Problem

The 750,000 blind children in the developing countries of the Commonwealth (1) have little hope of leading a full and active life, but at least they usually suffer less ostracism and active rejection than the epileptic or the leper. Very many of them, however, die from neglect in early childhood, more drift (or are urged) into the life of the professional beggar, a mere 2% at present can find places in the formal educational system (2). Yet of all the common handicaps, blindness tends to arouse the quickest sympathy and the readiest assistance, probably because even the least imaginative sighted citizen can formulate to himself some sort of direct impression of the effects of blindness. Despite the opinion of Helen Keller, who considered profound deafness the worst handicap of all, the public at large regards the lack of vision as the most terrible of familiar handicaps.

Blindness is a term which may cover a wide range of disabilities from the very rare complete blindness resulting in an inability even to distinguish light from dark through less profound loss of vision to the partially-sighted child who, while not suitable for education in a normal school, can nevertheless make much valuable use of his limited sight with the assistance of appropriate aids. This means that the definition of blindness must be related to the purpose for which sight is needed: a child may well be "educationally" blind while retaining sufficient vision for a fair degree of mobility; an adult may be "economically" blind while still able to manage his personal life in the home. A further complication is that defective vision frequently accompanies other types of handicaps. Some 60% of brain-damaged children, 80% of mongols, 75% of children with cyanotic heart disease and 25% of educationally subnormal children have visual defects in addition to their primary handicaps (3).

Incidence

No accurate information yet exists for the incidence of blindness in most developing countries. An estimate of world blindness gives a total of some 15 millions, increasing annually by nearly 400,000, which is an overall incidence of 450 per 100,000 of population. It is generally agreed that the greater part of this blindness is unnecessary. The proportion of preventable blindness probably amounts to two-thirds of the total (4). Of the one million Indians blinded by cataract alone, most could even now be cured (5); a further million cataract victims are to be found in Pakistan. Such overall figures, however, conceal wide variations in incidence. While blindness may be low in some areas, as among the Amerindians of Guyana (6), in parts of the Luapula Valley of Northern Zambia the incidence may rise to nearly 10% of the total population, of whom 82% lost their sight in the first few years of life (7). A survey of the Lower River Valley area of Malawi conducted by Government ophthalmologists produced figures which show that in some schools trachoma was present in as many as 60% or 70% of the pupils (8). Although trachoma does not necessarily cause blindness, the W.H.O. has estimated that in areas where practically everybody has trachoma at least one child in a hundred will be blind (9).

The incidence of blindness per 100,000 of total population in a more developed country tends to run at about 200; among children in these countries

the frequency is a little more than 50. An incidence of about 250 has been suggested for the English-speaking Caribbean (10), although other estimates put the figure at about 400 (11). An overall rate for Ceylon of 450 has been calculated, of whom 10% to 15% are children, giving a blind child population of between 4,500 and 6,750 (12). Of these,332 - less than 1% - were at that time in school. For West Africa, it has been suggested that plans could be based on assumed incidences of 700 for Nigeria (with a higher rate in the North) and 900 for The Gambia, Ghana and Sierra Leone (13); on the other hand another estimate puts the rate for West Africa as a whole at 1056 (14). In East Africa there has been suggested a rate of 730 for Kenya, with rather higher figures for the Central African countries of Malawi and Zambia (15). For Africa as a whole a figure of 856 has been quoted (16).

It is not until these rates are translated into individual children that the magnitude of the humanitarian and educational problem becomes apparent. Perhaps 1,000 blind children live in the Commonwealth Caribbean, 3,000 in Malawi, 8,500 in Kenya, 50,000 in Nigeria (of whom 200 were in school in 1966), 130,000 in Pakistan and 500,000 in India. Admittedly, these children represent only one group among many in the ranks of the disabled, but their affliction is one which is easily recognised in most cases and generally carries little stigma, and one for which measures are available to alleviate the effects in those cases where treatement cannot be effective.

Table I is an attempt to bring together information and indications about visual handicap in developing Commonwealth countries.

Causes

Unlike epilepsy or some of the virus diseases, the causes of blindness are well documented. In areas of moderate incidence the most frequent causes tend to be cataract, glaucoma, keratomalacia, measles and smallpox; the presence of trachoma indicates an increase in incidence of some 300:100,000; where there is onchocerciasis or extensive keratomalacia a further increase of some 200:100,000 is probable (17). Other principal causes include congenital syphilis and congenital defects, optic atrophy, leprosy and other bacterial infections, accident, retinoblastoma and other cancerous growths, diabetes, spinal meningitis and local medicine. These are, of course, the immediate causes of blindness, but they are aggravated and intensified by a number of directly related factors, poor hygiene, ignorance, poverty, malnutrition, neglect, local usages and prejudices, lack of facilities for general and early treatment, the inaccessibility of hyperendemic areas, the cost of control programmes and official indifference and inertia (18). While the frequency of any individual cause may vary from country to country the pattern across the developing world seems to remain constant, of blindness largely resulting from disease and with the incidence affected by differences in standards of hygiene and of diet rather than by the existence or absence of intensive campaigns of control and eradication.

In the more developed countries the incidence of child blindness has reached a steady and apparently irreducible rate with the spread of medical facilities, clean and adequate water supplies, and a general standard of living which makes possible a reasonable and varied diet for all. The stage reached by developing countries in their standard of living can almost be measured in terms of the incidence and causes of blindness. In the Commonwealth Caribbean, for example, nutritional blindness, probably the greatest destroyer of children's sight in Asia, is limited to a few cases in the remoter islands (19). In the relatively affluent island of Bermuda the major cause of

TABLE I

VISUAL HANDICAP

ESTIMATED INCIDENCES IN SOME DEVELOPING COMMONWEALTH COUNTRIES

AREA/COUNTRY	TOTAL POPULATION (a)	INCIDENCE OF VISUAL HANDICAP PER 100,000	APPROXIMATE NUMBER OF VISUALLY-HANDICAPPED PERSONS (t)	APPROXIMATE NUMBER OF VISUALLY-HANDICAPPED CHILDREN (u)
World-wide	4,318m.	450 (b)	19m.	2m.
Commonwealth	890m.	700 (c)	6.25m.	625,000-950,000
Caribbean	4m.	250-400 (d)	10,000-16,000	1,000
Africa	310m.	856 (e)	2.6m.	260,000-390,000
West Africa	75m.	1056 (e)	790,000	115,000
Cyprus	630,000			60 (v)
Ceylon	12.25m.	450 (f)	55,000	5,500-7,750
Fiji	500,000	200+ (g)	1,000-1,200	200 (g)
Gambia	360,000	900-1056 (h)	3,250-3,800	325-570
Ghana	8.6m.	900-1056 (h)	77,400-90,000	7,740-13,500
India	533m.	900 (i)	4.8m.	480,000-720,000
Kenya	10.5m.	730 (j)	76,650	8,500 + 17,000 partially sighted(o)
Malawi	4.4m.	890 (k)	40,000	3,000
Malaysia	10.6m.	250 (l)	26,500	13,250 (w)
Mauritius	825,000		300 blind registered 1970	
Nigeria	64m.	700-1056 (h)	448,00-676,000	45,000-100,000
Pakistan	112m.	1024 (m)	1.23m.	123,000-185,000
Sierra Leone	2.5m.	900-1056 (h)	22,500-26,500	2,250-4,000
Singapore	2m.	200 (n)	4,000	400-600
Tanzania	13m.	730 (o)	75,000-90,000	8,000 + 16,000 partially sighted(o)
Uganda	8.3m.	630 (p)	50,000 + 100,000 partially sighted	6,000 + 12,000 partially sighted(o)
Western Samoa	135,000	300 (q)	420	
Zambia	4.2m.	890 (k)	37,400	4,500
Hong Kong	4m.	250 (r)	10,000	300 + 800 partially sighted (x)
Britain	55.5m.	200 (s)	110,000	50 per 100,000 (s)

NOTES ON TABLE I

(a) Population figures are those estimated for mid-1969 by the United Nations, except for Ghana (1970 census figure) and Uganda (1970 figure by U.N.E.C.A. Population Programme Centre).

(b) World estimate by American Foundation for Overseas Blind.

(c) Derived from estimates published by the Royal Commonwealth Society for the Blind.

(d) Incidence of 250 by Wilson, see p.6., of 400 by Johnson, see p.6.

(e) Quoted by Sinnette, see p.6.

(f) Kenmore, see p.6.

(g) Reply to questionnaire sent to Department of Education, Suva.

(h) Lower incidence by Wilson, see p.6 higher incidence by Sinnette, see p.6.

(i) Derived from total number of blind, based on estimates of the World Trachoma Survey.

(j) Wilson, see p.6.

(k) Wilson, see p. 6.

(l) Reply to questionnaire sent to Ministry of Education, Kuala Lumpur.

(m) W.H.O. estimate.

(n) Derived from estimated total of 4,000 blind by Royal Commonwealth Society for the Blind.

(o) Anderson, E.M. The Education of Physically Handicapped, Blind and Deaf Children in East Africa, London, NFRCD, 1968, pp. 78 and 120.

(p) Derived from Anderson, op.cit.

(q) Derived from number of blind recorded in reply to questionnaire.

(r) Derived from number of blind recorded in reply to questionnaire sent to Department of Education.

(s) Royal Commonwealth Society for the Blind: "Forty Facts about Blindness in the Commonwealth".

(t) Derived from incidences except for Mauritius (1970 registration), Uganda (Anderson, op.cit.), Western Samoa (see note (r)) and Hong Kong (see note (s)).

(u) The proportion of blind children in developing countries may be calculated roughly as 10% to 15% of the total blind population (Kenmore, op. cit, and Anderson, op. cit.). Except where otherwise indicated the figures in this column have been derived in this way.

(v) Reply by Cyprus Government to questionnaire.

(w) 50% of total number of blind are children, according to Ministry of Education, Kuala Lumpur.

(x) Reply to questionnaire sent to Department of Education.

blindness is believed to be diabetes, often undetected or neglected, particularly in the elderly, together with the probability of familial blindness (20). In Jamaica an epidemic of rubella towards the end of 1965 resulted in at least 350 babies being born to mothers known to have been infected; at least 40 of these children are recorded as suffering from cataract, some hearing loss or congenital heart disease (21). Such a number distorts the figures for the island, where they would hardly be noticed in the higher incidences of less developed and more populous countries.

In addition to the recognised blinding diseases common to the developing world, trachoma, glaucoma and cataract, Zambia has a special problem, that of a high frequency of destruction of the cornea and eyeball (22). Research has established the causes as the "Three M's", measles, malnutrition and muti (African medicines). Caustic local preparations, prepared in unhygienic conditions and applied to the diseased eyes of a child probably already weakened by malnutrition, produce ulceration and destruction of the cornea, possibly progressing to complete destruction of the eyeball. Peppers rubbed into the eyes are reported from varous countries as local treatment for convulsions or epileptic fits. Delay in seeking treatment from the hospital is commonplace. Many people suffering from eye injuries allow some days or even weeks to elapse before they present themselves for treatment, by which time the sight is often lost through secondary infection (23).

Underlying all is the effect of malnutrition, ranging from poor diets aggravated by food taboos, as noted by the AFOB in Tanzania, or among Hindus and Moslems, to simple shortage of any foods. Vitamin and protein deficiencies are now recognised as among the most frequent contributory causes of blindness among children in the developing countries (24). Supplementary feeding arrangements, such as that in Zambia, can probably help as much in the battle against blindness as many campaigns against smallpox, rubella or measles which receive more publicity. Throughout the developing world are blind people who at some point in their childhood only lacked the eggs, butter, oil or liver which would have guaranteed that minimum supply of vitamins A or E without which the eye is in danger (25).

Identification of blind children

While the incidences and causes may be estimated and assessed, a further problem arises for the medical worker and educationist when children are sought after for treatment and teaching. An educational specialist in Guyana in a personal communication to the author wrote of the extreme difficulty he was encountering in recruiting blind children for the new school established by the Government. That these children exist he did not doubt, but they did not come forward themselves and were not brought by their parents. The Report of Montfort College in Malawi (26) tells a similar story of a journey to the Lower Shire area, a district where blindness is known to be prevalent, yet where hardly any blind children were seen because they were hidden away by their parents who did not want them to go to school. This particular problem was eventually overcome by the efforts of a nurse who gained the confidence of the parents, but the situation recurs all too frequently throughout the developing countries, as, for example, the difficulty encountered in detecting blind girls in Uganda (27).

Confidence and knowledge on the part of parents are the basic requirements if handicapped children are to be brought forward for treatment and education. Merely to make regulations is a profitless undertaking when, because of personal or religious beliefs, families are embarrassed at having

blind children (28). In addition, in rural areas and among less literate populations, many of those parents who would be disposed to co-operate never learn of the regulations or of the services available to help their blind children. Records and structured surveys should not be overlooked or dismissed as futile, although their incompleteness must be admitted. It is better to begin a system which can be expanded and improved than to do nothing because perfection cannot be ensured. Some reassurance may be gained by those working in the developing countries by the fact that, in the United States in 1954, the National Society for the Prevention of Blindness, New York, suggested periodic surveys of both rural and urban areas to determine actual incidence of visually handicapped children "because of insufficient data" (29).

Probably the most efficient way in which to identify blind children and make them known to the school is by using pupils, teachers and student-teachers to conduct surveys, formally and informally. Trained specialists can explain to children and teachers the symptoms and characteristics of visual handicap and invite information regarding any other children whom they may know who show these characteristics. This method is based on the belief that young primary school children are aware of and interested in their neighbours, and are curious about differences of behaviour (30). This technique works best where a relatively high percentage of children attends school, so that area coverage is likely to be good. In areas where fewer children are in school other methods may have to be employed. In the course of a detailed account of locating blind children, Mao Lian-Wen (31) also records a finding that the most practical single resource for finding blind children is direct contact with elementary-aged pupils, while teachers, and teachers in training, though fewer in numbers, can also play a valuable role. To this end it is desirable that all teachers, whether or not they are specialising in work with the handicapped, should receive basic information about the recognition of disabled children during their initial training and during in-service courses.

The visually-handicapped child

The blind child is primarily a child, but one who cannot see, or whose sight is inadequate for him to live a normal life without special training. Teachers and others should bear in mind these two essential features: the visually handicapped child is a child first, a blind child second. He must not be relegated to the role of a medical case-history or educational problem. Above all his feelings and reactions as a person should not be overlooked. Much of the child's later stability depends on the support in his early years of a sympathetic and understanding family giving him the opportunity to come to terms with his environment. Self-confidence and initiative evolve from the basic sense of security and a consciousness of being accepted as a useful member of his family. The blind child should be encouraged to share in the daily duties and chores of village life, such as collecting firewood, carrying water, helping with the animals and taking part in local crafts and skills (32). Far too many blind children are not allowed or encouraged to participate in home or village life, but spend their early years passively in the family house, until eventually they can earn some money as beggars.

In the developing countries, where much blindness results from disease rather than congential defect, many children are found whose sight has been lost quite recently. In their case the reaction to the onset of the handicap adds a further dimension to the disability. The task of the teacher here is to encourage and rehabilitate as much as to teach school subjects.

Particularly important is to encourage mobility and confidence, preventing the newly blind child from sinking into passivity. The attitudes of many tradttional societies may lead to the blind child suffering neglect. Many of the trainees presenting themselves at the Machokos Trade Training Centre in Kenya, for example, came to join their course in an under-nourished and poor physical condition (33). Nearly all were underweight on arrival and incapable of sustained effort.

Early training

Among the important elements of early training is the minimising of the child's appearance of being different. The face of a blind person does not register emotions, moods, thoughts or intentions in the same way as does the face of a sighted person. The blind child must be taught to register emotion in accordance with the normal custom of his people, for this will make him more "normal" in appearance, even though he himself cannot benefit by "reading" the faces of others. There is much discussion on the subject of blindisms, mannerisms such as eye-poking or rocking in which many blind children indulge. One possible cause is educational neglect, to be eliminated by encouraging the child to participate in activities such as running, climbing or crawling, which will distract the cild from his blindness (34). Such mannerisms are not necessarily a part of blindness and can be combatted by the provision for the blind child of a wide variety of extra-curricular activities (35). Blindisms can be made to disappear by the time a child is six or seven, leaving him that much more normal and acceptable to his sighted fellows.

The partially-sighted child

The partially-sighted child, perhaps surprisingly, has often a more difficult time than his blind counterpart. The partially-sighted child may be punished for carelessness or clumsiness before his handicap is recognised (36). He may receive less sympathy and less consideration. He will often be more at risk because he will attract less help. The child himself may have difficulty in appreciating the limitations of his handicap, and may well have an anxiety which the blind child does not, for the partially-sighted child does not know when the little sight he has may deteriorate. While the blind child may often be overprotected, the partially-sighted child may well be under-protected.

Supporting services

As with all other handicaps, one of the major needs is for public enlightenment and supporting services for the families of visually handicapped children, thus indicating public concern for the acceptance of the child. Medical care in developing countries may be minimal, but social welfare services designed to meet this need could be expanded within the financial limitations of most countries. In the words of one blind person:

> "Often the family of a blind child needs the social worker's help more than the child himself does ... The parents wonder if it is their fault that the child is blind. They also wonder why they can see and the child cannot. This leads to guilt reactions, through which the parents involuntarily destroy the blind child's independence and self-confidence. But if a blind child is deprived of these two resources, he

will soon become a wreck." (37)

The education of blind children

The purpose of education for blind children, as for other children, is to enable them to make the best possible use of their individual ability and aptitudes. The blind child has additional needs. Apart from the special training in social skills mentioned above a conscious effort must be made to widen the range of the blind child's experience and to adapt these experiences to his current needs. In the developing countries the facilities available so far are grossly inadequate - fewer than 2% of the known blind children in developing Commonwealth countries are in school - yet a start has been made and certain guidelines established. Because education for the blind represented the first incursion into the field of education for the handicapped it has tended to become the provision most bound by traditions in its attitudes towards blind children and in the content of the education which has been offered (38). The traditional curriculum for the blind, provided in boarding establishments, has had the effect of emphasising the difference between the blind and the normal, and restricting the part which the blind can play in the life of their community. This in turn has affected the self-concept of the blind person. In the past few years, however, partly as the result of the two World Wars, partly as the result of more enlightened attitudes towards the handicapped, more attention has been paid to developing the facilities remaining to the blind person and less to the handicap itself. If the blind child can be given reasonable mobility, spend most of his time with his sighted peers, and not be condemned to vocational training for "blind" trades, he has every chance of developing into a balanced, responsible and contributing member of his community rather than a burden and an embarrassment. For the authorities in the developing countries of the Commonwealth the extensive tours of Mr. John Wilson, the blind Director of the Royal Commonwealth Society for the Blind, must have played a significant part in adjusting their attitudes. In him they can see demonstrated the capabilities of a blind man.

Five categories of educational provision for blind children have been listed:

- total integration, in which the blind children attend normal classes but receive certain lessons from an itinerant teacher. (This is the most usual system in Northern Nigeria, for example.)

- special classes attached to day schools. This is an appropriate system where sufficient blind children are available to form the classes.

- centres for handicapped children. Classes for blind children in special day schools providing for children with a range of handicaps.

- weekly boarding at ordinary schools or special schools. By this means provision can be made for children who cannot attend school daily, but without cutting them off from their families for extended periods.

- special boarding schools. This is the traditional form of provision for blind children. Among its disadvantages are the high cost, the difficulty of

inspiring the child with confidence to venture into unfamiliar surroundings, and the emotional effects of removing of the child from his home (39).

Open education

"Open" education, or "integrated" education, offers the best line of advance for blind children in developing countries, but the form which it takes will depend on a number of factors such as availability of staff, number of blind children, density of school population, existing school provision and social attitudes. For both educational and financial reasons, systems of open education have been introduced into many countries, developed and developing, over the last twenty years. In the more developed countries the supporting personnel to the specially trained teacher - psychologists, counsellors, home advisers, medical, para-medical and domestic assistants - ensure that optimum use if made of the educational provision. This is rarely possible in the developing countries, especially in the rural areas where scattered population and limited resources preclude the formation of the necessary teams. In the situation in the developing country open education usually consists of either direct integration of the blind child into a sighted class, or, where numbers warrant it, the attachment of a small group of blind children as a unit to an established school. The class teacher receives a certain amount of in-service training to enable him to deal with one or two handicapped children in his class, and he is supported by a Visiting Teacher of the Blind who works with the children on the special skills they need to enable them to work alongside their sighted classmates. Resource centres form bases for the visiting teachers in which they can manufacture aids and teach specialist groups. In Denmark, schools with special classes or units are organised as "twin schools", so that the problem of seniority between the school headmaster and the teacher of the special section becomes one of the association of equals rather than the subordination of the specialist to the general administrator (40).

The activities of the Royal Commonwealth Society for the Blind in sponsoring and encouraging the introduction of open education schemes have played a major part in enabling the developing countries to make a start on educational provision for the handicapped at minimum cost. Some outlay on teachers' salaries and special equipment is required, but open education schemes eliminate the need for separate buildings (except for hostels in sparsely-populated areas or areas of low incidence), additional land and duplicate provision of common facilities. Open education provides the only means by which large numbers of blind children can attend school in the developing countries. Its success depends largely on a "climate of acceptance". Once started, when the sighted children and their parents can see at first hand how similar blind children are to sighted children in all respects save one, there is a cumulative increase in acceptance. It remains sadly true, however, that despite efforts at full integration it is rare for visually handicapped and fully sighted children to play together in the school compound, and infrequent for real friendships to spring up between the groups (41).

The development of open education schemes in rural areas of emergent countries shows the dual effect of direct help to the blind children and influence on public opinion. When, in 1960, the first pilot scheme was launched in the Katsina Emirate of Northern Nigeria there were many, including educationists, who considered the scheme admirable but doomed to failure. The sponsors were delighted to find that the Katsina project worked

and had much influence on the local people who, for the first time, could watch the blind and apparently hopeless child they had seen in the village for years actually learning to read and write (42).

By 1967 over 100 schools in Nigeria had accepted blind children into normal classes. By 1969 open education systems were in operation in eight Commonwealth African countries, and in Malawi the Royal Commonwealth Society for the Blind had reached the point of establishing its own permanent team for the construction of resource centres in connection with the scheme. The numbers involved in the schemes are still very small and development has been neither easy nor very rapid. In Zambia, for example, the Blind League of Zambia attempted to obstruct the development of open education, declaring in a memorandum to the 1967 Commission:

> "We have not much more to say about this scheme than condemn its less value in comparison with the expenses it involves." (43)

This is a facile and unfair criticism, met adequately by the Commission's comment:

> "We would emphasise that by opposing Open Education without good reasons the blind may well prevent large numbers of blind children from securing any education at all, since there is no possibility that Zambia will be able to afford or staff a network of residential schools large enough to accommodate all its blind children." (44).

Other criticisms have more substance. The "visiting teacher" system of open education may often be unworkable in rural areas, for example, since too much is expected of a young and inexperienced class teacher whose own limitations are accentuated by inadequate buildings and equipment (45). The "dual-purpose" system, whereby the class teacher is trained to a level of competence which makes him independent of a visiting teacher has more to recommend it, but has two major weaknesses. These are, first, that most teachers in rural areas seek transfer to the towns (and if a teacher is moved even within the school it may be difficult for him to continue to work with his blind pupils), and, secondly, a class teacher rarely has sufficient free time to give his blind pupils an effective start in the basic subjects. The "special class" system, under which the blind child works in the normal class for most of his time but receives supplementary teaching by a specially-trained teacher in an annex, probably provides the best solution in the African situation, but raises a problem of its own. In order to justify an annex some 15 children must be gathered together; this generally involves the provision of hostel accommodation with its accompanying capital and recurrent costs. Nevertheless, despite its disadvantages, open education presents the best possibility of providing education for visually handicapped children in the developing countries. This is especially true at educational levels above the primary stage.

In the developing countries the able visually-handicapped child faces great difficulties in securing a place in secondary or higher education, and a number of schemes of open education have been pioneered in recent years, in Ghana, Kenya, Malaysia and Nigeria, and other Commonwealth countries. In Tanzania, for example, boys from the Wilson Carlile School at Buiri are accepted into secondary school on equal terms with all other candidates for the entrance examination. At Nsanje in Malawi an experiment was started

to provide open education at the secondary level. Despite the absence of a specialist teacher four children were integrated successfully and taught to follow their lessons with the aid of Braillers and typewriters. In Trinidad blind children have dealt successfully with G.C.E. 'O' level and Associated Board Music Examinations after courses in ordinary schools. In Sierra Leone and Singapore, to take two recent examples, a blind young man and a blind girl are coping adequately with degree courses. All these young people demonstrate the possibilities offered by open education for the blind, but emphasise the limited scale on which such schemes operate so far.

Special schools for the visually handicapped

Special schools remain a major form of provision for visually handicapped children, partly because they are the traditional form of education for such children, partly because demographic factors make them appropriate for the area, partly because there is a body of informed opinion which believes that special schools are the most appropriate form in a wide range of circumstances. Among factors mentioned as possible reasons for placing children in special schools are: socio-economic and emotional factors, parental attitudes, travel problems, and elimination of isolation from their peer group (46). Among the advantages of special schools are the possibility of providing buildings suitably adapted to the particular needs and the concentration of the limited supply of specialist staff, teachers and auxiliaries, so enabling the maximum use to be made of their abilities. Equipment, too, can be provided in adequate quantities and varieties in the special establishment rather than in resource centres or units. The disadvantages of special schools are essentially two, political and financial. Politically, many Governments find it difficult to justify special schools for blind children when so many sighted children cannot find school places; financially, the expenditure on a purpose-built special boarding school runs considerably higher than the cost of a day-school for comparable normal children.

Some special schools for the blind in developing Commonwealth Countries

(a) CEYLON: Mount Lavinia School for the Blind, Ratmalana (47)

Mount Lavinia, with over 200 pupils, is one of the two larger schools for the blind in Ceylon, the other at Mahawewa being about one third of the size. For 35 years after its foundation in 1912 it was the only school for the blind in the country. Half a dozen poorly equipped and inadequately staffed small schools, all with enrolments of fewer than twenty children, make up the special school provision for the visually handicapped. A minority of the children at Mount Lavinia speak Tamil, the remainder Sinhalese, so that teaching must be provided in both languages. Of the 26 teachers, 15 have their salaries reimbursed by Government grant; seven of the staff are blind; three staff members hold qualifications for teaching the blind. The school suffers from the common problem of a wide range of age (from 5- to 20+) and ability in its pupils, which, in conjunction with a generally low grade of staff and a shortage of equipment, leads to slow progress through a very formal curriculum. In 1965 the school had a library of Braille books in English which had been rarely used in fifteen years, but almost none in Sinhalese or Tamil (48). Other equipment, slates, styluses, raised maps, paper learning aids, and handicraft materials were in short supply. The noise level occasioned by classes sharing rooms made listening very difficult for the pupils. Under a new Principal the school has been struggling to solve its difficulties, supported by a genuinely interested staff.

(b) INDIA: The Model School for Blind Children, Dehra Dun (49)

This school, opened in 1949, is situated at Rajpur, three miles from the Government sponsored National Centre for the Blind at Dehra Dun, under whose auspices it is organised. It does, however, have its own management body. Some 70 children are provided with free education, board and loding, following admission between the ages of 7 and 12. Efforts are made when considering children for entry to determine their level of intelligence and establish their degree of self-reliance. The school curriculum is that of the normal State primary schools, but in addition occupational therapy and music is taught. The medium of instruction is Hindi, with English taught as a second language. During 1966 an I.L.O. expert mapped out a suitable technical course for the school, recognising that provision would be needed beyond the existing class VIII (50). Although the school now offers a full secondary course, the problem of finding employment is so great that the teaching of simple engineering skills to those children who have some technical aptitude seems to be highly desirable. Such a course would be complete in itself but also form the basis of more advanced work.

(c) KENYA: Salvation Army Schools for the Blind, Thika (51)

There were in 1969 over 200 pupils in the primary school, with an age-range from 6 to 16 years, and 45 pupils in the secondary school aged from 15 to 22 years. Included in the primary school are additional groups: a nursery group of children of between 1 and 4 years, a kindergarten catering for children from 4 to 6 years, a domestic science group wit girls from 14 to 21 years, and a sheltered workshop for boys fo the same age-group. Prospective pupils are given an eye examination; if the blindness is total, or of such a degree that they are entitled to admission, they enter at the beginning of a new term. (Pre-school children can join at any time). The major problem is finding employment for primary school leavers. No specific system has been established and only five ex-pupils were placed during 1969. The pupils who pass the Certificate of Primary Education with the highest marks are interviewed for admission to the secondary school, and undergo an aptitude test. The first students from the secondary school were due to complete their course at the end of 1970, and the Kenya Society for the Blind had promised help in securing employment for them. The success or otherwise of this placement will have a considerable bearing on the confidence of other pupils in the school.

(d) MALAYSIA: St. Nicholas' School and Home for the Blind, Penang (52)

Formal special education in Malaysia began in 1926 when the Anglican Mission set up this school, which even now is one of only two residential schools for the blind in West Malaysia. The primary school and kindergarten currently have some 80 children enrolled, aged from 5 to 16 years, and follow the same government syllabus as ordinary schools. Although the same subjects are taught, greater emphasis is placed on such subjects as physical education, handwork, music and mobility. Braille reading and writing is taught. During the afternoons children enjoy a wide range of activities including Cubs and Brownies, a pets' club, gardening, and a weekly trip to the swimming pool, while the school's electric guitar group enjoys wide popularity. The staff believe that the main results of the school lie in the proof which it offers that blind children can participate fully in normal life. Some children have already succeeded in secondary school and university, one having graduated in law and another taking a postgraduate qualification in education.

(e) SIERRA LEONE: Sir Milton Margai School for the Blind, Freetown (53)

The school opened in temporary accommodation in 1956 with three children. In 1970 it occupied its own residential buildings and had an enrolment of 25, including three girls. Since 1963, some pupils leaving the school have found places in secondary schools in Freetown. Of the three initial pupils one is a third year undergraduate at the University of Sierra Leone and another is due to start a three-year course at the Women's Training College. In 1970 six more pupils found places in secondary schools, but since the cost of their equipment (typewriter, tape-recorders and tapes) is met by the local Society for the Blind, the success of these pupils incurs a heavy financial burden on these voluntary funds. The Society also helps school leavers to find employment. A group of boys has formed an orchestra, which provides them with a modest means of lifelihood.

(f) TANZANIA: Wilson Carlile School for Blind Boys, Buigiri (54)

This school was started in 1950 by the Church Army. By 1969 it contained 70 boys from all parts of the country, generally from poor homes. A seven-year course of general education is provided, and all boys learn both Swahili and English Braille, the latter to enable them to go on to secondary and higher education. (All post-primary education is integrated in normal schools). The stigma attached to blindness in this area is such that, despite a high incidence of visual handicap, prospective pupils still have to be sought out and their parents covinced that it is possible for such children to be educated. One or two boys have had some measure of sight restored through corneal grafting or cataract operations. Of the staff of seven, 5 are blind men. The boys pay no fees and, in addition to a Government grant, the school is heavily subsidised by voluntary donations collected locally and in Britain.

(g) TRINIDAD: School for Blind Children, Santa Cruz (55)

The school is owned and operated by the Trinidad and Tobago Blind Welfare Association and is fully subsidised by the Government as a co-educational, residential, non-denominational primary school. Started with eleven children in 1952, the school now caters for 48 pupils, including 19 from other Caribbean countries. The staff of seven is fully trained, and the curriculum followed is that prescribed for ordinary schools, modified where necessary to meet the needs of the blind child. The children are admitted at 5 years and are now allowed to stay until they are 18 because vocational training is not available elsewhere. Much emphasis is laid on mobility training, during which children learn to go unaided between the school and the nearest village, about one mile away. Physical education, swimming, scouts and Brownies, domestic training, a Literary Club, all are designed to promote confidence and independence. School leavers now have the opportunity of finding places in ordinary secondary schools; the less able academically are given simple vocational training. While the school suffers from financial difficulties it is providing its pupils with the basic educational provision necessary for them to play a full part in their communities.

(h) ZAMBIA: St. Mary's School for the Blind, Kawambwa (56)

The Roman Catholic Mission maintains this school of 95 pupils, one of the best in Zambia, opened in 1963. The McGregor Committee considered the buildings, hygiene, equipment, administration, teaching standards and

pupils' work all excellent. A staff of 11, with 6 ancillary staff, provide a full primary course, giving their pupils a balanced training to fit them for active membership of the community to which they return, a training on which they can build without further formal education.

(i) BAHAMAS: School for the Blind and Visually Handicapped, Grants Town (57)

Originally designed to cater for the adult blind, the need arose to provide for children suffering from visual defects following an outbreak of rubella some years ago. The children are partially sighted but have made little progress in overcrowded Government primary schools. Most of the children have been referred to the school by a Government ophthalmologist. The average age is 8 years. A general curriculum is taught with the aid of magnifying glasses and tape recorders. The children have all made marked progress, probably because of the small classes and individual attention. Job prospects for the children in open employment are good. There are no hostel facilities at the school, making it impossible to offer places to children living in scattered settlements throughout the Bahamas Islands. A survey conducted with the co-operation of the Ministry of Education indicated a positive need for facilities for blind and partially sighted children in the Out Islands, but such children at present can be helped only if they can find accommodation with friends or relations in Nassau.

Specialist teachers of the blind

The training of specialist teachers is generally expensive, involving tutors in work with small groups of students on special courses, although certain traditional attitudes persist which believe that the best and most realistic training is achieved through the attachment of students to residential special schools. This belief is based on a conviction that on-the-job practical training rather than theoretical instruction gives a more valuable base for the prospective teacher of the blind. The extent to which this is true depends upon the length of previous teaching experience and the professional training which the student has already. "Experience is the primary eligibility criterion. A superior regular teaching experience of at least two years is generally required" (58). Unfortunately, it appears that in South-East Asia at present few experienced teachers offer themselves for work in special education, so that the prime criterion is rarely enforceable.

Incentives, therefore, must be provided to induce suitable teachers to come forward for training. These should include full salary and free accommodation during the period of training, and special salary bonuses once qualified and working with blind children. Since some at least the teachers may judge their long-term prospects as likely to be hindered by their specialisation in a backwater of education, their reward must be tangible and immediate. The Governments of Jamaica, for example, and of some Indian States such as Orissa and Mysore, already subscribe to this policy. The Government of Malaysia is considering a similar arrangement, since at present it is recorded that some teachers serve only the two-year contractual period in schools for the blind following their training, after which they seek promotion elsewhere. "Bonding" arrangements in an attempt to retain teachers are rarely successful because they can be enforced only with great difficulty, and, even if a reluctant teacher is thus retained for a limited period his value must be very questionable. The only appropriate means by which to attract and retain teachers of the best calibre is through the provision of financial incentives, a full career structure in special

education, and the inculcation of a sense of status within the education profession.

Training facilities for teachers of the blind are few in the developing countries of the Commonwealth, many countries relying for the training of staff on courses in the more developed countries. Many teachers are trained in Britain, sponsored and placed usually by the Royal Commonwealth Society for the Blind, or supported by Commonwealth Teacher Training Bursaries. Homai College, New Zealand, has offered training to a teacher of the blind from Fiji, while teachers from Jamaica and Singapore have specialised in work with the deaf-blind at the Perkins School, Watertown, Massachusetts, U.S.A. The American Foundation for Overseas Blind ha s provided a number of scholarships and bursaries for such courses.

Special courses for teachers of the blind are available in Ceylon (but blind teachers are not admitted to the course), Malawi, Malaysia, Tanzania, Uganda and Hong Kong, and planned for Zambia, while in a number of oth countries training is provided for teachers who are to take part in open education schemes. In Tanzania training is provided according to the traditional pattern by attaching the student to a residential special school; in the other countries the courses are located in special training colleges or university departments. The cause of economy would best be served by the further development of existing courses to cater for the needs of neighbouring countries. Montfort College in Malawi has attempted this, and students still attend from Swaziland, but political and other circumstances have so far precluded the development of regional co-operation on a wide scale.

Training so far has reached only a few of the teachers of the blind in developing countries. Schools generally are staffed by a few specialists, a number of untrained teachers, and, very often, some untrained blind persons. This last practice has been condemned frequently by experts who emphasise that a blind teacher should never be engaged solely to provide him with employment, since this can have a deleterious effect on the children with whom he may identify emotionally and yet whom he cannot necessarily teach effectively (59).

Equipment, aids and appliances

The blind person's two greatest problems are those of mobility and communication, and it is to help him overcome the obstacles to these achievements that most specialised equipment is designed. Mobility can best be taught with the long or short cane, which can usually be made available at little cost. In many schools for the blind in developing countries, however, educational equipment is either non-existent or inadequate, like the English Braille books in the Ceylon school where the children speak only Sinhalese or Tamil. While the sighted child may suffer inconvenience from inadequate educational equipment, the blind child in these circumstances is virtually helpless, incapable of achieving independence, self-confidence and dignity.

Equipment for the blind is relatively costly, ranging from six shillings for a Braille tape measure, through £4-10s. for a Braille watch and £48 for a Perkins upward Braille writing machine to £2000 for a power-driven Braille printing machine. These prices may be contrasted with the average expenditure on equipment of £2 per pupil in the schools for the blind in Zambia (60). Many schools are severely restr cted in their activities because of insufficient equipment or unsuitable equipment. Braille writers are needed by pupils at secondary level even if they can make do with a simple

stylus in the early stages of the primary school. Large-print books for the partially sighted, and, for the blind, Braille books of the right level and in the right language are essential basic materials. Centralised book production on a commercially economic scale and area or regional library services appear to offer the best solution to this problem. In Hong Kong, for example, a Braille printing press, donated by the United States Government through the A.F.O.B. is run by the Ministry of Education. Over 7,000 volumes of more than 100 types of book have been printed and supplied to schools. Schools pay 10% of the cost, the remainder being borne by the Government. As a result schools can now purchase Braille books at a cost comparable to that of ink-print publications.

Where the equipment can be processed another valuable aid is the talking book. A triple play $\frac{1}{4}$ inch tape and six-track layout, each track playing for a little over two hours, gives a total of 13 hours of recorded speech. Publishers frequently waive copyright fees provided that the recording is supplied in a form which cannot be used on an ordinary tape player (61). The Royal Commonwealth Society for the Blind sponsors numerous talking book services, such as those in Barbados and Ceylon.

For work at secondary and higher levels, where young people may not be able to attend formal school regularly in the circumstances pertaining in a developing country, one solution may lie in the type of provision available from the Hadley School for the Blind (62). This international free correspondence study school provides a wide range of courses at primary and secondary level, as well as some introductory college courses, prevocational, vocational and leisure courses. All courses are offered free of charge, the school being supported by charitable funds. Regional offices have already been established in India and Kenya as well as in several non-Commonwealth countries. This system, while not providing the personal contacts and social facilities needed by blind youngsters, does offer an opportunity for self-advancement to the literate blind. Used as support by non-specialist teachers who are dealing with integrated classes at secondary level, correspondence courses can ensure that the maximum use is made of the blind pupils' potential.

At the primary level children can benefit from teaching if only three types of simple equipment are available, a Braillette Board (for beginners), a Writing Frame and supply of manilla paper, and a Cranmer Abacus. Other apparatus, such as Braille multiplication tables, audible balls, Braille maps and Braille rulers, are very desirable, but where a choice has to be made, the first three items take priority (63). Outdoor apparatus, such as ropes, bean bags and hoops, handicraft equipment, games and puzzles, household articles, are all of great value in teaching the blind child confidence and independence. Many items can be manufactured locally, often at low cost, particularly if the prison service can be convinced that this is appropriate work for its inmates. Following an International Conference on Technology and Blindness in 1962 an International Research Information Service (IRIS) was set up in New Hork, with a section in London (64). Early in 1971 a permanent exhibition of aids for the handicapped was established in London. These services, if used regularly by Commonwealth workers for the blind, can do much to help towards maximum efficiency at minimum cost.

Proposals in respect of the blind

As for most other handicaps, the main problem lies in the lack of reliable data upon which to found plans, although, because interest in the blind was

manifested before interest in other handicaps, some information does exist upon which patterns and trends can be based. Surveys should be undertaken to establish the incidneces of blindness and partial sight and the likely major causes; such surveys can often be carried out by senior students or teachers in training. The causes are likely to originate in poor hygiene, unsuitable diet and ignorance, so that campaigns directed at these causes can be expected to have a consequential effect. Public enlightenment campaigns can also usefully be directed at the prevailing attitudes towards blindness. Where blindness is treatable, as in the case of cataract, mobile eye-clinics and eye-camps should be sought, calling probably on the great experience of the Royal Commonwealth Society for the Blind in this work. On a long term basis the establishment of regional ophthalmological institutes should be encouraged.

All teachers, in their initial training or in subsequent in-service training courses, should be made aware of the problem of visual handicap and taught to recognise both the manifestations of inadequate sight and the symptoms of the most usual causes. Specialist teachers should be encouraged to think of work among handicapped children as a full career; incentives in the form of additional increments and increased status should be considered by employing authorities.

While special boarding schools will continue to perform a useful function, especailly in areas of low incidence or sparse population, it should be recognised that the only feasible means for providing large numbers of visually handicapped children with education is through association with normal schools by open education schemes. Where numbers warrant it, special units or annexes should be attached to ordinary schools. Resource centres, manned by competent specialist teachers and serving a group of schools, represent the most efficient and economical means of using limited supplies of specialised skills and equipment. For secondary and higher level students the increased use of correspondence courses should be investigated.

All visually handicapped children need to acquire mobility and the means by which to communicate. Mobility and independence are essential for the child's self-respect. Basic equipment, a cane and writing materials, should be made available to all pupils. Other equipment can be produced economically either by central production on a large scale or by using labour such as that available in prisons in many developing countries. Regional centres for the manufacture of Braille books should be established. Where materials are to be despatched between countries, governments shoudl be encouraged to adhere to the provisions of the Florence Agreement, which requires contracting states to allow such materials to be sent at reduced postal rates and without the imposition of any taxes or duties.

Existing clearing houses for information should be publicised widely and a series of booklets on particular aspects of the treatment, education and equipping of the blind should be considered. A Commonwealth journal for special education, in which the visually handicapped would be adequately represented, could ensure that relevant information about research, development and innovations is made known on the widest possible scale.

Educational activity on behalf of the blind has in the past been conducted largely without reference to developments in other forms of special education. Future improvement will almost certainly depend on the willingness with which those working on behalf of the blind co-operate among themselves and with those involved with other handicapped children.

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HEARING IMPAIRMENT

Introduction

Attitudes towards the deaf range from fear and apprehension to amused tolerance or embarrassment. In the developing countries especially, the profoundly deaf person who has never learned to speak may attract the fearful revulsion afforded to the leper, the mentally ill or the epileptic; the person suffering from a mild degree of impairment in his hearing, on the other hand, may be regarded as a slightly eccentric buffoon. Rarely does imperfect hearing educe the sympathetic response of visual handicap, yet poor hearing is more widespread than poor sight, probably exerts a more deleterious effect on the personality, and calls for particular expertise in education and treatment if the sufferer is to be enabled to play a full role in his community.

"If I had had to choose between being blind and being deaf, I would have preferred to be blind", wrote Helen Keller in her autobiography (1). Educationally there are few problems greater than those pertaining to deafness (2). Deaf children are triply handicapped. They cannot hear. Because they cannot hear they cannot speak. Because they can neither hear nor speak, they cannot think in words and so their mental growth is severely retarded (3). In the developing countries hearing-impaired children whose health is otherwise reasonably good are often not offered for education because they can do useful work in agriculture, and the family will suffer an economic loss if the child is sent to a residential school (4). Even in an enlightened society the person hard of hearing senses the embarrassment which he is likely to cause. In the words of John Kitto in his book "The Lost Senses" published in 1845:

> "Those around him will be uneasy if they neglect him and will yet feel that in attending to him they are making a sacrifice of some part of their own enjoyment in the 'flow of soul' around." (5)

The deaf person commits the unforgiveable social crime of existing as an inconvenient embarrassment, assuming that his condition is accurately diagnosed. Incorrectly assessed he may be mistaken as retarded, aphasic or autistic.

Mr. R.T.C. Munyembe, the first Malawian to train as a teacher of the deaf, sums up the problem facing the deaf in many parts of the world:

> "To most people, other forms of physical deficiency seem to be worth more sympathising with. Blind men, for example... much vaster quantities of money have been spent on helping them. It is easy to appreciate that the person who cannot see is 'obviously' handicapped. The one-legged man, laboriously propelling himself along on his crutches ... it is easy to sympathise with him. Motorists will patiently slow down for a polio-stricken man with withered legs to slither across the road. But when you are deaf, the story is different. People cannot 'see' your deafness; but the irritating results of it quickly register on them. Their patience snaps fast when they have to

> repeat things to an upturned face of a man hopelessly trying to let the meaning of words seep through his deaf ear, causing lots of annoying embarrassments in the process. When you are 'stone' deaf, they leave you to your own sorry devices ... an object of apathetic, uncomprehending interest." (6)

Incidence

Few statistics have been compiled to indicate the incidences of hearing impairment in developing countries, so that the best estimates are subject to very considerable reservations. A summary of information available is presented in Table 2.

Some estimate of total numbers can be arrived at by means of the following computation. The Danish estimate is of 4% to 5% of children with impaired hearing in that relatively developed country (7). The estimate for Uruguay (a less developed country) is of a hearing-impairment incidence about ten times that of blindness (8). Fifteen million children in India probably have a hearing loss requiring attention and treatment, which gives an incidence of about 6% (9). From these indications of countries in different areas and at different stages of development it may be expected that there will be some 24 million hearing-impaired children in developing Commonwealth countries. Taking as a rule of thumb two severely deaf children for every three blind children in developing Commonwealth countries (10), this gives a total of about 500,000 severely deaf among the 24 millions with all degrees of hearing impairment. No consolidated information is available to show how many of these hearing-impaired children are in school. It must be assumed that a very considerable number pass unrecognised through the normal school systems. The total enrolment in special schools and classes as estimated from the information available is probably in the order of 10,000 or 2% of the severely deaf children in these countries. The calculations, however, are worked on a basis of so many variables and unknowns that this estimate should be regarded with extreme caution as probably giving an overoptimistic picture of the true situation.

Lest it be thought that this lack of information is particular to the developing countries, a sense of perspective should be introduced:

> "Any estimate of the number of deaf and hard of hearing children either needing or receiving special education in Western Europe would be misleading, since the data are fragmentary. Available statistics are frequently not comparable, because they have been collected on the basis of differing definitions and/or age-classifications." (11)

Difficulties in definitions and sampling in Britain have caused surveys of incidences to vary quite considerably:

> "At borderline zones examiners may differ widely between 'deaf' and 'partially hearing' and between 'partially hearing' and those remaining in normal schools and not considered 'partially hearing'." (12)

The Council of Europe even reports that in a number of countries legal definitions of the term "persons suffering from hearing defects" do not exist, and

TABLE 2

HEARING IMPAIRMENT

ESTIMATED INCIDENCES IN DEVELOPING COMMONWEALTH COUNTRIES

AREA/COUNTRY	TOTAL POPULATION (a)	INCIDENCE OF HEARING IMPAIRMENT PER 100,000	APPROXIMATE NUMBER OF HEARING IMPAIRED PERSONS (j)	APPROXIMATE NUMBER OF HEARING IMPAIRED CHILDREN
World-wide	4,318m.	1,600 "marked impairment" (b)	69m.	30m. (m)
Commonwealth	890m.	470 severely deaf + 5,500 some impairment (c)	4.2m. + 49m.	2m. + 20m. (m)
Commonwealth Africa	120m.			up to 5,000:100,000 = 6m. (n)
Ghana	8.6m.		4,600 required	
India	533m	50 profoundly deaf (d)		15m. school age children in need of treatment (o)
Kenya	10.5m.	300 "to a degree of incapacity" (e)	27,000 (k)	4,000-8,000 severely deaf (p)
Malawi	4.4m.	2,600 moderate to severe (f)		600:100,000 = 26,400 (q)
Pakistan	112m.		68,080 (1961 census)	
Tanzania	13m.			6,000-9,000 gross hearing defects (r)
Uganda	9.5m.		minimum 33,000 severely deaf (l)	6,000 severely deaf (s)
Zambia	4.2m.			4,600 (t) 3,500 severely deaf (u)
Hong Kong	4m.			2,409 known deaf children 6-16 years (v)
Australia	12.3m.	45 (g)		600:100,000 = 74,000 profoundly or moderately deaf (q)
Britain	55.5m.	40 profound: 50 partial: 60 with hearing aids (h)		1:2,300 receiving treatment. Partially hearing about the same number again (w)
New Zealand	2.8m.			1 in 570 with hearing aid: 1 in 1,300 in special education (x)
U.S.A.		60-80 pre-lingual deafness 1000 "no useful hearing ability" (i)		

NOTES ON TABLE 2

(a) Population figures are those estimated for mid-1969 by the United Nations, except for Ghana (1970 census figure) and Uganda (1970 figure by U.N.E.C.A. Population Programme Centre).

(b) United Nations estimate quoted in Education News (Commonwealth Department of Education and Science, Canberra, Australia), June 1969, p.6.

(c) Calculated from Clifford, P. "Causes of deafness in Africa", Report on the First Seminar on Deafness to be held in Africa 8 July - 12 June 1968, London, Commonwealth Society for the Deaf, 1969, p.55.

(d) Calculated from estimates in De Sa, N. "The problems of the deaf in the country", Kapur, Y.P. (ed), Research, Training and Rehabilitation in Speech and Hearing in India, Vellore, Deafness Research Project, Christian Medical College, 1969, p.38.

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(j) Numbers calculated from incidences except where otherwise explained.

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(m) Calculated from incidence.

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(r) Anderson, E.M. op.cit. p.103.

(s) Figure from 1966 Registration of the Handicapped.

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(w) Jackson, S. Special Education in England and Wales, London, Oxford University Press, 2nd edition, 1969.

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> "The question whether or not legislation distinguishes between persons without hearing and persons hard of hearing was answered in the affirmative only by the Italian delegation." (13)

In view of the uncertainty and lack of information it will be advisable for the developing countries to distinguish between the two categories in terms that are both general but easily understood and usable, such as those based on the means and ease of communication:

> "I have used the term 'hearing-impaired children' to cover the entire range from partial hearing to profound deafness and including any who might be completely deaf. By 'partial hearing' I mean those whose hearing is sufficiently impaired to require special arrangements for their education but not necessarily the same as that required for deaf children. Such children will normally receive communication more through hearing than through lip-reading, although the latter may play an important part in receiving oral communication. By 'deaf' I mean those who will normally receive oral communication more through lip-reading than through hearing, although in most cases these children will have some residual hearing which may be useful in receiving oral communication and also in developing their own speech patterns." (14)

The picture of hearing-impairment in the developing countries of the Commonwealth is blurred by a lack of basic information and an absence of agreement on definitions. All the indications are that the numbers involved are large: it has been suggested, for example, that 18,000 additional deaf children are born annually in India - a compound growth rate of some 2% (15). A report from Northern Nigeria indicates that of 641 children with poor achievement in basic subjects of language and arithmetic, educational retardation was probably due in 12% of the cases to hearing defects (16). These general figures, too, conceal wide variations in incidence in certain areas or among particular groups, as, for example, the Ghanaian village of Adamarobe, where 15% of the inhabitants are deaf (17), or among the Asian community in East Africa, where familial nerve deafness, probably due to consanguinity in marriage, raises the deafness rate to about $2\frac{1}{2}$ times that for the rest of the population (18).

Identification and assessment

It is generally agreed that early identification and assessment is probably more important than in any other handicap, yet the chances of a child with hearing impairment being found before the age of five or six years in the developing countries are far from good. When to the problem of assessment is added the possibility of the child suffering from more than one handicap the difficulties for the overstretched health services are all but insuperable. Brain-damaged children, for example, present a particularly difficult problem; some are almost certainly deaf, others may well be so, but diagnostic and assessment services are rarely adequately staffed to deal with such cases.

As with other handicaps, there is frequently a reluctance on the

part of parents and communities to admit to the presence of deaf children. Drummond succeeded in investigating 19,000 people during his survey of Malawi, 95% of whom were primary school pupils, the remainder being infants, children not in school and adults collected and registered in village surveys "or in random investigations at road halts." (19) One suggestion is for the inclusion in census forms of a series of questions on the deaf (20), but it seems likely that, as for other handicaps, the most effective means of identification will be through school teachers, school friends and other children. From these informal sources will come indications upon which a diagnostic service can base its work. "At risk" registers represent a degree of sophistication which is not likely to be possible in the developing countries for a number of years outside major centres of population.

Two aspects of the problem should be mentioned here. One is that the status of a child as "deaf" or "partially hearing" is not necessarily static or permanent; his physical condition may change, as may his facility to communicate. The second is that a child with some hearing impairment will frequently learn to use his residual hearing, acquire some skill in lip-reading and so disguise his impediment sufficiently to escape detection. He may appear mildly retarded, perhaps just a little backward, but it is unlikely that an untrained teacher in a rural school would suspect poor hearing unless there is a markedly high incidence in the vicinity.

Causes

The major causes of deafness are well known but in the circumstances of the developing countries it is not always easy to ascribe specific causes to individual cases. Of 606 cases seen at the Kenyatta National Hospital 189 were recorded as suffering from severe nerve deafness from birth due to unknown causes (21). Even to distinguish with some degree of certitude between congenital and acquired impairment is often impossible because of the lack of health service provision and progressive records of individual children. One hearing impaired person in a thousand is profoundly deaf (22), but even in more developed countries such as Britain the causes of half the cases of profound deafness remains unknown (23).

The following table represents a reasonably comprehensive classification of causes of deafness:

CLASSIFICATION OF CAUSES OF DEAFNESS

I Prenatal

A.1. Hereditary: dominant, recessive
2. Familial

B. Non-hereditary:
1. Maternal infection, especially virus diseases: rubella, glandular fever, influenza.
2. Maternal nutritional deficiencies: beri beri, diabetes, the malabsorption syndrome.
3. Drugs and chemical: quinine, streptomycin, salicylares, thalidomide.
4. Toxaemia of pregnancy
Endocrine - cretinism

II Perinatal

1. Birth injuries
2. Haemolytic disease, due usually to Rh incompatibility
   - kernicterus
3. Prematurity

III Postnatal

1. General infections, virus and bacterial:
   mumps, measles, other specific fevers
   tuberculous meningitis
   meningococcal and pneumococcal meningitis
   encephalitis
2. Otitis media
3. Trauma
4. Ototoxic antibiotics:
   streptomycin, neomycin, Kanamycin (24)

Hereditary deafness has been noted as the result of consanguinity of marriage in parts of Malawi and especially among the Asian communities of East Africa (25). In Nairobi and Mombasa cases have been recorded of some parents having three or more deaf children; in one deaf unit half the children come from only three families. Stenosis, or atresia of the external auditory meatus, are believed to be the commonest congenital abnormality responsible for permanent deafness from birth (26).

Of the virus diseases rubella and smallpox are probably the most common causes of deafness. Periodic epidemics of rubella, such as that which affected the Caribbean in 1959 and 1960, result in the birth of an abnormally large number of children suffering in various degrees from visual and hearing impairment, and often from heart trouble and cerebral palsy as well.

Malnutrition, both maternal and postnatal, almost certainly plays a larger part in causing deafness, directly or indirectly, than has been propounded so far. Low protein diets, the sudden weaning of children on to unsuitable diets, lowered resistance to infection, all provide for a high incidence of hearing impairment.

After malnutrition, postnatal virus diseases probably accounts for the largest number of cases of severe deafness. Cases have been recorded in Malawi of severe deafness following high fever, encephalitis and meningitis (27). He notes the frequent occurrence of Japanese B, one of the best known types of virus encephalitis, in Malaysia and India, and the incidence of deafness in the coastal region of Ghana following non-specific fevers with severe prostration. Measles, malaria, cerebral malaria and rickettsial fevers all play their part, as do mumps, viral and bacterial meningits, and an Arbor virus, the vector of which is a mosquito (28). The widespread threat of deafness due to virus infections is made more serious by the absence of any specific therapy.

Chronic suppurative otitis media, though widespread, is often unilateral. One authority suggests that the greatest risk from chronic otitis is subsequent meningitis or tetanus (29). This opinion is not shared by others, who say that in cases of deafness caused by suppuration, very often the entire machinery is lost and the little bones of the ear destroyed, so that the patient becomes "very deaf indeed" (30). A survey in the Central and

Southern Region of Malawi records that the discharging ear accounts for 73% of the cases suffering from impaired hearing, and that the incidence is higher in children than adults and at all social levels (31). An elementary toilet for the discharging ear could sharply reduce the incidence of damage to the ear by simple and cheap measures (32).

Causes of trauma reported from the developing countries include brain abcess (33) and the results of treatment for other infections (34), while in the urban areas traffic accidents are noted increasingly in the records.

Two causes of psycho-somatic deafness not mentioned in the table quoted above are alalia prolongata and maternal deprivation (35). Alalia prolongata cases are most commonly children of between three and five years of age who are apparently physically and mentally normal yet do not speak. They usually come from above average homes in terms of income. The factor they have in common is no consistent language pattern in the home (a confusion of local languages and English frequently.)

> "In one case the child's home language was Luo, the servants were Kikuyu but used Swahili, the first school the child went to was an Asian nursery school where the official language was English but most children spoke Gujarati or Punjabi." (36)

The child simply gave up any attempt to speak in the face of this incomprehensible babel.

Maternal deprivation in the African sense is often rather familial deprivation. The child brought from the security of his extended family in the rual areas to an urban area where his daytime companions are unrelated strangers (his mother being away at work) sometimes develops a psychosomatic deafness.

Problems of hearing loss.

The deaf child's major problem is that of achieving social acceptance. His appearance of normality often makes this more difficult. Very many find themselves in the state of mind of Beethoven:-

> "From then on he became deafer and deafer and increasingly mistrustful of people. It is a typical picture of people in this predicament: they fear that they are making fools of themselves and so they distrust all other people and this makes them very difficult people to deal with". (37)

Deaf children are exactly the opposite of blind children in one important respect. While the blind child spontaneously neither offers nor responds to facial gestures, the deaf child is unusually sensitive to facial expressions. A smile is an important symbol of approval:

> "Children and their parents require skilled guidance in fostering the understanding of those gestures which promote social and intellectual growth and development." (38)

The hearing-impaired child faces heavy problems in coming to terms

with his environment. Less mature in judgement and social competence than his fellows, the gap in social maturity between the deaf and the normally hearing child widens with increasing age, often resulting in marked maladjustment (39).

Hearing is not automatic. The child must be taught to hear and then to talk, and the longer the delay in providing the training the more difficult the task becomes and the less satisfactory the result. The deaf child must struggle for every word he learns (40). An almost insurmountable obstacle is raised by the virtual impossibility of talking to a seriously deaf person about things with which he is not familiar from his own experience (41.) The deaf child lacks a sense of continuity. No sound announces the arrival of familiar figures. Innumerable events which have a continuous character for those who can hear are for the deaf more abrupt, isolated and lacking in relationships. Sir Alexander Ewing, however, believed that the communication barrier for 75% of children who are born deaf or acquire deafness during infancy can be broken down by the use of hearing aids (42). Unfortunately, in the developing countries hearing aids are in short supply, as are speech therapists, other specialists, and informed parents.

Deaf children present a problem for even the most enlightened parents; deaf children of deaf parents suffer doubly. They not infrequently develop emotional disturbances and are often markedly maladjusted (43). Since deafness can be hereditary, as in the case of East African Asians, this may be a problem of appreciable dimensions in many closely-knit communities in the developing countries. In these countries, too, the traditional reluctance to admit to the existence of handicapped children and the embarrassment which their presence causes is often accentuated by disappointment. When wage-earning opportunities are so few in relation to the number of qualified applicants, parents regard the handicapped child as virtually excluded from the hunt for jobs. The resulting attitude tends to be either overprotective or neglectful. In many countries the partially-hearing child is underprotected, his impediment undervalued, his backwardness attributed to mental retardation or laziness. For the hearing-impaired child probably more than for any other handicap, help and education of the parents is a basic part of the therapy.

Hearing-impaired children in the developing countries are faced with one problem which affects children in Europe and America less. This is the problem of the choice of a language in which they should learn to communicate. All educational principles point to the desirability of promoting communication in the mother tongue, but if this is a language restricted to a relatively limited area it may not be possible to find a specialist teacher familiar with it. Nor may there be sufficient deaf children of any one language group to warrant a special class or unit. Yet to attempt to teach the techniques of communication in a foreign language to a young deaf child is against any teacher's better judgement. There may be cited for example:

> "the Norwegian mistake of bringing children from their homes (Lapland) and teaching them a foreign language (Norwegian) so that one return to their homeland they could not make themselves understood or understand what was said." (44)

Practical difficulties in terms of the recording of language and the availability of teachers mean that deaf children in many developing countries must labour to learn to communicate through the medium of a foreign language, either a dominant vernacular, or English in the case of Commonwealth countries. Such language problems for the deaf have been mentioned recently as important in Ghana, India, Malawi, Mauritius, Nigeria and Uganda, a list which must be incomplete.

Once the choice of language is made a further problem arises with respect to many African and Asian languages. This is the fact that they are "tonal" languages, that is, meanings are distinguished not only from the sequence of sounds but from differences in the pitch and intonation of each word. The same set of sounds may have several meanings according to the intonation; a simple example from Hausa is that while kājā (low-high) means "a charm-belt", kāja (high-low) means "an old goat". Yoruba contains a large number of words - pairs or groups of three or four - differentiated by tone alone, perhaps a larger number than in the other highly tonal languages of West Africa, such as Ibo or Efik. In Yoruba, for example, depending solely on the tones employed, the word ọkọ can mean "husband", "hoe", "spear" or "canoe", and the word awo, "dish", "guinea-fowl", "secret", or "fishing net" (45). The context will not always clarify the meaning. In order to anticipate such difficulties, a teacher must have a full working knowledge of the language of instruction.

Yet another problem of communication is not limited to the developing countries. This is the decision on the choice of oral, manual or combined methods. The oral method, whereby a child is taught to lip-read and make the fullest use of any residual hearing, seems to offer the best opportunity for integration into the ordinary community, and the techniques learnt for one language can be transferred to a second. Manual methods (finger-spelling and signing) are successful only when the recipient also knows the code, and thus restrict free communication largely to the deaf community. Combined methods, or "simultaneous" methods, use finger-spelling, signing and speech, and, again, are probably or most use in a deaf community. One possible approach is to attempt to use the oral method for all beginners, moving on to combined or manual methods only for those who cannot cope orally.

All these problems depend for their solution on the availability of personnel and facilities. In developing countries these are inadequate even for the 2% of hearing-impaired children who can find special school places. The situation in India is underlined by the finding of a survey of Indian hospitals in 1966 that there were only three persons who had adequate formal training in audiometry (46). An authority, speaking of the African continent, says:

> "Speech therapy will not be available except at a few teaching centres for many years to come." (47)

In the Progress Report on Special Education presented by the Commonwealth Secretariat to the Fifth Commonwealth Education Conference (48), all the ten developing countries which submitted information stressed the need for more personnel and training opportunities. Apart from informal in-service training

facilities, only seven of the developing Commonwealth countries have organised training courses for specialist teachers of the deaf, Ghana, India, Kenya, Malawi, Malaysia, Pakistan and Hong Kong. The others must rely on bursaries, foundation grants and informal regional arrangements. The problem of the continuity of staff is acute; once they are trained as specialists many teachers tend to be moved or aspire to promotion elsewhere at relatively short intervals.

The major difficulty in terms of physical facilities for deaf children, as for other handicaps, is that the problem is widespread in the rural areas while facilities are concentrated in the towns. Lack of financial resources, long distances, sparse populations, the need to provide longer courses for children who are slowed down by their handicap, all these factors militate against the successful building up of a comprehensive service. Hostels are often necessary, thus limiting the child's contact with his family and raising costs. Government preoccupations with more threatening problems limit the official participation in programmes for the handicapped. Educational facilities for the deaf in the developing countries, with some notable exceptions, remain largely a private venture.

Education of the deaf

Deafness is probably a greater barrier to learning than any other physical handicap, and the primary object of education for the hearing impaired is to break down this barrier by enabling the child to communicate, and thus be able to receive information. Unlike his hearing fellow the deaf child learns very little in a passive way, by overhearing conversations, for example. Everything must be taught positively and relevantly in order to establish a body of experience. Acceptance by their hearing contemporaries is difficult to achieve. It is often not until the secondary and university levels that they are accepted by their normal peers, though even in the more developed countries very few deaf children continue this far in school (49).

Education for hearing-impaired children in developing countries is still in the early pioneering stage, with little in the way of precedent on which to draw. Kenya, with perhaps 45% of severely deaf children in school (50) is ahead statistically, but this is a percentage affected very much by the provision for the urban Asians among whom the incidence is so high. Otherwise provision lags far behind the need, except perhaps in Singapore, where a recent report indicated that not all available special school places had been taken up. This compares, however with reports from India of four schools for the deaf in Madras State with a total waiting list of 600 (51), 157 applications for 60 places in Tanzania (52), or Jamaica with a very long waiting list for St. Christopher's, Brown's Town (53). Similar accounts come from Nigeria, Uganda and Zambia. The needs for specialist teachers, expensive equipment, small classes and extended courses all add to the costs of deaf education and limit the possibility of making adequate provision.

Pre-school provision for deaf children can assist greatly in promoting speech, but such facilities are very limited in developing countries where, in any case, diagnosis is frequently not made until much later. The Government of Hong Kong has recently established a Speech and Hearing Centre for audiometric and speech screening, audiological testing and auditory training for pre-school hearing-impaired children. The population density and short distances make this more feasible in Hong Kong than in countries such as Tanzania, but this type of provision represents the goal towards which other countries should be working.

As for the blind, there is considerable debate about the best type of school provision for the deaf. Authorities mention the very desirable separation of the profoundly deaf from the partially hearing since each needs to be taught by different methods in different classes(54). The numbers of profoundly deaf in any one country are likely to be small so that boarding special schools are probably the best solution to their educational problem. For those with some residual hearing special units or classes attached to ordinary schools, and full integration whenever possible, give the deaf child the best chance of schooling, since costs can be limited through the sharing of facilities. Units are also said to have a salutory effect on public attitudes towards deafness (55). Deaf units have been established for some years in Kenya (where they are attached both to ordinary schools and to special schools), Uganda and Hong Kong, while programmes of integrated education have been reported recently from East Africa, Fiji, Malaysia, Nigeria, Singapore and Zambia. Several authorities recommend the integration of deaf students into ordinary schools beginning at the secondary level rather than at earlier stages (56), a system which is supported by the evidence from Japan where better results have beem observed in those cases integrated during or after junior high school level (57).

Other types of provision for hearing-impaired children which may be considered by developing countries include special holiday courses to supplement the work of deaf units, as in Denmark (58), the use of ordinary school buildings when the normal school has finished work for the day, as in the early days of the Schools for the Deaf in Ghana and Sierra Leone, or the use of correspondence instruction courses such as those of the world-wide John Tracy Clinic courses for children with hearing disabilities. Particularly valuable, too, are informal educational activities, through groups and societies attached to schools, such as Scouts, Guides or Young Farmers, through visits to places of interest, such as football matches or shops, or through a network of social clubs, such as that in Bombay or the six clubs in Hong Kong which cater at present for some 250 deaf children.

Some special schools for the deaf in developing Commonwealth countries

(a) GHANA: School for the Deaf, Mampong Akwapim (59)

Opened in 1957 by the Christian Mission for Deaf Africans, an American voluntary organisation, this school pioneered deaf education in Ghana. Its founder, Mr. Andrew Foster and his first pupil-teacher, Mr. Seth Tetteh-Ocloo, were both profoundly deaf. Like the school in Sierra Leone, this school began by using classrooms of an ordinary school in the evenings. As its numbers grew from 13 to 50 it moved out of Accra to a rented house at Mampong, and in 1962 Government accepted responsibility for the school. The normal school curriculum is followed as far as possible, supplemented by extra language work and prevocational training. Because of the diversity of language among the pupils, teaching has to be in English. Informal activities and social training are included in the activities of the school, which by early 1970 had grown to 96 pupils (64 boys and 32 girls). Although the school buildings are far from ideal the new classroom block is a great improvement on the old house, where the lighting was so poor that the lip-reading must have been virtually impossible for all but the few children closest to the teacher.

(b) INDIA: Church of South India School for the Deaf, Mylapore, Madras (60)

Reports from this school for 175 children underline the problems of the voluntary school, short of staff, equipment and finance, subject to Government control but receiving only limited assistance. Most of the female teachers are married and have done several hours work in their homes before travelling some distance to the school; most of them are malnourished, as are the pupils. Children have low resistance to disease such as chicken-pox, while tuberculosis is very common in the area. Many children have multiple handicaps (one boy of six is deaf, visually impaired and has both feet crippled). The turnover of staff is high, and an average of one and a half teachers are absent daily through the year, factors which help to explain the relatively low standards achieved by the children.

(c) MALAWI: School for the Deaf, Montfort College, Blantyre (61)

Brother Hortensius, a qualified speech therapist and audiologist from Holland, worked for three years before winning Government approval for the opening of a class for deaf children in a borrowed classroom at Montfort Teacher Training College. Ad hoc arrangements for weekly boarding for five children and in-service specialist training for two experienced teachers made the class possible. There followed the problem of language; Chinyanja was tried as the medium of instruction but later abandoned in favour of English. The school has now been incorporated into a major project for deaf children sponsored by the Commonwealth Foundation. The capital investment in the school and a clinic, supported by regular visits by E.N.T. consultants from England, means that this school could develop as both a direct service to Malawi and neighbouring countries and a model for developments elsewhere.

(d) MALAYSIA: Federal School for the Deaf, Penang (62)

Deaf education in Malaysia began in 1954 when 7 pupils made up the first class at this school. The present enrolment (1970) is 216 pupils, aged from 6 to 17 years, with 19 qualified teachers of the deaf. Residential facilities are available for 300 children. The medium of instruction is the national language, with English taught as a second language. The curriculum follows that for ordinary schools as far as possible with additional emphasis on speech, lip-reading and auditory training. Secondary courses are available in academic and technical subjects. Vocational instruction includes hair-dressing, beauty culture, typing, tailoring, typewriter repair and servicing, printing, woodwork and draughtsmanship. A number of leavers have been found employment. In 1967 the Government took over the school at the request of the School Board, and the school now operates as one element in the overall national programme for handicapped children.

(e) SIERRA LEONE: School for the Deaf, Freetown (63)

For six years from its foundation in 1964 this school of 20 pupils operated in the corner of a large room of a school for normal children during the afternoons when the main school was not in session. It moved recently into a new building, the completion of which has been delayed by lack of funds. The headmistress is a qualified teacher but is not specially trained for work with deaf children, although she has made a study tour in England. Her class, with which she deals aided by part-time help, ranges in age from 6 to 16 years. The teaching problems are great and concentration is on basic skills and social training. All the children have hearing aids but the Pure Tone Audiometer and Speech Training Unit have deteriorated in the climate and were no longer serviceable in 1970.

(f) TANZANIA: Deaf-Mute Institute, Tabora (64)

The Tanzania Roman Catholic Episcopal Conference runs this Institute, the only school in the country accepting deaf children aged between 7 and 12 years. Restricted funds limit the enrolment to between 60 and 70 children, the majority of whom are severely deaf. A Government grant is intended to cover teachers' salaries and the maintenance of equipment. Other expenses must be covered by donations and fees, but, although a nominal fee is charged, not all the children can pay, so that a considerable sum must be found each year by the Archdiocese. Two teachers are employed specifically for lip-reading and speech work, the remailning seven teach normal subjects. The school aims to give a full primary education, but over a period of ten years instead of the usual seven. Swahili is the medium of instruction.

(g) UGANDA: Uganda School for the Deaf, Namirembe, Kampala (65)

Run by the Uganda Society for the Deaf since its foundation in 1959, the school receives annual subventions from the Government. 44 pupils aged from $3\frac{1}{2}$ to 16 years attend the school, including ten in a nursery class. The nursery serves the dual purpose of allowing children to become accustomed to the school and also provides an opportunity for parent guidance. The pupils in the school follow a normal syllabus as far as possible with particular attention paid to speech and auditory training, prevocational activities, sports, visits, informal activities and social training. Finance is a major problem inhibiting the expansion of the school.

(h) ZAMBIA: Magwere School for the Deaf, Fort Jameson (66)

Managed by the African Reformed Church from its foundation in 1955 but now assisted by Government, this school had an enrolment in 1970 of 76 pupils, 8 of whom came from Malawi, and a staff of six teachers, five of whom were professionally qualified but not specialised in the teaching of the deaf. One teacher was himself handicapped. The pupils are taught by an outdated sign language system and it is hoped that a special class for teachers of the deaf recently started in Lusaka will enable oral methods to be taught soon at Magweo. An investigation in September 1969 showed that one third of the pupils are only partially deaf and could be taught in ordinary classes with the help of hearing aids. Other children could be taugnt in special classes, leaving only the profoundly deaf in need of this special school. The school buildings are good but badly maintained, and the school is short of even basic materials, lacking audio-visual materials completely. There is no electricity supply, which means that sophisticated audiological equipment could not be used even if it could be procured. Children start at about eight years of age, very late by modern thinking, and the school offers little except academic instruction. In 1967 it was noted that a well equipped carpentry room lay idle for the lack of a teacher competent to teach the subject (67). In-service training for the staff to add some expertise to their enthusiasm seems to be the outstanding need. One tribute to the school's effectiveness despite its shortcomings is that, as far as is known, 33 ex-pupils have undergone vocational training and found paid employment.

Equipment and Aids

While many very valuable aids exist, their costs, complexity, and, often, their dependence on a supply of mains electricity limit the possibilities of their use in the developing countries. Teachers and others working in

these circumstances must learn to depend primarily on a minimal supply of basic aids, accepting anything beyond this as a bonus. Where mains electricity is available, as in Freetown, there has been listed as minimal the following items of electronic equipment: (a) individual hearing aids, with inductance loop coils; (b) three speech training units, which could be used to drive inductance loop systems for whole classes, as well as serving for individual speech training; (c) a pure tone audiometer; (d) a group hearing aid (68). Such equipment deteriorates rapidly in hot and humid conditions (and had indeed done so in Freetown), so that an air-conditioned room is essential for the storage of these items. Of the fourteen schools in East Africa, only one is listed in 1968 as having all the equipment thought minimal by Redgate, two as having three of the four items, four with two of the items, four with one item, and one with none; two schools made no return of their equipment (69).

When so many schools are so short of even basic supplies of books and writing materials it is unlikely that the equipment listed by Skamris (70) as needed by Magwero School can be provided, including as it does a tape recorder and projectors. These recommendations compare with the situation revealed by the Head of the B.Y.L. Nair Audiology and Speech Therapy School, Bombay, who speaks of the difficulty and delay in obtaining books even when money is available, owing to "procedural formalities" and the hesitancy of local booksellers to stock or oder small quantitites of specialised books (71). Many schools and colleges would add to the problem of a lack of foreign exchange that of a lack of funds of any sort for adequate purchases.

Unlike the blind, the deaf cannot take advantage of the recent vast increase in the availability of low-priced transistor radios for the dissemination of centrally-produced educational programmes. Television coverage in the developing countries rarly extends beyond the major urban areas, so that there is little likelihood of their being able to replicate Japan's NHK Television School for the Deaf (72).

Hearing Aids

Battery-operated hearing aids may be regarded as essential for most hearing-impaired children, although not all children gain the same benefits from hearing aids, which assist especially those with relatively undistorted hearing losses (73). Advice from an audiologist is essential if the best value is to be obtained. The earlier an aid can be fitted the more a child will benefit from it and the less self-conscious he will be about wearing it (74).

The development of relatively inexpensive hearing aids has been a matter of concern in many countries, and particularly in India among the developing countries. A moderately priced hearing aid in India cost in 1967 between $ 60 and $ 80, while the average daily income of families in the area was less than $ 1 per day (75). In consequence fewer than 10% of the pupils in schools for the deaf had been fitted with hearing aids. By 1969 an indigenously made aid had been developed costing under $ 13. Even so, the problem of distribution without adding to the cost substantially, the need to restrict production to 2,000 units a year instead of the anticipated 4,500 in order to maintain standards, import restrictions, taxes on batteries and imported components, sales taxes on complete units imposed by various Indian states, all militate against a rapid increase in the availability of locally made aids (76). The scale of the need is rarely appreciated. It has been calculated that hearing aids could be useful to 6 per 1000 of the population of Malawi (77). This implies a supply of 24,000 aids plus a 75% reserve to cover

replacements during repairs. At £5 each, 42,000 aids would cost £210,000 plus maintenance costs. Assuming the incidence in India to be similar (and there are certainly no grounds for believing it to be less), the need would be for some 30 million aids plus a 75% reserve. At £5 each (a little less than the $13 mentioned above, and considerably less than the sums mentioned at the Third All India Workshop (78), the cost for 52.5 million aids would be £262.5m. If Kapur's estimate of 15 million hearing impaired children in India is accepted (79), the cost of fitting them all with hearing aids would be £75m., or, with 75% reserves, £130m. The numbers thus calculated highlight the total inadequacy of the present local production rate of 2,000 per year. Although on a larger scale, the Indian problem serves to illustrate the situation in many developing countries.

The solution to the problem of supply and maintenance of equipment lies probably in the establishment of central depots. These have been suggested for India, Sierra Leone, Uganda and Zambia, although none have yet been set up. The starting of a federal co-operative store has been put forward as a means of reducing costs, a system which might be modelled on that at Poona University where books and other materials are sold to students at low cost (80). Bulk purchase and low-profit sales conducted by charitable organisations represent the best solution to a basic problem during the period in developing countries before governments can assume full responsibility for the education and welfare of the deaf.

The training of teachers

Experience in the more developed countries has all indicated that deaf people cannot be trained to a satisfactory standard as teachers of the deaf, yet, because of the circumstances prevailing in the developing countries, hearing-impaired staff are found frequently working with deaf children (81). Of all handicaps, teachers of the deaf probably need the greatest range of depth of expertise in order to undertake their work successfully:

> "The teacher of the deaf not only requires to know about methods specific to teaching the deaf, and about recent developments in audiology and linguistics, but also, in view of their widening functions, needs knowledge of other branches of special education, developments in ordinary education and methods of working with parents." (82)

Institutional facilities for training teachers of the deaf exist in only five of the developing countries of the Commonwealth (Ghana, India, Kenya, Malawi and Malaysia), although in-service training is undertaken in special schools in other countries including Pakistan and Tanzania, while the Hong Kong Education Department conducts seminars, courses and lectures. A training college is planned for Ceylon. The other countries rely largely on scholarships and bursaries for teachers to undergo specialised training overseas, primarily at London and Manchester Universities in Britain, or at the Perkins School in the United States, which specialises in training teachers of the deaf-blind. The Leverhulme Trust in association with the Commonwealth Society for the Deaf has played a valuable role in providing assistance in the form of bursaries in addition to the official awards under the Commonwealth Bursary scheme. Nevertheless, training overseas has serious disadvantages in terms of "culture shock" among students, unrealistic expectations being aroused in relation to the availability of sophisticated equipment in the circumstances pertaining in a developing country, and,most

important, in the language to be used on return home. The recent increase in fee charges to overseas students in British universities has also played some part in limiting the use of these facilities. The Department of Audiology and Education of the Deaf at Manchester University was able to train only 112 overseas students (not all from developing Commonwealth countries) in twelve years, so that, even if it were desirable, the supply problem could not be solved by overseas training facilities. The use of overseas courses for the production of teacher-trainers seems to be the best approach in the immediate future.

Courses provided in the developing countries have many advantages, not least being the fact that the cost of moving one lecturer to the developing country is less than that of moving a class of students to the more developed country. As such courses are developed it may be questioned as to whether all teachers need to be trained to the same level. The time may be appropriate for pioneering in special education a development which seems inevitable eventually in ordinary educational circumstances, that of differing grades of teaching staff, ranging from specialists to aides and auxiliaries, each responsible for different aspects of the school's work. The number of training courses should not be allowed to proliferate unduly. Despite the proved difficulties of regional centres, the number of specialist teachers which can be afforded by any single country is unlikely to warrant the introduction of a semi-permanent course. If political pressures can be overcome and sensitivities placated, a small number of efficient regional centres, linked to universities rather than government institutions, would be able to meet all needs for the foreseeable future.

The motivation for teachers offering themselves for specialist training merits investigation. Some may see in the course an opportunity for study on full salary, extra increments on completion, and a niche in a small educational sector where they may be more likely to be selected for promotion to administrative posts. The common practice of requiring applicants for specialist training to have some years of service as qualified teachers in ordinary schools may tend to attract the ambitious young man who sees opportunities outside education decreasing, and the unpromoted older teacher who grasps at this as a last chance of advance. Such motives do not guarantee stability or success in a most demanding occupation.

Once trained, the specialist teacher needs continuing support. If he is attached to a deaf unit or class in a rural area the teacher will be the only specialist in the area, and will probably have to involve himself in preliminary diagnosis and assessment as well as indirect teaching. To bolster his morale regular visits should be planned by specialist advisers, a radio series might be prepared to assist him professionally, and a magazine issued by the training college to keep him up to date. Refresher courses serve the dual purpose of improving his professional competence and enabling him to exchange experience and ideas at first hand with those involved in similar work.

Conclusion

Many of the proposals already mentioned in connection with the blind, relating to surveys, public enlightenment, teacher-training, career service, educational provision and professional information, are equally valid for the deaf. If particular aspects are to be stressed they should perhaps include the necessity, even more than for the blind, of early identification and assessment, the active participation of parents in helping their deaf children, and the vital roles for paramedical and auxiliary staff. For efficient programmes to be undertaken in the developing countries basic data must be

assembled, realistic plans formulated, adequate finance committed from public and private sources, and a follow-up service organised for school-leavers. In the final analysis the value of education for deaf children will be judged by the community at large on the success which they achieve in living independently as contributing members of their society.

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OTHER PHYSICAL HANDICAPS

While blindness attracts both governmental and voluntary provision in a wide range of countries, and deafness is recognised increasingly as worthy of attention, other physical handicaps remain largely neglected. The physically crippled and the mentally handicapped in the developing countries constitute by far the largest numbers in need of special provision, but up to the present have probably the least effort made on their behalf in relation to the need. Even in Western Europe, schools and institutions for the crippled were provided later than those for the blind and deaf (1), and indeed the present situation is readily understandable in terms of the environment and social conditions pertaining in most developing countries. The severely crippled child tends to die in infancy, the less badly affected can be absorbed into the family activities in the fields and compounds, so that the need for special provision is not apparent to parents and administrators. Only with the increasing number of markedly crippled children remaining alive and with the development of health and social services does the problem of their education and training arise.

An essential distinction can be drawn between the crippling agents in rich and poor countries. In the former crippling is caused most frequently by genetic accident, war, machinery and motor vehicles, while in the latter physical handicap is the inescapable result of poverty, ignorance and disease (2). The changing pattern of physical handicap is almost a measure of a country's stage of development; the rapid increase in Africa and Asia of the incidence of poliomyelitis, a disease associated with higher rather than lower standards of living, bears out this contention. As more crippled children in the poorer countries survive, the need to make suitable provision becomes increasingly urgent, not least because, of all the handicapped, the crippled child is most immediately aware of his essential difference. The blind child can hardly imagine sight or the deaf child sound, but the crippled child (except for a number of the cerebral palsied) is likely to be of normal intelligence and thus fully cognisant of his situation. The crippled child's life can be seen as a series of crises affecting his personality.

> "In order that these children may be habilitated, they need to be under the direction of someone who really cares about them. But that is not enough: the child needs to know that someone cares about him, and be convinced that he is worth caring about. Unless this happens a perfect prosthesis and a perfect training program are useless."(3)

The chances for the physically handicapped child in a developing country obtaining such treatment are at present slight.

Origins of physical handicap

It has been said of children in tropical Africa that "in the broadest sense they are all handicapped"(4). Those who cannot function on the same level as their peers, however, must be regarded as in need of special attention. One of the major originating factors of physical handicap is malnutrition, both of mother and child: this is surveyed separately later in this study. Congenital abnormalities manifest themselves in conditions such as club foot, congenital heart disease, spina bifida, and, particularly in Africa, sickle-cell anaemia and albinism. Cerebral haemorrhage associated with birth trauma accounts for some of the physical deformities and mental

handicaps. It is postnatal infections, however, especially prevalent in areas of poverty and ignorance, which represent the main causes of child mortality and physical handicapping, although accidents and native medicine, war and natural disasters, are also contributory factors. Infections may have their origin in bacteria (tuberculosis, leprosy), viruses (poliomyelitis, measles, smallpox, encephalitis), parasites (malaria, schistosomiasis, trypanosomiasis, onchocerciasis, filariasis) or fungi (histoplasmosis, subcutaneous phycomycosis). There is a growing impression that more children in developing countries are developing asthma, while rheumatic fever, rheumatic heart disease and rheumatoid arthritis have been reported from many areas of the African continent. Improper dental hygiene leads to widespread infections of the mouth including cancrum oris and dental caries, the latter apparently increasing as urbanisation gathers pace (5). Of these origins of physical handicap few have been investigated in depth in the developing countries, but in the last decade additional resources have at last been made available in a number of countries to supplement the pioneering work of voluntary agencies and understaffed government medical departments.

Four major causes of physical handicap

(a) Leprosy. The revulsion accorded to leprosy by communities throughout the world is parallelled only by that with which epilepsy is regarded. The reaction to leprosy may be accepted as more realistic in that the disease is communicable (although not very easily) and its effects are continuously apparent. It has been called "the prime crippler of our time," because of both its direct results and the results of secondary infections which may arise (6). At the unobtrusive first signs, the "indeterminate" stage, leprosy is almost always curable, and in 50-75% of cases it heals spontaneously (7). At the second stage one of two forms of leprosy develops, the lepromatous or the much more common tuberculoid (a dimorphous form showing both sets of symptoms simultaneously is not infrequent). The skin alterations caused by leprosy give rise to much of the social antipathy towards the sufferer, but more important medically is the damage which the disease can do to the nerves. This peripheral nerve damage may result in cutaneous anaesthesia (so facilitating secondary infection) or muscle paralysis. Treatment, both medical and surgical, is possible, although recent experiments with preventive vaccination have proved disappointing so far. Treatment with dapsone, though it may be lengthy, can cure up to 95% of all those affected by the disease (8). Since close contact with an infected person over a protracted period is usually necessary for the disease to be passed on, children of infected parents are at very high risk.

(b) Poliomyelitis. The incidence of poliomyelitis seemed, until the discovery of the Salk vaccine, to vary directly with the standard of living of a country. A virus infection affecting the spinal cord, nerve cells and muscles, the disease affects particularly children in their growth period, with the result that deformity is not infrequently aggravated by the normal process of growth. The acute stage of the disease is of short duration but the after-effects may persist in permanent severe crippling. Four major factors lie behind the increasing incidence of poliomyelitis in East Africa. These are: the probable increased virulence of the virus, thus enabling it to break through natural immunity; improved standards of domestic hygiene, resulting in a larger number of weaker children remaining alive to fall victim to the virus; rapid population growth, producing an increasing group susceptible to successive triennial epidemics; and population movement, polio epidemics seeming to follow routes of communication (9).

(c) Cerebral palsy. This is the only major type of physical handicap which is accompanied by a high incidence of mental handicap. The term cerebral palsy is generally used to cover any malfunctioning of the motor system resulting from brain damage. The condition has been recorded as congenital and usually involving complex multiple handicaps (10), while additional natal factors have been suggested, such as oxygen lack or haemorrhage, and post-natal factors, including meningitis and encephalitis, drugs, neoplasms, and trauma (11). The comprehensive definition of the United Cerebral Palsy Research and Education Foundation is perhaps more descriptive than definitive:

> "Cerebral palsy embraces the clinical picture created by injury to the brain, in which one of the components is motor disturbance. Thus, cerebral palsy may be described as a group of conditions, usually originating in childhood, characterised by paralysis, weakness, inco-ordination or any other aberration of motor function caused by pathology of the motor control centre of the brain. In addition to such motor disfunction, cerebral palsy may include learning difficulties, psychological problems, sensory defects, convulsive and behavioural disorders of organic origin." (12)

Because of the different intensities and manifestations, in cases of infantile cerebral palsy, it is very difficult to establish a diagnosis (13). Three main categories of cerebral palsy may be listed: the spastic conditions (hemiplegia, diplegia, quadriplegia), ataxia (impairment of balance and inco-ordination of movement), and dyskinesia, including athetosis (involuntary movement) (14). Children with cerebral palsy are often otherwise handicapped; in about 30% of cases some hearing defect is also present (15).

(d) Tuberculosis. While pulmonary tuberculosis and tuberculosis of the bones and joints are decreasingly common in the richer countries, in the poorer countries they still represent a major hazard. Poor living conditions, especially in urban areas, and malnutrition create conditions in which the disease can spread most easily. In India some 5 lakhs (500,000) people probably die of tuberculosis annually and up to 100 crore (1,000,000,000) man-days are lost every year because of its effects (16). Cameron Duodu reveals the attitude of the Ghanaian rural schoolboy to the disease:

> "I had never liked smoking myself - it blackened the teeth and also, I felt that my chest was too thin and I might cough if I smoked, and coughing could lead to consumption - the deadly disease we feared most when we were in school." (17)

There is little doubt that in East Africa tuberculosis is now a major endemic disease and believes the general picture to be one of widespread infection, more concentrated in the towns, but by no means negligible in the rural areas (18).

Incidence

Physical handicap, excluding leprosy, is generally estimated at double the incidence of blindness (19). On this basis there could be some two and a half million physically handicapped children in Commonwealth countries,

half of all handicapped children. Although accurate data are lacking for almost all the developing countries it is probable that the main crippling agents at present are leprosy and polio. As dapsone and the Salk vaccine become more readily available these numbers are likely in the future to fall, but the overall incidence of physical handicap may well be restored by the increased survival rate of more severely handicapped children suffering from such afflictions as cerebral palsy, muscular distrophy and spina bifida (20). In a personal communication to the author a medical officer from Tanzania indicated that he did not see spina bifida as a problem in that country in the near future: "They will die." Table 3 indicates some incidence rates of major crippling diseases where these have been estimated.

An important aspect of the incidence of crippling is the fact that disabled children tend to be multiply handicapped. A comprehensive inter-disciplinary study conducted in the American State of Georgia which concluded that the average handicapped child had 2.2 handicaps; one-third had three handicaps and two-thirds showed signs of two handicaps (21). That this can be assumed to be true of the developing countries is easily demonstrated by the estimate that 90% of all children in Lagos are infected by malaria, some 60,000 infants dying annually from malaria within months of their birth (22). Virtually every physically handicapped child in tropical Africa, therefore, is additionally affected by malaria (and its accompanying enlarged spleen and anaemia) and malnutrition.

The overall problem is given some perspective by the situation in Uganda, a relatively small country of some 8 million people. Of this population, some 650,000 have obvious disabilities, a figure which is increasing by about 6,000 annually. Rising populations bring increased numbers of handicapped children even if incidences remain steady or dip slightly.

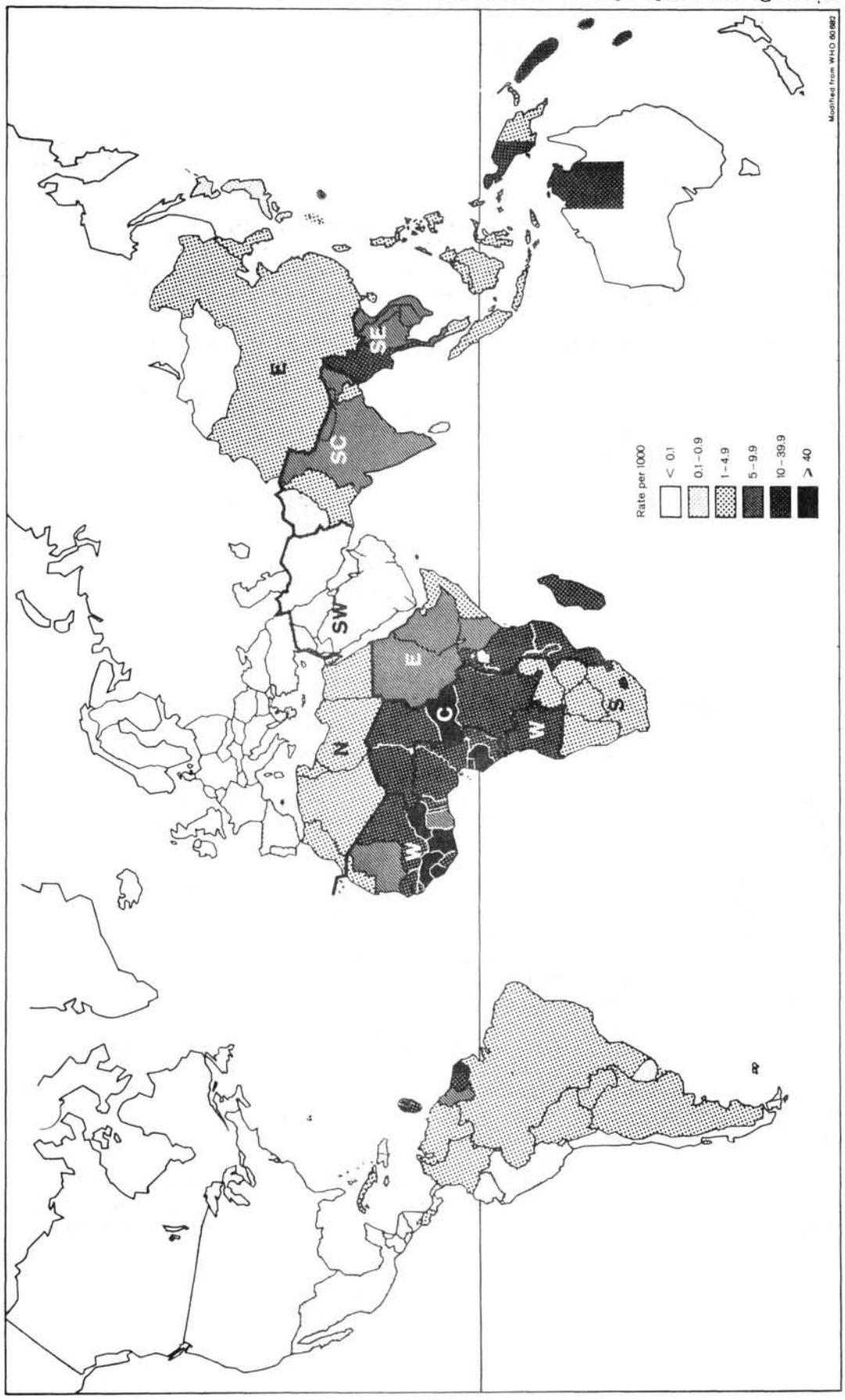
Unfortunately, some incidences rise as the unhygienic conditions of overcrowded urban areas take their toll. A recent dramatic example of this is the incursion of cholera into West Africa where it has not previously been endemic. Overloaded pipeborne water supplies have facilitated the spread of this disease more rapidly than in traditional socieities where water from wells and streams is not polluted so quickly nor used by such large bodies of people. Even leprosy, for which effective controls are available, has not yet been halted. The 1969 Report of the British Leprosy Relief Association is pessimistic:

> "The world problem of leprosy, far from diminishing following the introduction of the sulphone curative drugs, continues to be aggravated by rising world populations, bringing reduced standards of hygiene and living conditions which are conducive to the spread of the disease. The combined efforts of Governments, Missions and other organisations, fail to reduce the reservoir of infection which keeps leprosy going." (23)

The present distribution of leprosy is indicated in the map on the next page adapted from W.H.O. statistics (24), and the overall incidence as calculated by W.H.O. is reproduced as Table 4.

The incidence of physical handicap in the developing countries can be estimated only within the broadest of limits. As with other diseases and conditions, difficulties in assembling data are due not only to the lack of

trained staff to conduct surveys but also to superstition, prejudice and ignorance which act to prevent crippled children being brought forward for assessment and treatment. The mildly crippled pass for normal; the more severely handicapped die, or, if they live, tend to be kept apart and ignored.



DISTRIBUTION OF LEPROSY IN THE WORLD

TABLE 3

SOME DETAILS OF PHYSICAL HANDICAP IN DEVELOPING COMMONWEALTH COUNTRIES

AREA/COUNTRY	TOTAL POPULATION (a)	LEPROSY		POLIOMYELITIS		ALL PHYSICAL HANDICAPS		APPROXIMATE NUMBER OF PHYSICALLY HANDICAPPED CHILDREN(n)
		INCIDENCE PER 100,000	APPROX. NO. OF AFFECTED PERSONS(7)	INCIDENCE PER 100,000	APPROX. NO. OF AFFECTED PERSONS	RATE PER 100,000	APPROX. NO. OF AFFECTED PERSONS (g)	
WORLD-WIDE	4,318m.	250-500 (b)	11m.-20m.			1150(h)	50m.-100m. (k)	5m.-15m.
COMMONWEALTH	890m.	250-500 (b)	2.25m.-4.5m.			1650(h)	14.7m.	1.5m.-2.75m.
FIJI	500,000					500(i)	2,500	250-375
GHANA	8.6m.					1250	1m.(l)	100,000-150,000
INDIA	533m.	556(c)	3m.				8m.(m)	800,000-1.2m.
KENYA	10.5m.	760(c)	800,000(c)		25,000(c)	2750-5000(c)	500,000(k)	500,000-75,000
MALAWI	4.4m.	1599-2000(d)	66,000				3,000 registered	
NIGERIA	64m.	1800(c)	1,150,000					
SIERRA LEONE	2.5m.	3800 N. Terr. 1200 overall (e)	30,000					
SINGAPORE	2m.						700 spastic and 186 paralysis registered(k)	
TANZANIA	13m.	1020(c)	132,500		25,000(c)			90,000-150,000(c)
UGANDA	8.3m.	1700(c)	140,000		25,000(c)		650 + 6,000 annual increase(k)	
ZAMBIA	4.2m.	1000(e)	42,000					
HONG KONG	4m.	175(f)	7,000					
BRITAIN						150+130 delicate children (j)		10,500 school places needed for delicate children (j)

NOTES ON TABLE 3

(a) Population figures are those estimated for mid-1969 by the United Nations, except for Ghana (1970 census figure) and Uganda (1970 figure in UNECA Population Programme Centre).

(b) Lower rate: Ahrens, T. et al. What is Leprosy? Basle, Documenta Geigy (mimeo), 1969. Higher rate: Lepra Annual Report 1969.

(c) Anderson, E.M. The Education of Physically Handicapped, Blind and Deaf Children in East Africa, London, National Foundation for Research into Crippling Diseases, 1968.

(d) Lepra Annual Report 1969.

(e) Lepra Annual Report 1968.

(f) Hong Kong Annual Report 1969.

(g) Calculated from incidence.

(h) Calculated as twice the incidence of blindness plus the leprosy incidence.

(i) Report of the Headmaster of Suva Crippled Children's School, Fiji.

(j) Jackson, S. Special Education in England and Wales, London, 2nd edition, 1968.

(k) International Labour Organisation. Report to Participating Governments on the ILO Regional Seminar and Training Course in Vocational Rehabilitation, held in Denmark 14 July-2 August 1969, Geneva, ILO, (mimeo).

(l) Ibid. Suggested figure of 100,000 permanently disabled through physical handicap.

(m) An additional 8 million cases of active tuberculosis are reported in Indian and Foreign Review, 15 December 1970.

(n) Based on 10% - 15% of the total.

TABLE 4

GEOGRAPHICAL DISTRIBUTION OF LEPROSY IN THE EARLY 1960's (WHO)

Continents and countries	Population total	Leprosy patients		
		Registered	Estimated	Treated
AFRICA				
North	56 800 000	27 300	124 500	?
West	83 750 000	1 024 000	2 047 000	826 000
Central	22 100 000	417 500	783 000	91 000
East	79 900 000	238 400	824 000	146 000
South	26 700 000	10 000	89 000	?
	269 250 000	1 717 200	3 867 500	1 063 000
AMERICA				
North	208 300 000	416	980	?
Central	73 000 000	22 800	54 500	11 500
South	147 800 000	154 600	302 000	84 300
	429 100 000	177 816	357 480	95 800
ASIA				
South West	54 250 000	5 800	21 700	2 450
South Central	583 800 000	545 000	2 819 000	511 800
South East	231 800 000	312 000	1 184 000	232 100
East	838 520 000	52 600	2 450 000	45 000
	1 708 370 000	915 400	6 474 700	791 350
AUSTRALIA-OCEANIA	7 140 000	9 680	33 200	4 290
EUROPE	606 850 000	16 600	51 900	9 190
WORLD	3 020 710 000	2 836 696	10 784 780	1 963 630

Organisational problems of physical handicap

Despite the large incidence of crippling diseases and conditions in the poorer countries, medical and educational services have lagged behind those for the blind and the deaf, although they exceed those for the other major handicapped category, the mentally handicapped. For this there is one convincing explanation:

> "A crippling disability tends to conjure vague doubts, misgiving and fear of the unknown. The softer elements of pity and sympathy can be more commonly and easily directed to the blind and the deaf; but it requires some special effort to resist fear and disgust of the unfamiliar and the obviously abnormal. The undesirable attitude of society towards the crippled becomes more intensified in the face of mounting ignorance and superstition." (25)

Such attitudes are reinforced by rationalisation such as that encountered by the author in the Gambia. Cripples in the streets of Bathurst, he was told, are invariably Senegalese who have come across the border in order to benefit from the charity of Gambian Moslems. The lack of provision for treatment or rehabilitation is not, therefore, seen as a serious deficiency (26).

The lack of priority awarded to provision for the handicapped by official bodies militates against early identification, diagnosis and assessment of handicapped children. Neither staff nor equipment is provided on a scale to meet the need. On the other hand, social attitudes lead to many of the physically handicapped not being brought forward to take advantage even of the services which can be offered.

> "Poliomyelitis is rarely seen in the acute phase - most cases come to hospital weeks, months or even years after the onset. This is mainly due to the mental attitude towards certain illnesses as 'Acts of God'. Gradually this attitude is being overcome, but, the next stumbling block is the reluctance to attend for treatment over a prolonged period. Miracles are expected to be performed in a relatively short time irrespective of the severity of the case and the length of time left untreated." (27)

A similar situation has been recorded from Kenya, where the majority of cases seen in the rural areas are neglected poliomyelitis (28).

The location of handicapped children as soon as possible ensures the best chance for successful treatment. Early diagnosis of cerebral palsy is essential so that a child may be guided according to his real capacities (29). In addition to problems arising from social attitudes and lack of staff and equipment, however, there are the difficulties of interpreting the results of psychological tests administered to selected groups of handicapped children (30). In particular, the relative effects on the test results of environment and of cerebral palsy need to be determined, and a base-line of achievement for normal children of the locality established. Until such tests are created and validated, detailed assessment of many handicapped children will be impossible.

handicapped who will have the chance of attending school in the coming years. At present it is only a tiny minority of the markedly crippled who attend school in the developing countries. Only 10% of the children attending the Kampala Round Table Polio Clinic, for example, can be placed in ordinary schools (34). Those who attend the clinic are only a small fraction of the physically handicapped children in the country, yet before 1969 there were no schools for physically handicapped children in Uganda except for the class associated with the Polio Clinic (35). Accurate data are not obtainable for many of the countries covered by this study, and, while it may be assumed that some mildly physically handicapped children are attending ordinary schools unrecognised, it is probable that the percentage of crippled children receiving education is higher than the 2% of the total estimated for the blind and the deaf.

The physically handicapped child cannot be expected to succeed educationally through ordinary school provision. His special needs may well be less apparent than those of the blind child, in particular, but these needs still exist. As has been indicated already, most crippled children have additional handicaps which need to be taken into consideration if the school is to have any beneficial effect. Psychological problems, too, should not be overlooked. Handicapped pupils are frequently highly distractible in classroom situations, while spasticity tends to be accentuated when the child is interacting with a group. Both factors affect adversely the rate of learning. More particularly, crippled children have rarely been able to enjoy the same range of the pre-school experience as their fellows. This means that, whatever the community into which the child is born, it is almost inevitable that he will suffer disadvantage in comparison with his peers as a result of his impaired senses, limited mobility or lack of strength.

Physically handicapped children have a wide range of capacities and needs (36). Such children range from those additionally handicapped by mental subnormality or severe sensory defects to those at the other end of the scale who could profit from secondary and tertiary education were it available to them. In the context of the developing countries one of the major problems is that of reliable assessment on which to base predictions. As has already been noted above, the most striking feature to emerge from an experiment in Uganda was the poor and meagre response of the handicapped children to the tests (37). Unfortunately it was not possible to distinguish the relative effects of environment and brain damage, nor to establish norms from which deviations could be usefully measured.

As for children suffering mildly from othe handicaps, slightly crippled children in the developing countries ahould as far as possible be integrated into ordinary schools. It is both more satisfactory educationally not to isolate the child unnecessarily from his fellows, and cheaper than providing special institutions (as a local authority in England discovered recently, when, for the cost of an adapted lavatory compartment at the local school, the much higher continuing cost of transporting a crippled child to a special school was eliminated). Nevertheless, for the more severely handicapped child special provision is necessary, in the form of a special day school, special boarding school, hospital school, home teaching, or teaching through correspondence and other media. Circumstances in most developing countries will probably make it necessary for special schools to be provided indefinitely for leprosy patients, while methods involving correspondence and media can be directed effectively only to the minority of older children who are already literate or the even smaller minority of young children whose parents are literate and both able and willing to co-operate with the education authorities.

The physically handicapped child, even of accepted by his community and able to attend a normal school, has to recognise his limitations. An English mother of such a child said that the worst thing to her, was "him getting upset about being handicapped. There's so little you can do to comfort him." (31) Guidance and counselling services, therefore, can play a vital role in minimising secondary psychological handicaps by helping the child to come to terms with himself. Such services are currently available in very few of the developing countries. Small-scale services, however, are now being built up in a few countries such as Malaysia.

The present activities on behalf of the physically handicapped in most developing countries are concentrated on rehabilitation and vocational training of the adolescent and young adult, rather than on early diagnosis and treatment of the child. This approach can be justified in a number of ways, not least that public funds should not be devoted to young children whose survival is by no means certain. Affecting all planning for the crippled, however, as for most other forms of handicap, are the pressures of a public opinion founded on ignorance, superstition and fear. A major part of official education and rehabilitation programmes will have to be directed at the community at large if the cripple is to be allowed to participate to his full capacity within his society once he has been trained.

Education, rehabilitation and training alone are inadequate provision for the physically handicapped, for it may be questioned whether any purpose is served by raising the hopes of the handicapped youngster and his family without being sure of realising them by the provision of useful employment at the end of the course. One ILO Report sees six main obstacles to the success successful employment of physically handicapped persons in Africa: over-protection of the crippled child in the home; lack of confidence of the handicapped in their own ability; lack of medical facilities; lack of educational facilities; lack of transport; lack of training opportunities; the heavy nature and seasonal aspect of agricultural work (32). Where, as in Uganda, only 2.5 per cent of the population is in paid employment, the handicapped cannot be trained in the hope that they can afterwards compete on equal terms in this fierce market. Even assuming, therefore, that public opinion can be affected sufficiently for the crippled child to be given his chance, an integrated programme oriented towards ultimate gainful employment is vital if the confidence of the youngster and his community is to be preserved and reinforced. The formal educational programme must be regarded as but one aspect of an overall provision and not as an end in itself. As the head teacher of Suva Crippled Children's School, Fiji, says in his report:

> "To let a badly handicapped young adult, who would stand no chance of a job in the ordinary field, leave school and feel that he was useless in the community after spending years of proving himself, would be criminal. Far better if he had been left at home in the beginning." (33)

Education for the physically handicapped

To advocate the linking of education to rehabilitation, vocational training and ultimate employment in this way is not to minimise the difficulties involved. The formidable rate of school-leaver unemployment in most developing countries presents a severe obstacle which can be overcome only by comprehensive and realistic planning for those few among the physically

A small number of pioneer special schools for crippled children are developing approaches and curricula which could be of considerable value to others working in the same field. The Salvation Army Joytown School at Thika in Kenya (38) has been running for nearly ten years and now functions mainly as a primary school for post-polio children who apply for places from all over Kenya. The school is well staffed and equipped, enabling the children to follow a full academic curriculum together with a wide range of out of door sports, games and clubs. Every child is taught to swim in the school pool. Relations with neighbouring schools are good and opportunities are taken to publicise the work through broadcasts and other means. A major problem is the employment of school leavers, although it is planned that when finances permit, vocational training facilities will be established on the compound.

In contrast with the relatively sophisticated organisation of Joytown, the Atunda-Olu School for Handicapped Children in Lagos, Nigeria, (39) is small in numbers and very limited in resources. The school opened in 1965 with seven pupils and now has over sixty, all of whom live at home and travel daily to school in government subsidised transport. Unlike Joytown their disabilities result from a wide range of causes, including polio, cerebral palsy, epilepsy, spina bifida, renal rickets, cancrem oris, sickle cell anaemia and tuberculosis. This means a complicated programme of physiotherapy, conducted by a volunteer twice weekly. The school organisers recognise that their activity represents "a drop in the bucket of the immense need" but believe that this effort will serve to stimulate concern and further provision in the community.

The School for Crippled Children in Suva, Fiji, (40) unlike Joytown and Atunda-Olu, is conducted by a voluntary society, the Fiji Crippled Children Society, and not by a church organisation. Small numbers of blind and deaf children are accommodated but the bulk of the 94 children on roll are physically handicapped. The staffing is helped by the presence of a headmaster provided by the Australian government, and by United States and New Zealand volunteer physiotherapists. Many local service clubs (the Lions, Rotary, Apex) and charities (the Hibiscus Charity Chest) work to supplement the Government grants to the school. A sheltered workshop has been built on the school site and contracts have been carried out for local firms - assembly of bottle divisions was running during 1969-70 at the rate of 24,000 per month. Standards at the school are high, in terms of staff and buildings. The comprehensive programme includes a home for crippled children in Suva (staffed by three Catholic Sisters), a physiotherapy department and the sheltered workshop. Such overall provision makes possible the long-term care, education and training which are essential if the needs of crippled children in developing countries are to be met constructively.

A more traditional and specialised school is the Chinkankata Leprosy Patients School in Zambia (41). Seventy children are taught on a varied and practical curriculum by a competent and adequate staff supported by sound medical care. The McGregor Commission felt that the school should not allow its policy to be affected too strongly by the neighbouring academic secondary school since this could raise unrealistic hopes. Realism, the Commission believed, required a largely practical curriculum which would give the leavers the best chance of reintegration into their communities and serve as an example to other such schools. In these circumstances the case for "centres of excellence" can be made very effectively.

The treatment for many crippled children involves long periods spent in hospital. The proportion of handicapped children who enjoy this provision

in developing countries in minimal but, for those few who do, hospital classes should be organised. This may be regarded as therapeutic as well as educational, and the two aspects are in fact mutually reinforcing. Before the child can benefit from teaching he must be as fit and hopeful as possible; before he can become fit and hopeful he must have the incentive in the form of acquiring knowledge and skills against the future. A number of excellent hospital schools and classes are operating in the developing countries, such the Kitwe Central Hospital children's class which impressed the McGregor Commission which commented: "We have nothing to add to our general commendation of this particular class. The sooner other Zambian hospitals can start classes like it the better." (42) The Red Cross, too, runs hospital hospital schools, frequently supported in some measure financially by the local government (43). In Hong Kong, for example, the Red Cross runs seven hospital schools with the chief aim of keeping the children occupied by producing a school programme which is seen as an essential link with normality, thus making the transition back to the ordinary school much easier when the child is discharged. Group teaching in classrooms and wards is organised for those not confined to bed, as well as individual bedside tuition for those who are. When considering the question of hospital schools in developing countries it is interesting to reflect that at a recent conference in Britain at which the Younghusband Report (44) was discussed, no mention was made by any delegate of the role and function of the hospital school (45).

Forms of educational provision for crippled children made in the richer countries, such as home teaching by peripatetic teachers, are at present out of the question in the developing countries because of lack of money and staff, and because of the distances involved in most areas. As mentioned briefly above, however, there seems to be much more prospect of a wider use of the mass media supplemented by correspsondence courses and, as conditions make it possible, short residential courses and home visits. Pupils suffering from infectious diseases, for example, could be reached by radio and correspondence, as could isolated cases in remote areas. Now that the transistor radio has become available to virtually every compound (and for very poor families with crippled children the service clubs could be encouraged to organise projects for supplying radios) the possibilities have been opened up. Considerable experience and expertise are available in a number of countries for the organisation of courses, in particular Australia and New Zealand among the richer countries, and India, Malawi and Zambia among the less developed. Correspondence and radio courses, however, depend on the child being already literate (as he may be if crippled during later childhood) or his family being literate and both willing and able to help. In many cases these conditions will not be met, but pilot schemes would both benefit directly those making use of the courses and also provide useful basic experience for the organisers from which larger schemes could be developed. Radio programmes also could usefully be aimed at the parents of handicapped children, for it is probable that many would be prepared to help their children if they only knew how.

Isolation is probably the greatest enemy of the crippled child. Loneliness, boredom and frustration can soon sap the desire to learn, participate and communicate. The handicapped child, even more than his non-handicapped peers, needs play materials and organised experiences if his retardation is to be reduced to a minimum, because his incidental, casual experiences will be so much more limited. Above all, the opportunities should be available for socialisation, so that the handicapped child learns his role as a member of a group. It is this aspect of therapy which is frequently so difficult to achieve in the developing countries where attitudes tend to be

prejudical to the handicapped child. An interesting piece of research undertaken recently among children in Britain indicates that the major factor in influencing children adversely against their fellows is not colour nor intelligence but visible deformity (46). To this must be added the very strong prejudices against some particular forms of handicap in every country. In enlightened societies conscious efforts are made to bring crippled children into contact with normal children through integrated classes, clubs, sporting activities and games, clubs, excursions, holidays, Scouting and Guiding. Informal contacts can often lead to mutual acceptance. Those responsible for handicapped children in the developing countries could well explore appropriate ways in which these types of activity could best be fostered and encouraged. The "team" approach, for example, by teachers, medical, social and voluntary workers to the problems faced by the handicapped child increases the possibility of the child's benefitting from special education, where it can be provided (47). Education cannot in this context be limited to schooling.

The role of the teacher

The team needs to have a leader if the child is to benefit from the concerted efforts of several specialists rather than be confused by fragmented approaches. The most appropriate leader is the teacher, who, after the parent, has the greatest influence on the child (48). It is the teacher who can most readily act as the continuing link in the long process of rehabilitation, education and training which most crippled children need if they are to function again adequately in their community (49). In the developing country, as has been noted in earlier chapters, the teacher may well find himself required in the rural areas to act as a one-man team, for lack of other trained personnel. This reinforces the need already expressed for every teacher during his course of training to become conversant with the causes and symptoms of major handicaps in his country, and to have some knowledge of essential educational techniques for dealing with handicapped children.

The practical problems associated with the staffing of schools and classes for crippled children are numerous. One particular aspect is of general concern: the lack of continuity of staff in any one school. In some cases this may be attributed to the absence of incentives for special school staffs and the consequential departure of trained teachers in search of better conditions of service (50). This applies especially to teachers working in voluntary agency schools which are not fully supported by official funds, and lends weight to the argument for an integrated national teaching service within each country. The present status of teachers dealing with handicapped children is markedly low, since a high proportion of staff is untrained, not infrequently handicapped themselves, and generally regarded as working more in the field of social welfare than education. An illustrative anecdote of staff staffing problems may be recounted from the Qua Iboe Mission Leprosarium School at Ochadamu in Nigeria's Kwara State. Some fifteen years ago the Medical Superintendent of the settlement succeeded in attracting a qualified teacher to work in the school for two terms, in return for a free hernia operation (51). The bargain was concluded in the most amicable fashion but can hardly be regarded as a basis for a staffing structure. Nevertheless, it typifies the problems faced by then proprietors of schools for crippled children.

While these antipathetic attitudes persist it is difficult to envisage an early improvement in staffing quality for special schools, especially those for children with infectious diseases. In the more developed countries the general pattern is for special school teachers to be recruited from among proven experienced teachers. (It should be noted, however, that a number of these countries do not require special certification for teaching crippled children (52).) This does not seem to be appropriate for the developing countries at present. In these circumstances the best solution probably lies in a four-fold programme: (a) the financial support from official sources of the salaries of all teachers in special schools; (b) the inclusion of guidance in the teaching of handicapped children as part of the initial training common to all student teachers; (c) the provision of in-service and sandwich courses to enable practising teachers to specialise in the teaching of the handicapped; (d) the development of a staffing structure whereby schools would be provided with aides and auxiliaries in addition to fully-qualified teaching staff, so releasing specialist staff for specialist work.

Equipment, aids and appliances

In the case of physically handicapped children no clear distinction can be drawn between equipment which is educational and that which is medical, since for the child to develop adequately, both types are essential. Broadly, those prosthetics and orthotics which enable a child to move, see about him and communicate may be regarded as medical, those which help his psychological and intellectual development as educational. In both areas the range of possibilities is extensive but, as has already been mentioned in respect of blind and deaf children, the simpler aids have great value and can be of much assistance to children in the developing countries where more sophisticated equipment can be neither afforded nor maintained.

a) Medical aids

An investigation some years ago into problems associated with prosthetics in India revealed three major reasons why in most parts of Africa and the Far East over 90 per cent of those crippled have not even a crutch; (a) few of the physically handicapped could afford the artifical limbs and appliances; (b) inadequate training existed to enable the handicapped to make the best use of their aids; and (c) the design of the prosthetics at that time did not always take into account local climatic conditions. Within the last five years, however, new materials including plastics, laminates and carbon steel, have been adapted for use in cheap, simple but functional prostheses. A regional training programme has been set up in Iran by the United Nations in order to teach artisans the principles and methods of making and fitting a number of appliances. These new techniques can be of great potential value to the developing countries, since research is concentrating on designing appliances which provide very basic functions, with minimum size, bulk, weight, cost and process time, yet with maximum durability and resistance to deterioration in unfavourable climates (53).

Simple aids using local materials have been designed and produced for a number of years. For example, a series of simple rubber boots and clogs and sandals has been devised for the protection of leprosy patients' feet and to compensate for minor amputations (54). A number of local alternatives to expensive imported equipment have been evolved in Uganda (55). Calipers, boots, clogs, crutches and wheelchairs can be made by semi-skilled labour

using local materials which, while not of the sophistication of more costly apparatus, can at least be made available on a wide scale. The total salary of the 23 artisans in the Uganda workshop is considerably less than the salary of one orthopaedic technician from overseas. Further economies have been achieved in some countries through the production of aids in sheltered workshops, thus also giving purposeful employment to disabled adults (56). An interesting experiment in distributing appliances is operating in Kenya in the form of a mobile orthopaedic unit, (originally recommended by Elizabeth Anderson in her report (57)), so overcoming another obstacle in the way of providing for the physically handicapped in rural areas (58).

(b) Educational aids

Toys, educational materials and teaching aids for use by handicapped children are also being made successfully in sheltered workshops by young people and adults who are themselves handicapped (59). The ISRD Committee on Technical Aids, Housing and Transportation, based in Sweden, publishes a continuous supply of information about new aids. Although many are of a degree of sophistication far beyond the resources of the developing countries the lists indicate a number of simple aids, such as pointers, mouth sticks, and pattern boards which are capable of being adapted. Simple vocabulary cards, spelling-boards, spelling-boxes and counting-sticks have been developed to enable the most severely handicapped cerebral palsy case to learn, and to communicate the success of his learning to his teacher (60). The importance to learning of an adequate supply of play materials to stimulate both mental and physical activity cannot be overemphasised (61). Clay, walking frames and trucks, dolls, model cars, handicrafts, painting, materials for making collections, all can be made available in even the simplest surroundings. If the local social customs are favourable to the idea, the caring for small domestic animals is valuable for the handicapped child who can feel responsible for the wellbeing of another creature more helpless than he, at the same time as learning useful practical lessons. The range of toys designed for each disability must be of good quality and varied both in style and colour, suited in size, weight and mobility to each stage of the handicapped child's development. A study of the educative value of toys for normal children gives essential guidance in assessing the motor capacity of the handicapped child (62). Toys are "a therapeutical weapon" and an important educational aid. Much scope remains for them to be developed for use in the poorer countries. This could well be one area in which provision for the handicapped child might provide preliminary information and experience which could carry over into the ordinary schools in these countries, where toys are at present rarely regarded as of positive educational value.

Proposals

As already mentioned in respect of other handicaps, provision for the physically handicapped cannot be planned comprehensively in the absence of data. The schools and medical services can play complementary roles in establishing types and distribution patterns of handicap. The schools, too, have a specific responsibility in the moulding of public opinion, by inducing parents to bring forward their handicapped children for assessment and treatment, and also by fostering more positive attitudes towards the handicapped by the more normal children. On a wider scale, identification and public enlightenment can be encouraged by the mass media.

Provision for the physically handicapped should be planned on a common basis by educational, medical and welfare bodies. For example, with the increasing trend of governments to assume responsibility for school systems for children between the ages of 5 and 18 years, voluntary agencies might well reassess the role in which they can function to best effect. They might consider greater involvement in special education as their ordinary schools are absorbed into the public system. In particular they might concentrate on identification of handicapped children, and the provision of pre-school activities and vocational training, so extending both ends of the normal course. Voluntary agencies could also make a valuable contribution by increasing their activities in the area of prevention of handicap, most obviously through nutrition campaigns.

Within special education consideration should be given to the production of a range of paramedical and paraeducational personnel, with the object of releasing highly qualified personnel for specialist duties. Aides and auxiliaries could help to increase the efficiency of the services provided without a proportionate increase in training and salary costs.

Research should be conducted into the effectiveness of the provision which is made at present for physically handicapped children in a representative selection of developing countries. Particularly, follow-up studies should be made in order to assess how far and how well handicapped young people have succeeded in finding and keeping employment and those who have not, and comparative studies of the lives being led by those who have had the opportunity of formal schooling and those who have not, could give valuable indicators for further developments.

As a basic principle the education of the physically handicapped should take place in normal schools wherever possible, reserving special schools only for those whose severe disability precludes them from attending ordinary schools. While this principle may be generally acceptable, its implementation will vary from country to country and area to area depending on the incidence of handicap, social attitudes towards handicap, the quality of teaching staff available, and the system of public transport. The McGregor Report recommends the development to the highest possible standard of those institutions which show most promise (63). The concept of "centres of excellence", the creation of outstanding schools to act as examples to others in the area, was put forward by the Indian delegation at the Fourth Commonwealth Education Conference (64), and has also been accepted as policy in Ceylon. It seems to have much to recommend it in the field of special education, where history has resulted in a large number of poor special schools. The establishment of a few top quality schools could inspire and reinvigorate those working in special education and also have a positive effect on public opinion.

Further investigations are needed into the use of modern media in the education of physically handicapped children, especially those needing secondary education who cannot find places in ordinary schools or are excluded from them. Correspondence courses, supplemented by radio broadcasts, and the use of school buildings for vacation courses, could bring help to many children whose school experience would otherwise be extremely limited.

Planning for these children should take into account the fact that most will spend their lives in rural communities. Some, possibly with mechanical aids, will be able to take part in agricultural activities. For the

others, occupations should be planned in related activities, storekeeping, book-keeping, the servicing of co-operatives, the making and repair of simple machinery, and so on. The occupations ancillary to agriculture in most countries are undersubscribed and at present attract few of the ambitious able-bodied, many of whom prefer to seek success in the towns. The vacuum they leave might well provide the opportunity for some of the physically handicapped to prove themselves.

The problem and the possibilities of the physically handicapped in the developing countries are effectively illustrated by a short account from Uganda:

> "The rehabilitation programme in Uganda has had other dramatic successes. There was, for instance, the boy born without legs and kept in a dustbin at the back of an Asian's hardware store. The father was not only ashamed but completely at a loss as to what should be done. Today the young man is a medical student." (65)

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EPILEPSY

> "Epilepsy is truly an international, universal disorder. It respects no political boundaries. It is indifferent to language, religion, colour, sex, education and economic class. Although seizures are more frequently manifest in the young, people of all ages are afflicted. It is sometimes contributory to death and occasionally fatal. It is thought to be provocative of suicide. But, more commonly, it is a disorder that one must accommodate to for the better part of a lifetime" (1).

The tragedy for the epileptic child in most developing countries is that, although with the aid of simple medical treatment his symptons can normally be suppressed, such is the social attitude to his handicap that he is excluded from the ordinary school system. Epilepsy is the supreme social handicap, more so even than leprosy since the grounds for rejection are so much less well founded. The sufferer's problems result almost entirely from the attitudes of others and not from any physical or mental deficiency within himself. Educational provision for the epileptic child in the developing countries, therefore, does not depend on the availability of additional funds, specially trained teachers or expensive equipment, but simply on his acceptance as a normal child entitled to a place within the existing school system. The educational effort on behalf of the epileptic dhild must originate as a campaign of public enlightenment, the more so since the numbers involved are considerable.

Incidence of epilepsy

The lack of opportunity for surveys in depth, the tendency among many peoples to conceal epilepsy, the tradition whereby epilepsy is treated only by the local healer and not by Western medicine, all combine to make difficult a reliable estimate of the incidence of epilepsy in developing countries. Ediopathic epilepsy tends to manifest in early childhood; because of its aetiology symptomatic epilepsy tends to occur later in life. The overall world incidence estimated by the World Health Organisation in 1955 was 4:1000; a later estimate for Australia gave 4 to 5:1000; a recent survey in South-East England indicated 6.2:1000 (2). An estimate of between 8 and 13:1000 for African may well be too low (3). To put this incidence into perspective it may be compared with world estimates for the incidence of blindness of about 4.5:1000 or leprosy of 2.5:1000. While the latter two afflictions command widespread sympathy and attention, it cannot yet be claimed that the problem of epilepsy is being tackled on a scale compatible with the needs of at least 15 million sufferers.

Little information is yet available about the relative incidences of epilepsy in more and less developed societies. No evidence has been adduced to show that among the less advanced peoples the incidence of epilepsy might be lower than among more sophisticated groups. In support of this contention a survey of children in Texas showed similar incidences among white, black and Mexican children (4). Despite the belief that epilepsy may be symptomatic of the stress of modern living, other causes limit the possibility of the developing countries having a markedly lower incidence:

> "From what is known of aetiology, it is probable that the numbers would be higher in under-developed countries with

frequent childhood infections involving the brain and less adequate obstetric services." (5)

The Pan-African Psychiatric Workshop held in 1970 estimated a prevalence of epilepsy in Africa of between 2 and 7 times that of Europe (6).

An incidence of 10:1000 implies the existence of 3 million epileptics in Africa today; a reduced incidence of 8:1000 would result in an estimated total of more than 7 million epileptics in Commonwealth countries, 4 million of whom will be in India and half a million in Nigeria, to take the most populous countries of Commonwealth Asia and Africa. As a footnote to the estimation of incidence, it should be recorded that there are indications of an increasing frequency of more severely handicapped epileptics (7), and of severely handicapped epileptics with additional handicaps (8). With epilepsy, as with other handicaps, a single affliction is increasingly unusual:

"It should now be recognised that the simple handicap is rare - if it ever existed" (9).

Causes

Were the first causes of epilepsy more clearly understood it would be easier to seek a cure. Were a cure available it is probably that the public attitude towards the affliction could be changed over a relatively short period, as is happening in the case of leprosy. For the present, however, no such prospect is in sight, except for the small number of cases of symptomatic epilepsy which responds to surgery. For the remaining wide range of epileptic disturbances where the underlying causes have not been identified, treatment is suppressive not therapeutic.

Epilepsy, it is frequently said, is a sympton common to many different conditions and should not be regarded as a disease in itself. The epileptic attack is merely the outward manifestation of some damaged nerve cells in the brain. "Anyone can have an altered rhythm of the brain." For this body of opinion the social aspect of epilepsy tends to overshadow the medical. For others, this approach is thought to be inadvisable, unjustified and self-defeating, in that this view of epilepsy as a symptom is but a half truth, the effect of which might well be to prejudice the urgency of research into its root medical causes (10). Little purpose is served by attempting to alleviate social prejudice by proclaiming epilepsy as the inexplicable symptom of a range of unknown causes. Such an approach can only lend reinforcement to the claims of local traditional healers.

Symptomatic epilepsy is sometimes operable; idiopathic epilepsy is at present incurable, although many sufferers find their attacks decreasing in frequency with age. Disagreement over the "half truth" description of epilepsy is repeated in disagreement over some of the possible causes and again over the possible degenerative effects of repeated severe seizures, all of which adds point to reiterated appeals for continued research. As an example of the lack of common ground on aetiology in an area of particular significance for developing countries, there is the question of cysticercosis. One authority states: "Epilepsy is common in Africans. In some areas cysticercosis plays a part ..." (11), while another declared subsequently: "Among the causes where aetiology was determined, it is outstanding in our series to show that parasitic diseases occupied the second place in importance. All these cases were due to cerebral

cysticercosis ..." (12). Yet another report relates to a group of patients in Natal whose epileptic seizures were attributed to cysticercosis (13). On the other hand, other investigators could not "prove evidence for any such aetiological relationship" between cysticercosis and epilepsy (14).

Perhaps more disturbing from the point of view of educational provision for the epileptic child is the lack of a concensus of opinion about the progress of epilepsy and its effect on intelligence and personality:

> "The natural progress of epilepsy is very variable. In some cases, particularly those of grand mal, the repeated fits may eventually cause major brain damage with paralysis. In others there is a strong tendency to natural recovery, with a progressive lessening of the frequency of the attacks. An important feature of many cases of epilepsy is so-called personality deterioration, which may consist of a steady deterioration in intelligence or of alterations, invariably for the worse, in the victim's character. In many cases this is undoubtedly due to repeated damage to the brain during attacks, but other possible explanations have to be considered. A child undergoing the usual form of treatment may have his perceptions blunted by the drugs. Or - and this undoubtedly happens in a number of cases - the bewildering nature of the attacks and the chronic state of anxiety which comes from never knowing when the next fit will occur may combine to produce quite serious emotional disturbance" (15).

Other workers reject the concept of epileptic deterioration: "It is often thought that children with epilepsy are retarded, even that they deteriorate. This is erroneous" (16). Slowness and fatiguability are effects of the therapy and not of the complaint. Severe personality changes, however, have been recorded as being exhibited by three symptomatic epileptics who had grand mal fits without aura (17). One survey of the origins of the concept of an "epileptic personality" concludes that it may well have arisen from observations conducted with a highly selected patient population which included many with severe handicaps (18). For the purpose of the educationist, however, additional research is essential for the development of appropriate forms of teaching and care if deteriorating epileptics exist and are in need of education.

The greatest number of epileptics suffer from grand mal idiopathic epilepsy, the characteristic form which incurs fear and odium among so many traditional, and modern, societies. Its spontaneity, absence of apparent immediate cause, unpredictability and dramatic manifestation have led to the widest speculation about its origin. Bewitchment and magical causes are ascribed by many African peoples; it has been mentioned as a belief among the Lenjes in Zambia (19), among Southern Nigerians (20), and in the littoral of the River Gambia (where a river devil is identified as the cause)(21). Similar beliefs are recorded in respect of the Wapogoro in Tanzania, the Baganda in Uganda (who believe the cause to be a lizard in the brain), Kenya and other countries of Africa (22). Since the Western medicine men can offer no explanations of their own it is not surprising that traditional beliefs are still widespread and epilepsy frequently regarded as beyond the competence of European doctors.

Symptomatic epilepsy, the result of an identifiable lesion, is

probably increasing, as the consequence of a greater incidence of severe damage to the head through war or accident which no longer proves fatal -

> "the intolerable number of damaged human bodies heaped on our highways by irresponsible drivers. Until mankind can discipline itself to cease from mass and individual acts of violence, we shall always have epilepsy" (23).

Among other major causes of symptomatic epilepsy are neonatal brain damage (frequent in Africa as the result of traditional birth practices), encephalitis, meningitis, poisoning, febrile convulsions and malnutrition. A report of 1967 lists malnutrition as the most common cause of death among Ghanaian children subjected to pathalogical examination (24), and a further investigation draws attention to the possible role of nutritional disorders (kwashiokor, beri beri, endemic goitre) as causes of epilepsy (25). An indication of the possible effects of advance in standards of living may be deduced from the fact that among the precipitating factors listed for epilepsy in Nigerians there appears "television" (26).

Treatment

The only treatment which can be offered by Western medicine, then, apart from the very small number of cases of symptomatic epilepsy which responds to surgery, is essentially palliative and suppressive. No permanent cure can yet be promised for the wide range of idiopathic cases. The Pan-African Psychiatric Workshop held in 1970 stressed the value of phenobarbitones as a very useful and cheap drug for the control of cortical epilepsy, agreeing that this treatment can safely be administered by paramedical personnel to manage 80% of the typical cases in a general clinic (27). Nevertheless, epileptics in developing countries will tend to approach the dispensary and the hospital for suppressives only when they have exhausted the possibilities of a cure offered by local healers. In consequence, many of those presenting themselves for treatment have been suffering with epilepsy for an extended period, 40% for more than two years in one account (28), the majority in another survey for at least four to six years (29), two of the patients in a third investigation for as long as 39 years (30). The hospital remains for many traditional peoples the last resort, the place in which to die. Not only does the patient or his relatives have to be convinced of the desirability of treatment by Western methods; unless the service is easily available he will make no undue effort to seek out a doctor in whom he has little confidence, nor will he maintain regularity of treatment once begun. Treatment is also frequently hindered by lack of drugs and lack of trained paramedical staff (31). Finally, the disturbing side effects of some treatment may well destroy the desire of the patient to continue a course. A high percentage of patients on large doses of anti-convulsants have been recorded as complaining of irritability, feeling slow and dull, drowsiness, impairment of memory and concentration, depression, even a reduced sexual drive (32). The local healer promises much better than this.

The local healer's results, unfortunately, do not measure up to the promises, but, since epilepsy is widely considered as beyond the province of Western medicine (33), the local healer thrives. Lest those from modern societies consider this the resort of primitive peoples, it is salutory to recall that in the more developed countries folk medicine plays a larger role than most people would believe (34), with some countries still permitting the inadequate and dangerous practice of "mail order" treatment of epilepsy (35). Local treatment varies from relatively harmless recipes, involving the

external application of onions and alcohol, drinking deer blood, or eating parsley (36), to the permanently damaging effect of treatment administered in parts of Nigeria: a concoction of cow's urine, local herbs, gin, alligator pepper and fresh tobacco juice, which possesses a prolonged hypoglycaemic effect and may cause permanent cerebral damage (37). Of fourteen patients seen with cow's urine poisoning one became blind, deaf and floppy, and three showed evidence of residual brain damage. The rubbing of alligator pepper into the patient's eyes can cause conjunctivities. Many examples have been cited of burns and mutilations carried out by relatives and healers to revive a child undergoing a fit or to rid him of the possessing demon (38). A list of treatments and cures, harmless and dangerous, practised in a range of countries in Africa and Asia, indicates the desperate lengths to which peoples of many nations will go in an attempt to alleviate this frightening affliction (39). The apparent anomaly whereby patients return to local healers after cures have patently not succeeded is explained by the fact that the healers are convinced (and convince their patients) that they can certainly cure epilepsy but that fits frequently start again because that patient is reinfected after the cure (40). Public enlightenment has some way to go, and must be backed by an efficient medical service if it is to break through the effective defence. There are some grounds for believing the mass media are already having an effect in reducing mortality and morbidity resulting from local treatment and crude ideas about resuscitation of patients in post-epileptic coma (41). There is still a long road ahead.

Social attitudes towards epilepsy

Although attitudes towards epilepsy vary considerably from one traditional society to another, intolerance, resulting from fear, is a far more usual reaction than acceptance. In Western Nigeria epilepsy is a dreaded disease among indigenous Africans, thus there is both a tendency for the epileptic to be ostracised from the society and a great urge on the part of the patient or his relations to keep the existence of the disease in the family a closely-guarded secret (42). Among the Bemba of Zambia epileptics are feared and despised, to the extent that they share the distinctive burial rites of lunatics and lepers (43). In parts of Uganda it is common for the corpse of an epileptic to be left in the bush and not accorded normal burial rites (44). Among the Baganda, epilepsy is classed with leprosy and tuberculosis as one of the most feared diseases (45). In Ghana, many epileptics encounter problems in their education and work (46). Similar attitudes are recorded in Eastern, Central and Southern Africa (47).

Ostracism can range from the exclusion of a girl in Britain from a school party visiting the Wimbledon tennis championships (48), to the exclusion of 85% of epileptic children from their families in some parts of Nigeria (49). In a survey conducted in Ojo Village, a few miles from Ibadan in Western Nigeria, 91.9% of the adults indicated that they would refuse to allow their child to play with an epileptic child, an incidence which declined to an encouraging 36.7% in Lagos (50). Even so, only one epileptic child was identified in a total of 4,614 pupils in the sampled schools there, and, during an incidence survey in Lagos, no unrelated person with epilepsy was discovered in any of the 381 households investigated (51). This is not surprising, since any lodger who has epilepsy would be ejected from the household and completely ostracised. Known epileptics do not find it easy to get accommodation. One of the more distressing effects of such rejections can be forecast, if someone is treated like a fool or an outcast, it takes a strong character to resist the pressures to behave in the ways the others expect (52). Rejection and ostracism have the inevitable result that any

epileptic who can conceal his handicap does so. That this may lead to some peril for his society is indicated from the Nigerian experience of Dr. Dada, who recognised his taxi driver as a patient liable to frequent fits and currently attending his clinic (53). Rejection, designed to protect society, may well in such circumstances defeat its own purposes.

This attitude of fear and rejection is not confined to the developing countries. Superstitious attitudes towards epilepsy are manifested by some Australians (54), while in New Zealand, more enlightened attitudes are a recent phenomenon (55). One unexpected result of the impact of Europe on Africa is the apparent deterioration in tolerant attitudes towards epileptics in some areas: In Senegal the extreme tolerance previously extended to the epileptic is being modified under the pressure of Western acculturation, to the extent that in Dakar schoolchildren with epilepsy have had to abandon their studies and adults have lost their jobs in offices and factories (56). The results of intolerance on a small group of individuals in a traditional setting may be judged from the report submitted by a social worker in Kenya to her headquarters at the end of 1968 which is reproduced as Appendix A to this chapter.

There exists, however, some evidence from a number of countries that epilepsy in children is tolerated somewhat more than in adults. Two surveys in India reveal that in Bombay, for example, parents tend to be overprotective of their epileptic children but teachers show ambivalent attitudes, professing sympathy in the abstract while showing reluctance at retaining such children in the school (57). In Vellor, South India, only 32.6% of those questioned objected positively to the admission into school of epileptic children (58). The tolerance extended to children in some traditional societies may, of course, result from the non-recognition of their symptoms.

Almost certainly the single most important cause for the rejection, segregation and ostracism of the epileptic in developing countries is the fear of contagion. This is one reason advanced for the absence of epileptic lodgers in the households in Lagos, where expressed attitudes are relatively liberal (59). Opinions were sought in Lagos and a village near Ibadan as to whether epilepsy was considered to be contagious. More surprising than the fact that 90% of the villagers believed it to be so, 59% of the teachers in both places did so, as did 53.5% of the employers (60). In Central Africa, amongst the Lenje people in Zambia, the cause of epilepsy is sought in witchcraft or infection, and in eastern Zambia epilepsy is held to be contagious by breathing the "bad air" exhaled by sufferers, by merely touching his clothing, or by standing in his shadow (61). From Uganda, similar attitudes have been recorded on the part of the Baganda (62), as they have from Madagascar (63), and Senegal (64). The fear that epilepsy is contagious is so acute that the great majority of epileptics in developing countries are excluded from education, training opportunities and employment, as well as being rejected from the social functions of their community.

The problem of the epileptic child is not limited to the child himself. His immediate family, and particularly his parents, are involved in his situation. Reaction on their part vary from intolerance and rejection to overprotection, resulting in concealment or segregation of the child, or in feelings of guilt, sometimes to the extent of parents themselves exhibiting symptoms of emotional disturbance. The reactions of the parents seem to be common over a wide range of types of society, traditional and modern, for an unwillingness to declare an epileptic child has been recorded as frequent

in France (65), Britain (66), and Nigeria (67). The stigma is deemed by parents in a number of countries to be carried over from the child to them and the other members of their family, resulting in the epileptic child being denied the opportunity of trying for a place in school (68), being separated within the family (69), or, as has been recorded in Australia, being rejected as the black sheep (70).

The epileptic child, then, must combat not only his affliction, frightening and inexplicable as it is, but also often the implied criticism of his parents and the hostility of the community to which he ought to be able to look for support. Small wonder that epileptic children not infrequently manifest signs of mental distress. It is possible that 80% of such character difficulties may be connected with the family environment or the social situation which is unready to cope with the child's condition (71). For this reason, it is reasonable to conclude the child can be assessed only in relation to its total environment (72). In this connection it may be noted that intelligent parents, often professionally qualified, tend to be more intolerant of children with disabilities.

Epileptic children with behaviour disturbances usually have disturbed parents, who may well prejudice the child's treatment:

> "There are conditions under which the epileptic seizure becomes a weapon for the child in a difficult family situation, in which the seizure is integrated in a neuropathic defence system or in which, in reverse, the child's epilepsy becomes a psychological necessity to the family, as a result of which a cure is unconsciously sabotaged. The last mentioned situation is believed to arise particularly when the mother is a physician, nurse, kindergarten attendant or teacher" (73).

Parents who are epileptic themselves are not necessarily more considerate and accepting of a child with epilepsy, often seeing their child as the inheritor of their own "degenerative" characteristic and of having the very thing which they fear and hate. "It is a small step from this to hate and hurt the child, or to react against the wish to harm the child by turning to over-protection." This dual attitude has been similarly noted in India (74).

Given the disadvantage at which the epileptic child finds himself it is understandable that up to 20% of such children need psychiatric help, even under the relatively enlightened conditions pertaining in countries such as Australia. This, however, is a far cry from the pessimistic view of the "epileptic personality"; in the cases in which it occurs it has largely been thrust upon the child rather than emanating naturally from his affliction. Only a small percentage of epileptic children fail to adjust socially under conditions of acceptance (75). Epileptic children are likely to be in a state of considerable confusion (76). Many children will have been made to feel the cause of shock to their parents; many will have been pitied or excluded by their peers, over-protected or rejected by their elders. Finally, very few epileptic children indeed will ever have witnessed an epileptic seizure, and so can have little knowledge of the situation to which those about them are reacting so violently. In the Nigerian situation, for example, patients themselves and their families do not always appreciate the impact which their condition makes on their lives and tend to blame themselves for their social ostracism (77). It is understandable that this confusion extends to the point at which cause and effect are interchanged, so that epileptics not infrequently

attribute all their social difficulties to their epilepsy and make little effort towards finding a solution to more fundamental problems which may beset them in a modern society, such as seeking employment without first acquiring a marketable skill (78).

The problems of epilepsy

The grand mal epileptic suffers from an intermittent disability. Between his attacks, which are frequently separated by a considerable period of time, he is, for most practical purposes, entirely normal. His symptoms disappear, yet he must continue to contend with a whole range of problems, obstacles preventing his full participation in the society to which by right he belongs. In the extreme case he may find himself the object of prejudice and fear. The difficulties arising from the side effects of treatment and the psychiatric problems have already been noted. The pattern of problems encountered by epileptics in societies of very disparate types show much in common. In the developing countries such problems are often accentuated, for there are additional problems awaiting those epileptic children who do succeed in obtaining educational qualifications: in most of these countries there are more people than jobs and the disabled (including the epileptics) find it extremely difficult to compete in the absence of adequate social legislation (79). The same situation can pertain even when the pressure on available employment is not so great, for, in Australia, there is a very definite tendency for the epileptic to lose his job when his employer becomes aware of his condition (80).

This points the dilemma confronting the epileptic. If he admits his disability he will encounter considerable trouble in obtaining employment, and if he attempts to conceal his epilepsy initially he may lose his job when his condition becomes known. As a mature adult in a more developed society the epileptic faces problems in employment, life insurance, driving a motor vehicle, and travelling by air. In all types of society the likelihood of his establishing a family of his own is uncertain, even in England. Some authorities advise for the epileptic frank and realistic discussions before marriage, preferably with medical advice, and careful consideration of whether or not the couple, in the event of marriage, should have children.

> "A frankness which may break an engagement does not come easily to a young person in love, but a broken engagement is better than a disastrous marriage" (81).

Yet to throw epileptics back on each other as marriage partners greatly increases the likelihood of their children being epileptic. A bleak prospect.

Public enlightenment

The inculcation of more enlightened attitudes towards epilepsy in the public at large is the basis of the long-term solution to the patient's problem. Initially, such revision of attitudes depends on the willingness of some epileptics to make a public acknowledgement of their disability and demonstrate their capacity to function as full members of society (82). Education takes time, and even if begun tomorrow prejudice would remain for some little time, so exposing the pioneers to rebuffs. Like all pioneers they must believe wholeheartedly in the rightness of their cause. The alternative is the uneducated, unemployed epileptic with little to expect from life (83); the education of the public at large, therefore, is a matter of

urgent concern.

The first object of public enlightenment should be to provide information about the various forms of epilepsy. It may be argued that if one knows only of the bad cases, then one imagines that all epileptics are the same, whereas if it is recognised that there is such a thing as the normal epileptic then the concept of epilepsy as being something acceptable in society is easier. That public enlightenment can prove effective over comparatively short periods of time is evidenced by surveys of public opinion in Chile, where the results of research indicate that the League Against Epilepsy in that country has been able to modify in a six year period the attitude of one important section of the public, that made up of teachers and administrators (84). Over a period of twenty years in the United States of America, an encouraging trend towards acceptance of the epileptic has been noted. For example, whereas in 1949 only 57% of those questioned would have allowed their children to associate with epileptics, by 1969 this percentage had risen to 81. Over the same period the percentage of those believing that epileptics should enjoy full employment possibilities rose from 40 to 76 (85).

The indications are that public education can be effective, although in traditional societies attitudes will be slow to change. The importance of an early start to campaigns has been made recently in respect of many countries including India (86), Uganda (87), Nigeria (88), and New Zealand (89). The comprehensive approach to the problem made in Argentina by the Association to Fight against Epilepsy indicates the broad front on which a public enlightenment campaign can be pushed forward. The A.L.C.E. has made use of all available methods to stir the public conscience and destroy existing taboos. The campaign was directed towards four concentric groups: patients and their families, teachers and social workers, doctors, researchers, psychologists and sociologists, and the community at large. Methods used in the campaign included direct orientation of the epileptic, lectures, conferences, courses, seminars, broadcasts and television interviews, press announcements, film exhibitions, newspaper features and leaflets (90).

In all countries, and especially the developing countries, the rural teacher holds the key to the release of the epileptic child from the constraints imposed by tradition. To achieve this, the teacher himself must first be won over by being given confidence in his ability to deal with epileptic pupils through familiarity with the condition and treatment during seizures. Simple pamphlets, such as the Teacher's Guide on Epilepsy issued by the British Epilepsy Association, can prove an excellent beginning. The prejudice of teachers is often rooted in their own uncertainity. The fact that at least 95% of epileptic children can be taught in ordinary schools without the necessity for any special arrangements may help to remove the apprehension of teachers, although it must be appreciated that even the occasional seizure in an overcrowded classroom can cause the teacher both concern and exasperation. The aim should be for integration in normal schools and normal school life to the highest degree possible. Some authorities, for example, advocate the fullest liberty for the epileptic child:

> "It is much better that he should climb a tree and break his leg than not be allowed to climb a tree and break his heart" (91).

The epileptic child in developing countries

No simple solution exists to the social problems faced by the epileptic child in the traditional society. Preventative measures through rural education and human hygiene have some part to play. The availability of cheap and effective anticonvulsants administered regularly by paramedical personnel is a vital element in any programme, but this must be bolstered by the education of rural teachers into their role as leaders of enlightened opinion in their community. Special schools for epileptics should not be taken into consideration when planning educational development at this stage, since the numbers of children who can be educated only in this way does not justify the outlay. Short-term residential treatment and educational centres, however, have a useful part to play. The essential element in the programme to improve the lot of the epileptic child is a continuing campaign of public enlightenment backed by medical provision, in order to convince traditional societies of the fact that epilepsy is a non-contagious, generally non-progressive, intermittent affliction suffered by a person singled out by chance and who is otherwise usually normal in all other respects.

APPENDIX A

REPORT BY SOCIAL WORKER IN KENYA

I visited the hospital and the village of the above written families on the 15th November, 1968. While there, I had a talk with the Doctor, the Social Worker and some of the epileptic people who were in the home as some had gone to work.

Appended hereunder is the information I got.

The epileptic people came to the hospital as patients for treatment. Some were brought by their relatives and some came by themselves. These people stayed in the hospital and no one came to collect them back to their homes. After a long time the mission appealed to the Government Authorities, Chiefs and Sub-Chiefs of the places where some of these people came from. When investigation was done, it was found that some of these people are not wanted where they came from because of fear of the disease and some had no land as their lands were taken by relatives when they were in the hospital.

The mission kept them at the hospital since they had nowhere to take them. They were given a small place to build their houses and some, who are strong, worked for the mission and were paid some money to use. As these people are men and women staying together they began producing children and now the group became larger than before.

When the children reached the age for schooling, the Doctor and the staff thought that these children would go to schools nearby and learn together with other children. The Community was very much against this and did not accept these children to learn together with their children. All the teachers of these schools, children and parents were against the idea, and children from epileptic families were not allowed to go to those schools. The meeting was called to discuss about this but still there was no success. After that the mission put these children in their own school with epileptic fits teacher, who had to fall from time to time and then left teaching and therefore it failed. There are at present small children of school age from epileptic families whom the Doctor has proved no evidence of epilepsy but still the Community cannot allow them to join the other children and learn.

There is a family which was taken back to their place just recently and then these people came back to the hospital and they have even asked to come back and stay. They say that, people do not like them, they fear them, they would not like to meet them or join them in anything, they fear that they can be diseased and as such these people being neglected and disliked, and other people having prejudice against them, they do not feel free and therefore they run back to the other group of the same disease in the hospital.

The mission has worked hard and found land for a family of ten where they are buying that land for them in a Settlement Scheme, the payment has not yet finished.

At the mission there are five men, seven women, four girls, four boys and among the girls one is having an illegitimate infant.

These young group of girls and boys look to be strong and can work. At present some of them work for the mission and get money for their living.

These people who were born in the mission, and their parents and who came a long time ago have no hope of going to where their parents came from and get settled.

MY OWN OPINION

As this is not only a problem for these people, but I would call it a national problem. This disease is one of the major diseases which people fear and are frightened with a person having it, people have prejudice against those having it. Though doctors say about it as not infectious still many people have long planted fear and the patient suffers and have many funny stories formed about it. The mission has done a lot to treat and feed these people, from the long planted fear and the community is not yet ready to accept these people and the present group of young people who are born among the sick people may suffer very much as they are now landless, neglected, feared and these feelings are also in themselves.

SUGGESTIONS

1. The Government should think of settling this group in one of the settlement schemes where they can do a bit of farming for their living and open a school in the place for the children to learn. Also be helped to stay on the land.

2. If not, giving them land, we have homes, here in Kenya for different disabilities in people, e.g. cripple, blind, etc. Can't it have a home for this group? As those people who have no land so as to feed them there and treat them.

But still as some of these people are strong they work very hard and are giving birth, the only way of making them settle on the land somewhere, where they can work for themselves, raise food for their families when they are on treatment to lesson the falls and children who are born without the disease may do a lot in the country as any other child born in any called normal family.

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MENTAL RETARDATION

> "Mental retardation is a purely social problem... In nearly all human fields the mentally retarded are more often like other people than they are different. There are more fields where the mentally retarded act exactly like normal people than where they do not." (1)

These words may help to explain why less attention has been paid in the developing countries to the mentally retarded, the largest body of handicapped people in any society, than to other disabilities such as blindness or deafness. In rural communities of developing countries a fair degress of mental retardation can easily pass unremarked, causing little inconvenience to the person involved and not disqualifying him from participation in his social group. Only as life becomes more complicated are the shortcomings of most of the retarded revealed; only as societies develop technical sophistication do the limited responses of the intellectually handicapped matter (2). Mrs. Barbara Castle in a speech to the Manpower Conference in London in January 1970 put this process in the English context:

> "We could be running into a situation where part of our labour force is in danger of being left stranded by the increasing sophistication of industry."

Over the years, in what are now the more developed countries, attitudes towards the mentally retarded have varied from apprehension to sympathetic concern. Not untypical of half a century ago is the fear: "The unfit multiply and threaten the race with economic and biological disorder" (3), which may be contrasted with a statement by a speaker at the 1964 Copenhagen Conference of the International Society for the Rehabilitation of the Disabled:

> "If one seeks a measure of a people's civilization, the standard of living, fetish of our age, cannot be used as a first principle. The best measure is the standard of social care for all the citizens and perhaps in particular, the manner whereby the community cares for those who, least of all, can maintain their rights and make their claims valid, the mentally handicapped."(4)

Sir George Thompson, looking into The Foreseeable Future in 1955, anticipated Mrs. Castle when he expressed concern about the social integration rather than the protection of the duller members of the community:

> "We come back to the question of what our descendents will do with the stupider people in their new world. Engineers, artists, teachers, scientists, administrators, even salesmen have a place and a good one, but these posts are not for the stupid man. He cannot plan the day's work of a complicated factory, or take a class of boys learning electronics. Perhaps truck-driving may account for a fair number, for it looks as if the advantage of sending goods in the same vehicle from door to door may

> outweigh the extra cost of the larger number of drivers needed, but this source of employment alone will not go far. The proportion of boys in Britain judged intelligent enough to go to a Grammar School is about 20 per cent; add to these a few, probably a very few, who may have a special ability as artists or craftsmen without ranking high in school, and one is still left with a substantial majority. Will our descendents have to preserve inefficient ways of doing things in order to keep employment for the less gifted intellectually? A wiser course would be to use some of these men and women to humanize a civilization grown too mechanical. There are plenty of jobs - tending the aged is one - where kindness and patience are worth more than brains. A rich state could well subsidise such work ... Providing jobs for the less intelligent half of the community will be one of the headaches of future politicians." (5)

One of the problems of the developing countries is that they do not yet recognise this particular problem as the inevitable concomitant of technological advance. The key to the situation lies in the fact that as societies become more complex they make more intellectual demands on their members and the threshold of "retardation" rises. The subsistence farmer or the peasant housewife can function adequately within very modest levels of intellectual competence until the modern world impinges on them, as it must inevitably do. While there is nothing to read there is no embarrassment or inconvenience in not being able to learn how. Once development begins to gain momentum and reach into the remoter areas, the education and health authorities have to accept increasing responsibility for the identification, assessment, training and protection of the less able members of their populations.

Definition of mental handicap

The legislation following the 1944 Education Act in Britain defined retardation in terms of educational competence, a child whose standard of work fell below that of children 20% younger than he being considered educationally subnormal. This followed a period of some years during which all children with a determined I.Q. of 70 or less had been categorised as mentally defective. The Plowden Report (6) recommends that the phrase "educationally subnormal" should be replaced by "slow learners", so avoiding the pejorative implications of "subnormality". Whatever the nomenclature, the children need to be recognisable if they are to be helped to realise their potential, but the range of causes and effects is very great and does not make for tidy definition. The term "educationally subnormal" has been dismissed as "an aetiological dustbin" (7), while reference has also been made to "refined diagnostic procedures aimed at fitting children into the professionalised categories" (8). With these strictures in mind it is possible to build a table showing in some detail the characteristics of mentally retarded persons in a series of broad categories (Table 5). The categories must be regarded as flexible and those deemed to fall generally into any grouping assisted individually in the most effective way. One particular danger of categorization is that the division between "educable" and "trainable" may become too rigid. It should also be borne in mind constantly that individuals may improve or deteriorate, usually within a fairly narrow range.

TABLE 5

DEVELOPMENTAL CHARACTERISTICS OF THE MENTALLY RETARDED

Degrees of Mental Retardation	Pre-School Age 0 - 5 Maturation and Development	School Age 6 - 20 Training and Education	Adult 21 and over Social and Vocational Adequacy
PROFOUND OR VERY SEVERE I.Q. Below 20	Gross retardation; minimal capacity for functioning in sensorimotor areas; need nursing care.	Some motor development present; may respond to minimal or limited training in self-help.	Some motor and speech development; may achieve very limited self-care; needs nursing care.
SEVERE I.Q. 20-35	Poor and delayed motor development; speech is minimal; generally unable to profit from training in self-help; little or no communication skills.	Can talk or learn to communicate; can be trained in elemental health habits; profits from systematic habit training, usually walks barring specific disability.	May contribute partially to self-maintenance under complete supervision; can develop self-protection skills to a minimal useful level in controlled environment.
MODERATE I.Q. 35-50	Can talk or learn to communicate; poor social awareness: fair but delayed motor development; profits from training in self-help; can be managed with moderate supervision.	Can profit from training in social skills (elementary health and safety habits) and occupational skills (simple manual skills); unlikely to progress in functional reading or computation; may learn to travel alone in familiar places.	May achieve self-maintenance in unskilled or semi-skilled work under sheltered conditions; needs supervision and guidance when under mild social or economic stress; travels alone in familiar places.
MILD I.Q. 50-70	Can develop social and communication skills; minimal retardation in sensorimotor areas; often not distinguished from normal until later age.	Can learn academic skills up to approximately sixth grade level by late teens. Can be guided toward social conformity.	Can usually achieve social and vocational skills adequate to minimum self-support but may need guidance and assistance when under unusual social or economic stress.
BORDERLINE I.Q. 70-80			

Adapted from Directory of Services for the Mentally Retarded in Saskatchewan 1968-69, prepared by the staff of the Alvin Buckwold Mental Retardation Unit.

Incidences

The magnitude of the problem of mental retardation in the developing countries is neither accurately known nor well appreciated. In Zambia, for example,

> "No one has any idea how many educationally sub-normal children, or children in need of remedial teaching there are in this country, nor is it possible yet to find out, since we have neither reliable tests nor the services through which to administer and analyse them."(9)

The cases brough to the psychiatrist are almost certainly only a fraction of the cases existing in the community:

> "These cases are usually brought because either they have come to the attention of the authorities (i.e. abandoned children), or because of a relatively new factor, the concern of parents for the performance of their children in school."(10)

This second motivation would be essentially an urban phenomenon, but in many developing countries only a minimum of children even in urban areas yet have the opportunity of being seen by qualified psychiatrists. Failing the practicability of conducting planned surveys (11), general estimates can be arrived at based on data available from the more developed countries. Some idea of the size of the problem can be reached by considering the British and European situation. Less able children form roughly 40% of the school population in Britain; the Isle of Wight survey indicates that 16% of all children need help for a longer or shorter period (12); some 3% of all children are retarded to some measurable degree (13); at least one child in every 1800 cannot benefit from formal education but may be regarded as trainable in special centres (14). (Of "trainable" children about one third suffer from Down's syndrome - mongolism, which usually means the presence of multiple handicap.) The general pattern is that of every 30 mentally retarded persons, 25 may be considered slightly retarded or "educable", four are semi-educable or "trainable", one only need remain totally dependent throughout his life (15).

One interesting side-light on incidences is that in Britain since 1950 the number of children judged to be retarded has risen by 250 per cent. This may be interpreted, at least in part, as signifying that the concept of mental handicap is closely tied to the demands which schools make on children (16). It can also be taken to indicate that demand will rise to fill the facilities available.

Among the few indications of incidence available for the developing countries there is an estimate made in 1966 by the Singapore Association for Retarded Children which suggests 10,000 retarded children in that country. 1,000 children were at that time on the Association's register, of whom about 160 were in the three training centres and 600 on the waiting list. The following year a voluntary registration of handicapped persons undertaken by I.L.O. resulted in 1,150 mentally handicapped individuals being registered (17). In Hong Kong (with about twice the population of Singapore) an estimated 10,000 retarded children could benefit from special schools, and a further 90,000 slow learners are believed to exist, as well as some 10,000 maladjusted children (18).

The distribution of retarded children within any society follows a pattern that is not unexpected if social competence is the governing factor. By and large, mild and moderate mental handicap increases in frequency with low social status, size of family, and with distance from urban centres. The weighting of cause and effect, however, remains unclear. Subsistence farmers with large families in remote areas may produce slow-learning children because they themselves are dull, but the contribution of family circumstances and environment in accentuating retardation must also be considered. Innate intelligence is extremely difficult to measure, as will be considered later, but, "There is, as far as we know at present, little evidence for cultural, racial or national differences" (19). Innate equality, however, can be negated by environmental factors. One particular aspect may be considered:

> "A new vicious circle arises from recent research on the consequences of early malnutrition. Cultural retardation breeds malnutrition. Does malnutrition breed cultural retardation?" (20)

The narrow borderline between mental retardation and mental illness is also difficult to establish. Dyslectic and autistic children are diagnosed in increasing numbers in the more developed countries and many are judged to have I.Q. ratings of at least normal levels. Estimates of incidence of these handicaps in developing countries have considerable implications for future social services, as the following reference reveals:

> "There are more autistic children than there are blind or totally deaf children. Among school-age children, there are approximately 4 to 5 with marked autistic symptoms in every 10,000. Boys are affected more often than girls. The ratio is in the region of 3:1."(21)

In this study dyslectic, autistic, emotionally disturbed, maladjusted and mentally ill children can be mentioned only briefly because of the lack of information with respect to the situation in the developing countries, where these children undoubtedly exist, but provision for their identification and assistance is minimal.

Identification and assessment

Mentally handicapped and retarded children in the developing countries rarely come to the attention of the few specialists who can help them. The very high rates of wastage from primary schools (up to 50% after the first year) must conceal many slow learners and retarded children as well as those suffering from other handicaps and those whose parents regard the school as a crèche where their children may be deposited until of a size to be useful in the fields or the compund. The number of retarded and handicapped girls, especially, is hidden in many countries by the tradition of not submitting girls for entry to schools. In the towns of the developing countries a few Child Guidance Clinics and Welfare Clinics have been established, but their services are sought by relatively few parents yet, and then from a generally limited social grouping.

Even when a child reaches the specialist, assessment of the degree of retardation or handicap is difficult in the extreme because of the lack of reliable measuring instruments. In the most general terms the following categories may be listed:

I.Q.	
up to 55	severely retarded (of these, I.Q. 25/30-50/55 are considered "trainable")
50/55/-70/75	"educable" retarded
75/85-100	slow learners - "remedial" children.

The flexibility of these categories must be emphasised, in the light of the remarkable success of undertakings such as the National Hostels and Training Centre project at Slough, England, where young men and women, aged between 16 and 26 years, with an average I.Q. of 35 (and none above 50) learned successfully to care for themselves and undertake simple work processes in sheltered conditions; 14 of the 30 trainees eventually secured full-time normal employment (22).

Authorities are consistent in stressing that assessment can be reliable only if the tests used are designed for the particular area from which the children come. The dangers of a "baldly stated I.Q." following inadequate assessment should be recognised (23), while it should not be overlooked, that tests standerdised on normal children assume that a child has had adequate and appropriate stimulation and experinece to help him to develop mentally and physically. "Such experience may be lacking in the life of a handicapped child" (24). The difficulty of designing "culture fair" tests ("culture free" tests now being recognised as impossible to construct) is increasingly apparent (25), and raises the particular problems of the developing countries - those of adapting tests to the locality and of overcoming the difficulties of language. This points to the need to use multiple diagnosis going beyond an assessment of general intellectual ability along (26); another consideration is the need to keep tests up to date because of the changing general levels of attainment across time ("zero error") (27). Children should not have to labour under "the tyranny of the I.Q." (28). Useful lessons may be drawn from the wide range of tests, medical, educational, psychological, drawing, play, intelligence and environmental, which are administered in Hungary to a child thought to be suffering from mental deficiency before an assessment is considered to be complete (29). Finally, it must be recognised that individuals may cross arbitrary barriers from "retarded" to "non-retarded" as the result of remedial training; this emphasises the need for frequent reassessment.

It is clear that assessment tools in the developing countries have a long way to go to meet these criteria, although some progress has been made in West and East Africa with verbal and non-verbal intelligence tests (such as the Lule non-verbal intelligence tests produced at Makerere) (30), and in India by the National Council of Educational Research and Training (31). Even when tests are developed it is likely that teachers, rather than specialist psychologists, will have to administer them for some years until sufficient specialists become available. This implies that the degree of efficiency of administration and interpretation is likely to be of only modest dimensions.

Causes of mental handicap

While mental handicap is frequently congenital, retardation often results from an unpropitious environment. The British experience seems to

indicate that the degree of risk for a child varies most significantly with its birth order and the social class of its parents, rather than with any medical factor. Other "risk" indications include the age of the mother, whether she smokes, prematurity, low birth-weight, maternal hypertension, and being born male (32). As far as can be judged the pattern in the developing countries with regard to mental handicap is similar to that for other handicaps, that is, in comparison with the more developed countries, more handicap can be ascribed to disease, malnutrition and ignorance, and less to genetic factors. And, of course, in the developing countries relatively few severely handicapped children survive early infancy. About 33% of brain damaged children seen in a paediatric clinic in Uganda had been so from birth, but in another 33% the brain damage clearly followed a catastrophic illness (33). Intermarriage within small communities may account for much of the mild mental handicap in rural areas. Among the diseases, cerebral malaria incurs a distressingly high rate of subsequent brain damage (34), while untreated meningitis can lead to encephalitis and consequent retardation, and the unborn child can be damaged by the mother's syphilis, rubella or toxaemia (35). Although not necessarily mentally handicapped, epileptic children frequently show low I.Q.'s because of frequent absence from school or emotional disturbance.

Despite some doubts in the past, almost certainly one of the major contributory causes to retardation in developing countries is malnutrition, both of the pregnant mother and the child. Interference with interuterine foetal nutrition leads to an increase in mental retardation (36). Good nutrition is particularly important in the first few years of growth, since the brain reaches 80% of its adult weight by the age of three years (37). Inadequate nutrition in these early years pute at risk some 300 million children in the world, leaving them in danger of impaired brain growth. It is still difficult to specify the relationship between nutrition and intellectual development but certain inborn errors of metabolism are frequently accompanied by mental retardation (38), and there is a growing body of clinical and experimental evidence to show that inadequate nutrition can result in brain damage (39). Details of a project in Guatemala point "to the possibility that severe malnutrition within the same environment can produce changes in mental development"(40).

Protein-calorie malnutrition (PCM) is frequently indicated as the most damaging form of malnutrition, since it is likely to affect 60% to 70% of all preschool children in the developing countries, while the severe nutritional illnesses of kwashiorkor and maramus probably affect a significant proportion of the underfed children in these countries. Less common is under-nutrition due to a lack of carbohydrate; this leads to the consumption of body-fat, with a poisonous by-product which damages the brain. Acute iodine deficiency in some areas leads to cretinism (41). A number of authorities have pointed to the association between the rapid weaning practices in many developing countries and the incidence of kwashiorkor. In particular, an unsuitable protein-deficient diet following weaning from an extended period of breast-feeding can often result in kwashiorkor (42). Together, the abrupt separation and unsuitable diet can result in a considerable degree of mental trauma. At the very least, malnutrition contributes to retardation by reducing the will to learn. The following effects of malnutrition on education may be listed:

apathy;

low concentration;

low achievement in school;

absence of learning motivation;

shortening of school attendance due to endemic diseases, etc.;

absentecism;

difficulties in relations within school groups(43).

The socio-economic environment can also prejudice mental development. A survey in Copenhagen in 1905 may still be directly relevant to the situation pertaining today in many developing countries:

> "The survey leaves no doubt that sickness, physical disability and bad living conditions were largely responsible for the retarded educational and mental development of these children, and raises the question whether mental disability does not play a subordinate role to physical disability." (44)

Authoritarian family structures can lead to children being passive, docile and submissive, at the expense of healthy curiosity and a desire to learn (45). Maternal deprivation and, especially in the case of the Caribbean countries, the lack of a permanent father-figure, are contributory factors to retardation (46). The "granny syndrome" is confirmed by a number of investigators in the West Indies - the pejorative effect on a child, particularly a male child, of being left almost exclusively to the grandmother to nurture. Among other environment factors affecting mental development, these may be cited the example from Western Nigeria of poisoning from the oral or topical administration of a traditional herbal remedy (agbo ile tutu) which frequently results in brain damage (47). Finally, emotional stress, "brain fag" and psychological disorder probably play a larger part than is known at present because of the lack of research.

One aspect of mental handicap which must be borne in mind is that, unlike some forms of mental illness, it is virtually irreversible, although some damaging effects of diet and environment may be alleviated and so help a backward child to approach more nearly to his normal peers. For the truly mentally handicapped child the only solution is the provision of educational facilities to enable him to realise what potential he has, recognising that this will be more or less limited, as Table 6 indicates.

Problems of mental retardation

The major sources of problems lie in personal, social and educational factors, compounded by the familiar attitude which lumps all retardates together, unable or unwilling to recognise that each mentally handicapped child is an individual, that gradations of handicap are continuous away from the norm, and oblivious of the fact that the greatest problem for the great majority of retarded children is the frustration of knowing that they are retarded. They feel that they are different from normal children and they know full well why they are attending a special class, unit or school. Many of these children can be driven into isolation by the constant subjection to ridicule during their life which may promote a degree of sensitivity such that they avoid any possibility of criticism of "just not meeting people" (48). For the more severely handicapped there is the serious social stigma which they attract in most countries:

TABLE 6

WHAT CAN BE HOPED FOR A CHILD'S DEVELOPMENT

	Physical Growth	Emotional Growth	Social Growth	Intellectual Growth
Normal Child	Moves with good rhythmic co-ordination. Uses hands with skill. Is able to take care of all bodily needs with complete independence.	Self-control under stress. Accepts disappointments. Reacts appropriately to situations that stir up emotions.	Gets along pleasantly with family, friends, co-workers. Understands and communicates with others. Uses leisure time wisely.	Good control of the three R's. Understands the importance of the living and thinking of other people all over the world. Can manage own affairs. Can earn a living in competitive society.
Educable retarded child	Same as normal child but may have poorer co-ordination and may be a little careless about appearance unless well trained, with good example to follow.	Should learn same emotional control as normal child, but will often require help to achieve it. Needs much help to accept limitations as these children know they fall short of success as society dictates.	Should learn to get along with people. Requires vigorous and patient teaching to learn this. A good example helps. May have speech problems. Must be taught to use leisure time wisely.	Should achieve fair skills in three R's. Many will have learning problems and may read well but have trouble with arithmetic, etc. Needs "practical" arithmetic, spelling and prevocational skills such are use of tools and following directions.
Trainable retarded child	Should become independent in self-care. Develops good body mechanics. Should learn to practice good personal hygiene.	Should learn self-control in work and play situations.	Should learn to communicate purposefully and profitably, respect the rights and property of others, consider oneself a part of a group with a common purpose.	Should learn those skills within the limits of mental capacity to permi the child to work and play safely, purposefully and profitably, under supervision.
Custodial	Will always require help with basic bodily needs and be completely dependent.			

Adapted from The Mentally Handicapped Child

> "Even in the large group of all handicapped people, mentally disabled are exposed to the greatest prejudice and those with other kinds of handicap do not want to be identified with them." (49)

The child does not bear his burden alone. There are, too, the repercussions on the family of the mentally handicapped child.

> "A child's severe symptoms can make even healthy, stable families anxious and defensive . . . His illness is a severe blow to the parents' self-esteem, and their feeling of guilt over having produced such a child is accentuated by the hostility and anger the child provokes . . . Even the most mature parents worry about how to handle an emotionally disturbed child without harming him further." (50)

In the case of the most severely handicapped child the parental shock may manifest itself either as rejection or overprotection. Yet it is from the parents that the most effective help can come. In the more developed countries advances in the care of the mentally handicapped have been initiated, stimulated and pursued in no small measure by the efforts of parents who have come together to form voluntary associations and pressure groups. Similar trends are now evident in a number of the developing countries of the Commonwealth, although much of the leadership here still comes from the medical profession and social welfare societies. Educational provision, however, the third of the three major problem areas for the mentally handicapped, is generally agreed to be inadequate in the richer countries (51), and almost non-existent, when compared with the need, in the developing countries.

Education

The aims of special education for the mentally handicapped are no different from general educational aims of all children, namely, through the provision of opportunities to acquire skills and knowledge, to lead the child towards the fullest realisation of his potential. For the wide range of the retarded and handicapped, a similarly wide range of provision is needed, ranging from short-term remedial teaching of the basically normal child who is retarded because of minor health or environmental factors to permanent institutional care of the most severely mentally handicapped. The goals for each individual need to be set (and continually reviewed if "goals" are not to end as "barriers" beyond which the child is discouraged from venturing). For many of the more severely retarded the goals may best be formulated in terms of self-confidence, social competence and the acquisition of a range of skills rather than in terms of "educational" objectives, although these latter should not be underestimated. Such an approach is more likely to lead to a successful transfer to adult life and acceptance by the community than is concentration on an academic syllabus presented in a manner which can only reinforce failure. One example of a new initiative is the introduction of a flexible programme for Junior Vocational pupils in Alberta, Canada, designed to develop a meaningful course for students who have serious learning handicaps "who become accustomed to failure", and who need "a second chance to find success" (52). Moderately and severely retarded children are capable of achieving some intellectual accomplisment (53), but the major concern should be to extend each child as far as possible in whichever area his potential seems to be:

> "Today we know, from an increasing number of studies, that when positive demands and challenges are made to a person, he will almost always respond positively, provided he gets support and help. When a person is called stupid and expected to act stupid, he eventually falls into a stupid role, and acts and even becomes stupid." (54)

Such a wide range of children indicates the need for an equally wide and flexible range of provision, hardly any of which is yet available in the developing countries.

Special educational provision for mentally handicapped children may be made available in integrated classes, special classes within ordinary schools, special classes or units associated with ordinary schools, or in special schools (day or boarding). In recent years the trend has increased towards the maximum possible integration of handicapped children into ordinary classes, and, in view of the paucity of present provision and the relative costs involved of integration compared with the creation of special schools, the developing countries must cortainly follow the trend. Fewer than half the developing countries of the Commonwealth have yet found it possible to provide any special educational facilities for mentally handicapped children, so that in effect all these countries are in the position of being able to plan this part of their educational service from scratch (55). The more developed countries can provide a number of examples of differing approaches, although impartial evaluation has not often been undertaken which would make the task of programme construction easier and more likely to be effective. With regard to provision in special classes there are useful reports of practice in New Zealand and Canada (56), and from the "opportunity classes" and "general activities" classes in Australia (57). Among special schools, the experience of a bush school for slow learners in Rotorua, New Zealand (58), of systematic teaching in British training centres (59), of home instruction by peripatetic teachers in rural areas (60), of mobile remedial teaching classrooms in Canada (61), all have something to offer to the developing countries in terms of technique if not of detailed content. Initially, however, the developing countries may well concentrate on the integrated education of the less severely handicapped, since in this way the maximum benefit is likely to accrue in return for the very limited funds which will be available.

A powerful case has been made for integrated education as far as possible even of severely retarded children, believing this to be for the benefit of the children themselves and their teachers, and also likely to lead to a healthier public attitude towards mental handicap:

> "Because of prevailing beliefs, retarded children are treated in certain ways that intensify their weakness and as a result they perform more inadequately, a result which is taken as inherant in their defect instead of as related to their experiential background. Once we free ourselves from these traditional preconceptions, we can concentrate on minimizing, overcoming, or indeed preventing the development of many of these performance limitations . . . The remain several problem areas. Classes on a trainable level have in general been kept in isolation in separate buildings. This kept the teachers away from the mainstream of educational thinking and deprived them of

> the stimulation that would come from relationships with teachers of other types of children . . . An increasing number of severely retarded young people are now included in sheltered workshops. Furthermore the increase in numbers of the mildly retarded who are being employed in industry and commerce has contributed much to a change in attitude toward the severely retarded as well." (62)

Experiments in the integration of retarded children are currently in operation in a wide range of countries. The Stevenage "Opportunity Class" in England is made up of 18 nursery-age children with physical and mental handicaps who play successfully with a group of normal children (63). At the Gatehouse School in the City of London one handicapped child is enrolled in each class; all are completely integrated into the school life, with the result of increased tolerance on the part of other children and increased achievement on the part of the handicapped (64). At the Warrnambool East Primary School in Victoria, Australia, a special unit has been incorporated into the school to cater for the eleven children between the ages of 7 and 12 years with I.Qs in the 50-70 range (65). This project has resulted in some satisfaction and some indicators of previously unappreciated anomalies. The Principal records, in respect of the retarded children, improved social behaviour, increased interest and willingness to learn, and an enthusiastic attitude which was not present earlier (66). On the other hand concern has been expressed about the arbitrary division between the "special school level" child, to whom the visiting consultant gives assistance, alongside whom there may be sitting another pupil of similar age and attainments, who, being declared to fall above "special school level", is not on the consultant's visiting list and is officially ineligible for help:

> "Are the educational needs of these two children necessarily different? Do we need to maintain a dichotomy between "special school-level" children and other children requiring special help? Do we in fact need more facilities like the one at Warrnambool, but open to any child needing extra help, rather than segregated special schools for the labelled ones?" (67)

The case for flexibility and the avoidance of permanent classification seems proved. In this case the maximum amount of integrated provision seems desirable on educational, as well as financial grounds:

> "Mental retardation services should become increasingly integrated in expanded programmes of maternal and child health and in general pre-school and school education." (68)

On the other hand, warning notes have been sounded about excessive enthusiasm for integration; undoubted achievements are obtained in special residential schools and it is frequently difficult of providing properly for mentally retarded children in ordinary schools (69).

Information available from developing Commonwealth countries indicates that integration and remedial and special classes or units exist in very few, among them Cyprus (91 pupils in special classes in 8 schools), Malaysia (14 remedial classes), Malta (integration into ordinary schools

of "the slightly educationally subnormal"), Zambia (4 special classes), Antigua ("mentally handicapped children attend ordinary schools") and Saint Helena ("children work and are helped in normal schools") (70). It must be assumed that many other retarded children enter the educational systems of other developing countries, remaining there unnoticed for shorter or longer periods before dropping out to add to the statistics of wastage.

Special schools, day, weekly boarding or fully residential, represent the traditional provision for mentally retarded children. For the most severely afflicted, and in particular circumstances peculiar to a number of developing countries (sparse population, poor communications, low grade teaching staffs in rural schools) special boarding schools will continue to be the only effective way of meeting the need. The high cost of boarding schools, however, will delay the possibility of the provision equating with the need for a considerable time. Eleven of the Commonwealth developing countries have at least one special school or training centre for the mentally handicapped (Cyprus, Ghana, India, Jamaica, Kenya, Malaysia, Malta, Singapore, Trinidad and Tobago, British Honduras and Hong Kong), while in other countries, including Fiji and Uganda, such institutions are planned.

(a) The Jacaranda School, Nairobi, Kenya (71)

In June 1968 the St. Nicholas School for mentally handicapped children and the Aga Khan Special School for ESN Children amalgamated to form the Jacaranda School. The existing premises of the St. Nicholas School were extended and rebuilt to cater for 30 boarders and at least 30 day pupils. The school does not receive Government grants; fees are high for those children whose parents can pay, but gifts and donations make it possible to take in other children as well. The mixture of Asian, African and European children makes the work of the teachers that much more complicated. Of the seven staff all are qualified as teachers but only three have special qualifications to teach the mentally handicapped. A small Government teacher-training unit was set up on the same site as the school, but latest reports indicate that this has now been discontinued. Some vocational training is provided for the older children, including typing, but the prospects of employment are extremely limited and sheltered workshops are planned as the only realistic solution to the problem of the school-leaver.

(b) School for the Mentally Handicapped, Kingston, Jamaica (72)

Founded in 1958 by the Jamaica Association for Mentally Handicapped Children the school now houses 87 children in five classes, one for 15 pupils who are slow learners, another for 20 educable pupils, and three classes for 52 pupils who are considered able to respond to more advanced training. A new school is planned near Kingston to accommodate 100 more children, including 64 boarders. The existing school suffers from the disadvantages inherant in schools promoted by private groups, lack of money resulting in inadequate materials and facilities, being "small and poorly equipped."

One possible result of this type of situation should be anticipated: poor facilities militate against high standards, and if the impression given to the general public is either that the handicapped merit inferior provision or that they cannot achieve very much when schools are provided, then the development of adequate educational provision may be delayed still further.

The problem of the content and approach to education and training for mentally handicapped children does not permit of one answer. Mildly handicapped children, accurately diagnosed and assessed, will often respond sufficiently to remedial teaching to enable them to continue with reasonable success in ordinary classes. For the majority of those more severely handicapped, however, a different strategy is required. Before these children are taken into schools or classes in the developing countries an overall plan should have been sketched to make provision for them as far as their final vocational training and employment. For the handicapped, even more than for the normal child, the consequences of frustrated education may be worse than the consequences of no formal education at all.

In many special classes and schools the curriculum tends to be designed to approach as closely as possible to that of the ordinary schools, except that it may be phased over a longer time. In Yugoslavia, for example, for pupils with I.Qs as low as 50 the special school curriculum is usually just a shortened version of the regular school curriculum (73) In Singapore, an experimental class has been stated with seven ES children following the normal primary school subject syllabus. A major consideration is raised here, as to whether educational content which is deemed to be essential for the normal child should be given as far as possible to the handicapped child if his social handicap is not to be aggravated (74). "The real issue of the 1970s" may be to investigate:

> "What techniques can be worked out to help the less able to learn the same things as the more able pupils learn more readily?" (75)

If this issue is not resolved the handicapped may be trained solely for obedience and conformity.

The retarded child may often be helped to develop by means associated with the normal curriculum. For example, art may provide a language used by the retarded child for "communication, reverie and conceptualization", which implies the art programme for the mentally retarded should be integrated more closely with the academic programme than is usually the case (76). Through art the curiosity of these children can be aroused and their ability to observe relationships and perspective improved, while their social skills and personal relationships often benefit as well. Others believe in the value of physical education in helping retarded children to achieve some measure of maturity in social relations (77). One study confirms the poor opinion these children tend to have of themselves, and one of the observations echoes the pleas of many others:

> "Of the 27 children tested only one gave no evidence of maladjustment (in addition to retardation) . . . We agree that a child in a general activities class is not a normal child, but the criteria of abnormality is usually an intellectual one, whereas one of the things that this study has revealed is that there is need to consider other criteria of abnormality." (78)

In Toronto, Canada, children of I.Qs between 50 and 80 who have failed to keep pace with the normal curriculum, even with the assistance of "opportunity classes", may be enrolled in Vocational Schools, where half the day is spent in direct vocational training, the other half in formal lessons (79). It is claimed that these children are helped to acquire a

realistic self image (80), although it may be doubted whether a recognition of their irreversible inadequacies and limited future prospects helps towards a balanced personality unless sympathetically conveyed.

One of the main shortcomings of the educational provision for mentally handicapped children in most countries is that it is concluded at an arbitrarily determined age. Many of those directly involved with these young people feel strongly that, since it is acknowledged that these pupils need a longer time in which to complete a course, the legislation should be designed to allow for young people to remain in the schools at least until the minimum age at which they can be taken over by the social welfare authorities. To require them to leave school at a fixed age does not accord with current thinking.

Once they approach the end of their school career it is important that these children should be able to find informal contacts in their community through clubs and other groups. The Gateway Clubs and those promoted by the Rathbone Society in Britain are notable achievements in this direction. In the developing countries, particularly, special radio and television programmes directed towards the mentally handicapped and their parents could play a most valuable role in the absence of formal educational and training provision.

The situation in the developing countries at present is hardly encouraging. For example, the results of the McGregor Committee's visits to the four special classes then operating in Zambia, show a total enrolment of 54 pupils - this in a population of 4 millions (81). Assuming 50% of the population to be under the age of 21, this implies at least 200,000 children and young people in need of special educational treatment, and at least 1,250 severely mentally handicapped children in need of special care (assuming a slightly higher incidence but also a higher mortality than in the more developed countries). 54 pupils can hardly be judged as tackling even the periphery of the problem. 17 of these children were in a class which was "rigidly organised" and lacked practical activity, taught by a qualified but non-specialist teacher, 9 other children formed a more active class in a second school under another qualified but non-specialist teacher who sought advice from the Committee on equipment and techniques, 12 children in a third school were not truly retarded but needed effective teaching of English, and only 16 pupils in the fourth school were genuinely benefiting from special education. No secondary education was available for those mildly retarded who completed the primary course successfully, and employment prospects were not bright. Despite the devoted work of voluntary societies, teachers and a few government departments, it must be concluded that educational provision for the mentally handicapped in the developing countries needs to be planned from the foundations.

Teachers of the mentally handicapped

Professional training facilities for specialists wishing to work with mentally handicapped children are virtually non-existent in developing Commonwealth countries. Some provision is made at Highridge Training College in Kenya and a one-year in-service course for teachers of slow learners is available in Hong Kong; the University of West Indies plans a Department of Education of the Handicapped for its Mona campus in Jamaica; some short-term in-service facilities are provided in one or two countries (such as a summer vacation course in Cyprus). With these exceptions, teachers of mentally handicapped and retarded children must

travel to one of the more developed countries in order to find specialist training. In small numbers this is happening, and teachers from the developing countries have been awarded bursaries and scholarships to train in Australia, Britain, and New Zealand (82). Vacation courses conducted by teachers from the more developed countries have also been organised in countries such as Cyprus. For the most part, however, mentally handicapped and retarded children are taught by enthusiastic non-specialists. In the ordinary schools, where the less academically inclined pupils drift to the lowest group, they frequently find themselves taught by the poorest staff. As has recently been indicated in England, where academic achievement is the criteria by which the school wishes to be judged, then the least able children tend to be grouped with the least able teachers (83). This situation was familiar more than thirty years ago:

> "Headmasters are too prone to consider not which of the assistants is best fitted for the backward class but who can best be spared from teaching the most promising pupils. Yet it is obvious that the teacher of the dull and backward needs special qualifications. There is a widespread notion that for the backward as for the mentally defective a person of placid temperament and motherly ways is best. But such a teacher rarely succeeds in bringing out all that is latent in the slower pupils, or in stimulating the sluggish to the utmost of their powers. What is wanted is a bright adaptable person, physically active, mentally vivacious, firm, patient, sympathetic, inspired, but with strong common sense." (84)

The recent change in England whereby responsibility for severely handicapped children has been transferred from the Health to the Education authorities has resulted in a reappraisal of the types of teacher needed for these children. The controversy has been revived, for example, as to whether teachers should qualify to enter specialist training only after some years' qualified experience in ordinary schools, or whether young men and women should be able to choose to specialise in the course of their initial training. In the case of the developing countries it would seem very desirable to permit this specialisation as a direct continuation of the initial training course. In this way the more able young teachers might be induce to enter the field of special education.

As for visual handicap and hearing impairment, all teachers during their basic training should be made aware of the symptoms of mental handicap or difficulties in learning. Research shows that there are few teachers who will not have to deal at some time with children who have learning difficulties or problems of adjustment (and how much more is this true of the isolated rural teacher in the developing country), so that all should receive some assistance in the recognition of mental retardation or handicap (85).

Proposals in respect of the mentally handicapped and retarded

> "Some 100 years ago only very bright children were sent to schools. The intellecturally less gifted child stayed at home, worked on the farm or in the workshop, or became a soldier if he had enough physical strength

and aggressiveness. Anyhow, he found his place in society and was just as happy as a well-educated person." (86)

While there may be some doubt about the degree of happiness, the statement is probably true in effect. It cannot, however, be applied to the developing countries today, for, however remote the area, contact with modern life has begun to be established, aspirations raised and societies changed. The transistor radio in the last decade has brought the siren voice of the town into the most distant hamlet. The slow learning child's failure at school (assuming he has found a place) reinforces his poor self-image, the more severely retarded child may now survive longer because of medical care, but may be the cause of severe social tensions. The problem of the mentally handicapped now exists and it will grow more acute.

The first essentials in meeting the problem are a campaign of public enlightenment and a clear acceptance in principle of responsibility for care and training by the education authorities, in support of the parents and village community. If the handicap is not so severe as to make the child incapable of undertaking his own normal routine of toileting, eating and washing, the major problem is to reassure the parents of their lack of blame and the community of lack of danger from the child. If the community still lives by the physical strength of its members in the fields or the compounds then the majority of its mentally handicapped members can be absorbed and their labour put to productive use.

It would be simple to recommend a programme for the care of the mentally handicapped in the developing countries; early assessment, educational and training services, work-experience while still at school, a flexible school-leaving age following a longer course than for the normal child, school psychological services, a mental health service, child guidance clinics, clubs, continuation classes, and so on. It must be recognised, however, that in developing countries striving to train high-grade and middle-level man-power, making prodigious efforts to lessen the rate of growth of the gap between themselves and the rich countries, the claims of the mentally handicapped will be among the weakest. Unlike the intelligent blind, deaf or physically handicapped they cannot be trained for skilled grades. To many people the building of a wall round the mental hospital in Accra before the O.A.U. conference in 1965 was symbolic of the official attitude; hide them and forget them. These patients, indeed, included the mentally ill as well as the severely mentally handicapped, but the principle stands. More than the other handicapped members of society the mentally handicapped will probably have to rely very considerably on voluntary organisations for their major support in the immediate future.

This pessimistic prognosis does not imply that effort is pointless. Enlightened authorities in a few countries are involving themselves with the problem. The clubs in Hong Kong and integrated classes in Malaysia and Malta, the training centres in Singapore, all represent progress. Much more research is needed and could be undertaken by the universities, especially research into reliable and valid assessment techniques and measuring devices for use in the developing countries. Volunteers, possibly expatriate but preferably from the locality, could play a most valuable role as teacher aides and in taking the pressure off parents in those places where the extended family does not offer full help. An on-going programme of public enlightenment, which in some areas may need to be little more than

re-establishing traditional attitudes, could be promoted without undue expenditure. Despite the low priority which will be afforded to the mentally handicapped by many developing countries, much can still be done by deploying the available resources to the best effect, probably through voluntary organisations, towards the end of ensuring social acceptance and social adjustment for the mentally handicapped.

The recommendations to governments of the Caribbean area of the First Caribbean Mental Retardation Conference (Jamaica, September 1970), reproduced as Appendix A to this chapter, indicate the general approach to educational provision which might usefully be adopted for other developing areas, while the Declaration of General and Special Rights of the Mentally Retarded, adopted on 24 October 1968 by the Fourth Congress of the International League of Societies for the Mentally Handicapped, and reproduced as Appendix B to this chapter, represents the basic principles and ultimate aims for all developing countries.

It may not be possible for these aims to be realised in the developing countries for many years (few would claim that they have been realised in the more developed countries) but while they exist as guidelines and goals the general strategy can be planned and the first steps taken to establish a comprehensive programme for the mentally retarded, within the overall provision for the handicapped.

APPENDIX A

FIRST CARIBBEAN MENTAL RETARDATION CONFERENCE

RECOMMENDATIONS TO GOVERNMENTS

(1) The problem of mental retardation is a national responsibility.

(2) We feel that the prevailing pre-school environment contributes to milder degrees of mental retardation, which cannot be adequately dealt with by the existing educational system. To avoid the unnecessary wastage of human resources and consequent drain on the economy, governments should take steps in preventive measures in this problem. This would involve:

(a) Providing pre-school education, day care centres, nursery education and parent instruction in providing a stimulating environment;

(b) We feel that one important step would be the introduction of conceptual teaching methods. Where crèches and day nurseries exist, we strongly urge the introduction of simple modern methods of child play and stimulation of child development.

(3) There should be provision in the educational system for psychological advice and guidance for children with learning problems in order to ascertain as early as possible cases which need special help.

(4) There should be provision in the school system of special classes or resource classes for the mildly retarded.

(5) Information about diagnosis and handling of mental retardation should be included in the training of nurses, social workers, teachers, medical students, and nursery school teachers.

(6) It is strongly felt that at least one teacher training college which has a special school for the retarded in the vicinity should offer an additional optional course in mental retardation teaching. Use could be made of the local school for demonstration and training.

(7) The recognition of the need for inclusion in the university curricula of courses in special education and psychology is strongly urged.

APPENDIX B

FOURTH CONGRESS OF THE INTERNATIONAL LEAGUE OF SOCIETIES FOR THE MENTALLY HANDICAPPED

DECLARATION OF GENERAL AND SPECIAL RIGHTS

Whereas the universal declaration of human rights, adopted by the United Nations, proclaims that all of the human family, without distinction of any kind, have equal and inalienable rights of human dignity and freedom;

Whereas the declaration of the rights of the child, adopted by the United Nations, proclaims the rights of the physically, mentally or socially handicapped child to special treatment, education and care required by his particular condition;

Now therefore the International League of Societies for the Mentally Handicapped expresses the general and special rights of the mentally retarded as follows:

Article I

The mentally retarded person has the same basic rights as other citizens of the same country and same age.

Article II

The mentally retarded person has a right to proper medical care and physical restoration and to such education, training habilitation and guidance as will enable him to develop his ability and potential to the fullest possible extent, no matter how severe his degree of disability. No mentally handicapped person should be deprived of such services by reason of the costs involved.

Article III

The mentally retarded person has a right to economic security and to a decent standard of living. He has a right to productive work or to other meaningful occupation.

Article IV

The mentally retarded person has a right to live with his own family or with foster parents; to participate in all aspects of community life, and to be provided with appropriate leisure time activities. If care in an institution becomes necessary it should be in surroundings and under circumstances as close to normal living as possible.

Article V

The mentally retarded person has a right to a qualified guardian when this is required to protect his personal well-being and interest. No person rendering direct services to the mentally retarded should also serve as his guardian.

Article VI

The mentally retarded person has a right to protection from exploitation, abuse and degrading treatment. If accused, he has a right to a fair trial with full recognition being given to his degree of responsibility.

Article VII

Some mentally retarded persons may be unable due to the severity of their handicap, to exercise for themselves all of their rights in a meaningful way. For others, modification of some or all of these rights is appropriate. The procedure used for modification or denial of rights must contain proper legal safeguards against every form of abuse, must be based on an evaluation of the social capability of the mentally retarded person by qualified experts and must be subject to periodic reviews and to the right of appeal to higher authorities.

ABOVE ALL - THE MENTALLY RETARDED PERSON HAS THE RIGHT TO RESPECT.

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MALNUTRITION

Almost every child in the developing countries is handicapped by malnutrition. Nor, indeed, is this condition limited to the developing countries, for a recent report estimated that seven pupils out of ten in England are inadequately nourished to the point of being at risk (1). Minority groups in the richer countries are particularly prone to suffer in this way, shown, for example, by the widespread malnutrition among Australian Aborigines and part-Aborigines, beginning often in the immediate post-weaning period and in many cases imposing a permanent handicap on physical and mental development (2). Adequate nourishment requires the regular intake of foods appropriate in quantity, quality and variety for the maintenance of the individual's health. By this criterion few children escape being at risk, from excessive intakes and consequent obesity in the more privileged areas of the richer countries, from gross inadequacies, irregularities and resultant secondary infections in the poorer countries and the less privileged areas of the rich countries.

Until very recently the problem of suitable feeding has been linked generally with adequacy in terms of quantity; the value of balance of quality in diet, inadequate nutrition as the primary or secondary cause of disease and handicap are new concepts, the more so in the poorer countries. Improvement of the lot of the child depends on the success of two policies, those of convincing parents of the desirability of providing suitable diets for their children, and of making such diets available in adequate quantities through limiting family size and improving crop yields. The harm caused by malnutrition in childhood persists throughout life (3). Research in Mexico has demonstrated long-lasting behavioural changes in patients suffering from severe kwashiorkor and marasmus; investigations in Venezuela have shown that seven years after apparent recovery children who had suffered from kwashiorkor and marasmus still performed worse than children of the same genetic origin who had not suffered from malnutrition; and findings in Yugoslavia indicate permanent decrements in mental performance of children following clinical recovery from marasmus (4).

The importance of the early years

The importance of the child's early years is indicated clearly by these results. Each stage of the child's development conditions the next, so that the school-age child inherits all the consequences of nutritional crisis in early childhood (5). The school-age child in the developing country is the survivor from high infant mortality rates, but may also have been permanently handicapped well before he begins to attend school. The effects of malnutrition on mental development are all the more severe the earlier they occur and the more severe the degree of malnourishment (6). Malnutrition in Nigeria, a typical situation, affects mainly the pre-school child (7), and evidence from elsewhere shows that the intermediate pre-school age between 3 and 6 years tends to be neglected (8). If nothing is done before the child starts school valuable and irreplaceable time will have been lost (9). This is critical in view of the fact that the early development period of infancy and childhood from birth up to 4 years of age is the most efficient period in the total growth experience of the human being (10). If it is recalled that the child born in 1971 is a potential full member of his country's work-force from the year 1986 until the year 2036, the urgency and long-term implications of the problem of contemporary malnutrition become obvious. The burden of the results of malnutrition can hardly be eliminated, even in the most favourable circumstances, within the next century.

The extent of malnutrition in developing countries

It has been said of children in the tropics that "in the broadest sense they are all handicapped" (11), and such statistics as are available bear out this generalisation in terms of malnutrition among children in these countries. The disastrous consequences in Zambia of the three M's - measles, muti (local medicine) and malnutrition, have been noted (12). Malnutrition has been listed as the most common cause of death among 373 children upon whom autopsies were carried out in Accra in the period April 1965 to March 1966 (13). Malnutrition is recorded as responsible for the maximum number of deaths in one hospital in Dakar of patients between 18 and 24 months (14). In Zambia, investigations indicate that mortality of pre-school children is at least 300 per 1000 and possibly as high as 500 per 1000, of whom almost all are malnourished (15).

Addressing the Second World Food Congress on 16 June 1970 Lester Pearson said that 1,000 million children under the age of 14 were currently suffering from malnutrition in the world:

> "Among the children who survive, the results of malnutrition are devastating. Physical growth, health and strength is seriously affected." (16)

At least 300 million children suffer from the physical and mental effects of protein deficiency diseases, and up to one third of all children under the age of 5 years in some countries will die from these diseases (17). Some perspective may be given to the situation by pointing out that the average person in Britain eats over forty times as much meat and fish as the average Indian peasant (18), but this should be considered also in the light of the very wide regional variations within any given country.

Few detailed statistics have been compiled to break down the estimated totals; nutrition surveys are only now being undertaken in many areas. The general accuracy of the blanket totals, however, can hardly be questioned in view of the results of small-scale investigations and sampling. Among the African countries, for example, Botswana has suffered from recurrent drought and crop failure since 1961, which has left a legacy of widespread malnutrition, especially among expectant and nursing mothers and small children (19). Malnutrition has been cited as the main factor causing heavy mortality among children in the Cameroons (20). The Government of Ghana, in a paper prepared for the Second Commonwealth Medical Conference (21), qualifying its statement by noting that, as with most developing countries, statistical data is only gradually becoming available quotes the findings of surveys conducted by the National Food and Nutrition Board that there was an overt malnutrition rate of 1% among the child population. This remarkably low rate is probably explained by the limited areas in which the surveys were carried out, and possibly by the definition of "overt malnutrition".

A report on the situation in Nigeria in 1958 considered that malnutrition "is not only common in some areas but almost universal, in a mild form, at certain ages" (22), while a survey of the situation in Senegal cites malnutrition "the base of all tragedies", and continues:

> "During the first years of life it is an exception to find a very healthy child, apart from the young infants under five months who are still entirely fed from their mother's breast ... The nutritional status of the child

in the bush varies from one season to the other in relation to the harvest of edible foods; but the nutritional status always remains inadequate."(23)

In East Africa, malnutrition, especially in young children, is an immense problem throughout the area, its indirect effects being enormous. A study in Kenya of children between the ages of 7 and 15 years showed that of the 383 school children examined, the majority envinced signs of one (and many of two or more) major symptons of malnutrition and vitamin deficiences (24). In Central Africa, the National Food and Nutrition Council assessment of the situation in Zambia cites the report of the Schools Medical Services that, of all primary school children examined, between 25 and 27 per cent have marked signs of malnutrition, and a further 50 to 60 per cent have signs of undernutrition or milder malnutrition (25). These results, it should be noted, are from the Schools Medical Service, which operates only on the Copperbelt and in the Lusaka area, the more affluent parts of the country, while "the worst nutritional conditions are found in isolated bush villages." It is reports such as this which call into question the very low incidence noted from Ghana, above. In Mauritius, too, the rapid population increase is given as the cause for widespread malnutrition and anaemia, particularly among expectant and nursing mothers and pre-school children (26).

Nothing in Africa, however, can compare with the scale and spread of severe malnutrition in Asia, as evidenced by the situation in India. In Bombay city, 42,472 children attending municipal schools were examined in 1956-57, when it was found that 35,326 of them, 83 per cent, suffered from some degree of malnutrition. A survey of children under the age of five years in Surat showed only 17 per cent healthy and, again, 83 per cent of children suffering ill-health because of nutritional deficiencies. A seven-year survey in Poona, from 1950 to 1957, revealed that two-thirds of the children examined were on the borderline or below accepted physical standards of health owing to malnutrition (27). More recently, a report in 1970 notes that at least 15 per cent of patients in children's hospitals in India are malnutrition cases (28). A comprehensive nutritional survey in Bangladesh undertaken between March 1962 and January 1964 demonstrated that malnutrition affects the health and well-being of at least half the population, while 60 per cent of households did not meet acceptable levels of protein consumption (29). The high mortality rate of Malay children between the ages of one and four years - ten times that of more developed countries - may be attributed to the fact that "knowledge and availability of nutritious food items is sadly lacking among the rural Malays who make up 75% of the total Malay population." (30).

In the Caribbean, there has been a welcome reduction in the rate of infant mortality following the introduction of public health programmes, but recent reports still reveal malnutrition as a significant contributory factor to infant mortality and child handicap (31).

As already mentioned, the degree of malnutrition varies seasonally and varies within countries. In some cases urban poverty and the high cost of food in towns leads to a high incidence of malnutrition in centres of population; elsewhere the low level of subsistence farming, ignorance or unwise concentration on cash crops results in high incidences of malnutrition in rural areas.

Overall, the picture in the developing countries is distressing, and, in many areas, deteriorating. As Lester Pearson pointed out (32), of the world's $3\frac{1}{2}$ billions, one billion are hungry, or dangerously undernourished,

or both. Half the world's population suffers from hunger or some form of nutritional deprivation, including almost one billion of children under the age of 14. It is not unreasonable to assume that of these billion children up to 250 millions live in Commonwealth countries.

Major causes of malnutrition

Malnutrition is usually the result of a combination of a number of factors, sociological, environmental, economic and demographic. A comprehensive list prepared following an investigation of the Zambian situation appears as Appendix A to this chapter. Summarised, the main causes originate in poverty, ignorance and disease. Overshadowing all is the population explosion.

The Report of the U.N. Population Commission, 1970, (33) emphasised that the changing reproductive balance between rich and poor countries is not an isolated event, but arises out of equally radical changes in the economic, social, environmental, cultural and socio-psychological spheres, all interacting with each other. The widening gap in birth rates between rich and poor countries can now serve as an effective indicator of the stage of a country's development; the more developed countries have an average yearly growth rate of about one per cent, the less developed more than twice that. The consequences are seen in pressures on food, inescapable poverty, and a high rate of dependency - in the developing world there are, on the average, two children under 15 years of age for every three adults in the productive ages, while in the industrialised countries the ratio is only one to three (34). One consequence, as the Pearson Commission stated:

> "It is a tragic fact that at the end of the 1960's there are more sick, more undernourished and more uneducated children in the world than there were 10 years ago. Every half-minute 100 children are born in developing countries. Twenty of them will die within the year. Of the 80 who survive ... 60 will suffer from malnutrition during the crucial weaning and toddler stage." (35).

It is, however, unbalanced population distribution, both chronologically and geographically, which creates the problem, rather than too great an overall number of people. Very low population density in countries such as Mali or Mauretania contribute to the problem of malnutrition because the transport and marketing of food is more difficult when vast distances separate small communities, while agricultural extension and medical services become much more expensive (36).

Poverty is self-perpetuating through malnutrition, for the ill-fed subsistence farmer has neither the will nor the ability to improve his lot. It is not only the poor, however, who are malnourished in the developing countries. Observations made in Senegal revealed that the population which evidences kwashiorkor is not necessarily only the poor population; kwashiorkor is not the exclusive prerogative of the poorest classes, being found in "farmers and fishermen as well as in employees." (37) More than a decade ago this had been recognised in Nigeria:

> "The number of children who die between the ages of two and five is known to be high everywhere in the country. In some areas the number is appalling. Many of the deaths

> arise primarily from malnutrition, yet poverty appears to have very little to do with the problem. Ignorance is the killer - and that among peoples whose affection for and value of children can never be questioned." (38)

Ignorance produces malnutrition in many ways, through social custom, religious and superstitious taboos, methods of food production and storage. The "granny syndrome" referred to already in the context of mental retardation, has its effects here, too. The children of literate and well-paid parents who have given over the care of their child to an aged relative will suffer from the conservative feeding habits of the older generation. Eggs are frequently forbidden to children: they turn children into thieves according to a Northern Nigerian belief, for example. (On the other hand, eggs are - or were until recently - forbidden to English children in parts of Lancashire because "they cause rickets".) Moslems may not eat of the pig, yet this one of the best sources of animal protein available; Hindus cannot eat meat from the cow; other religions eschew all food originating from an animal source. Taboos range from fish to fowl, from milk to palm kernal oil. Social status may have its effect, too. Beans, in parts of Nigeria, are despised as fit only for the poor, yet they are a valuable source of protein and minerals. Few wives conscious of their standing will eat beans during pregnancy or feed them to their children, when they could help to relieve the almost universal anaemia.

Family customs often militate against adequate nourishment for the child. In a typical "rich illiterate" household in Southern Nigeria:

> "(The man) is well fed since he takes a substantial amount of proteins and usually looks robust. But other members of his family are nothing like as well fed. If at any time, by an unusual circumstance, members of his family eat with him, the formula used is that a woman takes two pieces and a child one piece of meat, to every four the man eats." (39)

That this situation is not unusual may be judged from the following note from Zambia:

> "Maldistribution of food within the family is a potent cause of protein-calorie malnutrition. The men eat separately, receiving the master's share of both the staple and the relish, and many food customs seem designed to ensure that the available protein goes to the man. Traditional hospitality makes further demands on limited resources, and although the visitor is unlikely to be the guest of a child, it is the child who is most adversely affected." (40)

The situation reported from Rhodesia is not untypical:

> "It is a Shona custom that the father eats first, and that what he doesn't want his wife and family have. Added to this is the fact that the Shona are an unusually polite people and that it is a Shona custom not to encourage children to eat meat and protein-rich foods in case they become used to them and are greedy for them when guests come to the home. For

> these reasons Fungayi was probably fed on little more than maize porridge, tea, an occasional bottle of fizzy drink, and meat about once a month." (41)

The crisis at the time of weaning, too, accounts for many deaths from malnutrition among young children, and is certainly the major cause of kwashiorkor and marasmus. The rapid change from full dependence on the mother to independence in terms of both food and protection, as has already been described, can have traumatic mental and physical effects.

Food production and methods of storage also contribute directly to malnutrition. The level of agricultural production is low in most developing countries and many areas experience a "hungry season" in the period between finishing eating the old crop and gathering the new harvest, a season which will lengthen for many in future unless crop increases keep pace with population growth. The Green Revolution in this context is a palliative, not a cure. Food losses, both in course of production and in storage, are calamitously high. It is estimated that over 25 per cent of the food in many developing countries is lost to insects, birds, rodents, monkeys, moulds and the combined effects of heat and humidity:

> "Nine million tons of protein per annum could be saved by preventing cereal grain being destroyed by insects and rodents. This is greater than the current annual production of oil seed protein ... Losses of one third of stored grain are common." (42)

In East Africa:

> "Several million pounds of maize grown in Kenya go to feed weevils every year ... Five out of every 30 lb. of maize in a housewife's debe are eaten by these insects within six months of the harvest in any one season." (43)

In their report on the World Food Problem, the United States President's Science Advisory Committee states:

> "If only half of the estimated world loss of food grains in storage was prevented, it would represent 55 million tons per year, or enough to make the diet of 500 million people in developing countries adequate in total calories." (44)

Men have it in their power to remove the major causes of malnutrition - poverty, ignorance, superstition, unjust custom, disease. Until such time as the dimension of the problem is more adequately appreciated children the world over will be at risk nutritionally, from malnourishment, undernourishment, badly balanced diets, or, as in England, from obesity.

Characteristics of malnutrition

It has been said that few school children are affected by specific disorders of malnutrition to the extent of requiring special educational provision (45). By the age of six, of course, many children are already dead; but, of those who remain, most of those who do go to school have their health affected adversely by a diet deficient in quantity or quality. The school-age child, for example, may inherit somatic retardation, irreversible

lesions, enzyme and functional disturbance appearing and often accumulating after the nutritional crisis in early childhood (46). Generally, too, it is unusual to find a deficiency of just one factor in a diet, deficiencies usually being multiple (47). Malnutrition characteristics are frequently overlaid by the results of diseases suffered as a consequence of lowered resistance. Worm infestations, too, aggravate the direct results of malnutrition; perhaps 80% of the Malaysian rural population, or about 4 million people, are infected with heavy hook-worm, and 35% with whip-worm (48). Weakness due to malnutrition may at times even mimic paralysis (49).

Malnutrition certainly affects the life-expectancy rates in the poorer countries. Life-expectancy in East Africa is only 35-40 years (compared with over 70 in Britain), with an infant mortality rate approaching 20% of live births. In many areas, half a generation disappears between birth and 5 years (50). While it may be true that the more survivors among the young, the greater the human capital available 15 or 20 years hence (51), precautions need to be taken to ensure that the capital is in the best possible physical and mental condition. It is perhaps starting to realise that 25% of India's revenues is spent to maintain children who die before reaching the age of 16 years, before they can contribute effectively to production, so that a reduction in infant and child mortality would increase the Indian revenue more than any envisageable effort of industrialization (52).

The effects of malnutrition can be seen in the rate of physical development. Undernourished children are to some degree underweight and undersized, although in many cases it is difficult to establish norms, so widespread are deficiencies. In North Africa, for example, it is usually in the youngest classes in school (5 to 7 years) where weight deficiency is most marked, following the deficiency seen after the weaning period. A recovery around 9 to 10 years tends to be followed by another retardation, particularly in girls, at 12 to 15 years (53).

The primary and secondary effects of malnutrition on the physical and mental health of young children are widespread and grave. It is now clear that the lack of proper diet can contribute to the onset of blindness. In India more than ten thousand children go blind every year because of an inadequate intake of Vitamin A and consequent keratomalacia. Vitamin B2 deficiencies may also play a not insignificant part in ocular pathology, in conjunction with other nutritional factors (54). As a secondary factor, measles in the malnourished child accounts for a high incidence of blindness (55). Deafness, too, is frequently the direct or indirect result of malnutrition (56). Among the manifestations there may be cited dental caries (57), anaemia (58), errors of metabolism related to enzyme deficiencies (59), and psychological disorders:

> "It is unquestionable that psychological disorders rank foremost in the clinical picture of malnutrition. Studies with psychological tests have been made by various authors on malnourished children and showed that recovery from malnutrition is usually accompanied by a definite improvement of the I.Q. Studies in severely malnourished children showed the severity of the impairment of intellectual development. It seems that children who suffered prior to six months of age from severe malnutrition are likely to have a probable loss of their intellectual potential, whereas children affected at a later age may completely recover from the intellectual deficit if other factors, especially social, do not interfere." (60)

Considerable variation exists in opinion concerning the effect which malnutrition may have on mental retardation. Some authorities believe that only now are data and observations being collected "in the hope of establishing whether there is a connection" between mental retardation or school failure and a former pathological condition caused by malnutrition and various diseases (61). At the workshop on the Delivery of Mental Health Care held in Uganda in 1969 one speaker "suggested that malnutrition might be exerting a malevolent background effect" on brain-damaged children (62). The Pan-African Psychiatric Workshop on the Mental Health of Children in Developing Countries, held in June 1970, recognised the existance of evidence "which suggests that Protein-Calorie-Malnutrition may lead to some intellectual deficit if it occurs in the earliest years." (63). Another survey mentions "a growing belief" that a relationship exists between early malnutrition and mental retardation, "and some nutritionists believe that the damage may be permanent." (64). The picture may become clearer following the results of a retrospective study being undertaken on the effects of early protein-calorie malnutrition on Zambian primary school children (65).

Some authorities are already convinced that the link between malnutrition and brain damage, mental retardation and epilepsy has been proved, since cerebral symptoms, often with profound mental changes, are to be found in severe deficiency (66). Others believe that there is "enough evidence in the literature" to prove that severe PCM during the early developmental phases of the central nervous system causes mental retardation of various degrees, suggesting that "we may be witnessing a situation in which approximately two thirds of the pre-school children in the world are becoming mentally handicapped due to PCM" (67). Research in Chile, for example, has shown that the brains of children who died from marasmus before the age of one year had appreciably less DNA and therefore less brain cells (and brain cells are not renewed in number) (68). In the circumstances it may be wise to accept the conclusion of the Pan-African Psychiatric Workshop:

> "Despite the lack of definite findings, it was strongly emphasised by everyone present that since there are no known benefits from this disease (PCM), efforts should be made to ensure its eradication!!!"(69)

Some main forms of malnutrition

As opinion varies on the relation of malnutrition to mental retardation so it varies about the exact effect of maternal malnutrition on the health of the child. Positive assertions; "it is well known that the state of maternal health during pregnancy directly influences foetal growth and development" (70), are countered by more caution:"some observations show that a poor maternal diet affects the developing foetus," (71) or

> "it is believed that the period of greatest vulnerability is the prenatal period and the first few months of life, because the phase of maximum growth takes place at this particular moment," (72)

In Ghana, for example, pregnant women have been found to be less well nourished than the rest of the adult population (73), so that the unborn child must be considered at risk. In the rural areas of developing countries the hard work which the mother is subjected to has a harmful effect on her child's development, particularly in the last three months of pregnancy when the child's weight should be tripled (74). The needs at this stage are not

always recognised. In the Cameroons, for example, pregnant women do not benefit from rest or extra food (75), although the crucial period for maternal malnutrition to have a direct effect on brain function is during these critical last three months of pregnancy (76). Particularly damaging is protein deficiency during this period, and evidence from countries such as Nigeria indicates that the majority of women in the poorer countries do not receive sufficient protein at this time. An investigation in the Western Nigerian town of Imesi-Ile some years ago concluded:

> "It is usual for European or American mothers to gain from 25 to 30 pounds in weight during the months of pregnancy, and the average weight of their babies when born is at least two pounds heavier than the Yoruba newly-born baby. We were not at the time looking for this but we were so struck by the unusual fact that our Imesi mothers either did not gain weight, or only very little, that we have kept accurate figures and find that the average gain in weight in the Yoruba expectant mother is only one or two pounds. We believe that the reason for this is the lack of protein in the Yoruba diet." (77)

Malnutrition in the mother puts the unborn child at risk. Deficiencies at the weaning stage evoke the main manifestations of malnutrition in the young child.

Kwashiorkor was first described by Dr. Cicely D. Williams, a Medical Officer in the (then) Gold Coast, who observed a disease among infants in the Accra area, and in her report called the disease by the name given to it by the Ga people (78). Dr. Williams' discovery was not immediately accepted; recently one doctor in Kenya claimed to have worked there for twenty years without seeing the disease:

> "It's an invention of the nutritionists or a result of the modernisation of conjugal habits." (79)

It is now generally accepted that kwashiorkor develops mainly at the weaning stage, a particularly critical one (80). Rapid weaning - usually because of another pregnancy, a point emphasised by the International Planned Parenthood Federation (81) - causes the abrupt separation of the child from his mother and an unsuitable protein-deficient diet usually follows breast-feeding, resulting in kwashiorkor. Once again there is some disagreement about the distribution of the disease. The Pan African Psychiatric Workshop, basing its findings upon Senegal (82), observed that kwashiorkor appears mainly in towns and affects first born children more frequently than later born children. On the other hand, another account of the situation in Senegal, says that the number of kwashiorkor cases is 3 to 5 times lower in the very urbanised areas and in the stable and traditional areas (83). Birth rank, too, may be a significant factor in the incidence of kwashiorkor "since the earlier a child comes in the family the better off he is likely to be." (84) Girls generally suffer more than boys. There is disagreement, too, on the incidence of the disease, some doubting if children with kwashiorkor represent more than 3 per cent of underfed children in developing countries (although up to 70 per cent of pre-school children may suffer from milder forms of protein-calorie malnutrition (85)), while others believe that it is probably the most frequent nutritional disorder in the tropics (86). This seems to be a disagreement on terminology rather than on the importance of protein deficiency as a major hazard to children's health in the developing countries.

Calorie deficiencies can lead to marasmus. This is a form of starvation, the child receiving neither adequate supplies of breast milk, nor of any alternative food (87). It may be that a state of marasmus occurs in the majority of children in these countries, lowering their resistance to infections.

Vitamin deficiencies are widespread and calamitous. Over ten thousand additional children in India go blind every year because they do not receive sufficient vitamin A, and the deficiency is also reported as a major contributory factor to blindness in Malaysia and Pakistan; children in the areas in Africa where palm-oil and fish are not easily available suffer similarly. The Vitamin B deficiencies are numerous; beri-beri (due to thiamine deficiency), pellagra (niacin deficiency), and riboflavin deficiencies, all appear in the statistics for developing Commonwealth countries. Vitamin C deficiency (scurvy) occurs in areas where children have a prolonged milk-flour diet; vitamin D deficiency (rickets) is frequent where children are kept indoors in accordance with traditional customs, or when living in town.

Mineral deficiencies, too, affect very considerable numbers of children. Malaria is a main contributory factor to iron deficiency and consequent anaemia. The replacement of iron cooking utensils by aluminium has removed one useful source of sufficient iron in the diet. Iodine deficiency results in goitre ('Derbyshire neck" in England) and can be easily remedied by the introduction of iodised salt. Unfortunately this is not always acceptable; in Northern Nigeria, for example, desert salt is believed to contribute to virility, and much difficulty was experienced when the authorities attempted to substitute iodised salt. Calcium and phosphorus insufficiencies affect the formation and composition of teeth and bones.

Educational effects of malnutrition

The extent of the effect of malnutrition on the performance of children in school is usually assumed to be considerable, but this assumption does not go unchallenged. Among the assumed effects there may be included apath, a reduction in the child's ability to concentrate, absenteeism and consequent retardation, loss of motivation and drop-out, although these effects may also result at least in part from economic, social and scholastic factors, and the degree of influence of malnutrition must remain indeterminate (88). The effect on the children of a teacher who may well be himself underfed must not be overlooked (89). Poor teaching is frequently a major contributory influence towards effects on the child similar to those attributed to malnutrition. A number of authorities reporting over the last half-century have cast doubt on the "common-sense" pre-suppositions about the relationships between health and educational performance (90).

Nevertheless, common-sense keeps breaking in, and a reasonable statement of the present situation may suggest that a direct relationship between malnutrition and school success does exist, but much detailed research remains to be done. The phenomena are observable enough, but not readily measurable (91). The difference in performance of Moslem boys in the fasting month of Ramadan and at other times of year, for example, is apparent to every teacher, but has not yet been investigated in depth. One particular characteristic of kwashiorkor cannot but have subsequent in classroom performance:

> "It is not infrequent for a mother of a three-year old child with malnutrition to admit that her child has not smiled for

three months. These children stop playing and are content to sit still for hours at a time; this at an age when a child should be inquisitive and by its endless activity undergo an important part of its education." (92)

A Zambian paper puts the case forcefully if somewhat dramatically:

"The importance of education has rightly been recognised, but the relationship between nutrition and learning capacity has tended to be ignored, thus casting the costly seeds of education on the barren ground of malnutrition." (93)

Nutrition in schools

It seems obvious that much can be achieved through nutrition programmes through the schools, although the most important area for action is still the infant and pre-school population, and among the mothers (94). Appendix B to this chapter shows how a recognition of the need, accompanied by assistance in basic organisation, can help to overcome some basic problems in child feeding. Nonetheless, the organisation of school meals can play an important role in the long-term raising of feeding standards:

"The methods found to be most effective in other parts of the world is to turn to the most impressionable age, and get school children to learn about eating by eating. This is done through the system of serving free or cheap food of high quality to the children while at school." (95)

Boarding schools in the developing countries have not always been noted for the diet provided for their pupils. The writer conducted a survey of the meals at the Kano Middle School in 1953 and found it lacking in both animal protein and variety, although this is understandable in view of the fact that only ninepence per boy per day was allowed for feeding and that purchasing of stores was conducted through the Native Authority with a private contractor. An outline of the diet is appended as Appendix C. The Ominde Report (96) recognised the cost of improving existing school diets to acceptable levels but recommended some immediate steps and a long-term policy. The diet suggested for secondary schools is reproduced in part as Appendix D.

In addition to improvements in diet standards of boarding schools, a number of Commonwealth countries are active in the provision of supplementary meals in day schools. Both governments and voluntary bodies are involved. In Zambia, for example, a revision of boarding and day school feeding is linked to curriculum revision, because "to teach nutrition in boarding schools, where the catering is inadequate, would be asking for trouble." (97) In Ghana, the Rotary Club of Accra has for some years supported a supplementary feeding scheme for primary school children at Achimota, in co-operation with the authorities and UNICEF.

Zambia has been particularly active in seeking the best form of supplementary feeding, and after numerous trials with four possible supplements has chosen the milk biscuit developed by the Dairy Division of CSIRO in Australia. The criteria to be met were:

"(a) A minimum provision of 10g. of protein and 200 calories, with vitamins and minerals added

as required.

(b) The snack must be cheap, palatable, and acceptable to the pupil.

(c) It should have good storage qualities, be easily distributed, involve minimum extra work for teachers, and be easily accounted for.

(d) It should be capable of being manufactured locally." (98)

The milk biscuit meets all these criteria and action is now going forward. Other countries might well consider whether this biscuit might not help in their own campaign to improve the nutritional standards of their school children.

The World Food Programme of the Food Agriculture Organisation of the United Nations is heavily committed to school and pre-school feeding programmes in developing Commonwealth countries. Among the countries mentioned in recent issues of World Food Programme News are Barbados, Botswana, Cyprus, The Gambia, Ghana, India, Jamaica, Lesotho, Malawi, Mauritius, Nigeria and Swaziland. On a world basis the Programme had, by the end of July, 1970, committed more than $200 millions to bring food aid to primary and secondary schools, over $4 millions to prevocational and vocational institutions, almost $22 millions to universities, professional and technical institutions, and nearly $4.5 millions to literacy and adult education campaigns (99).

Despite varying opinions about the range and extent of the effects of malnutrition on children in the developing countries and the most appropriate points at which it should be countered, there is no doubt that widespread malnutrition exists and that programmes should be devised to minimise its consequences.

Conclusions

Speaking of problems of national development, the Report of the Indian Education Commission says:

> "The first and the most important of these is food. Mahatma Gandhi said: 'If God were to appear in India, He will have to take the form of a loaf of bread.' ... Self-sufficiency in food thus becomes not merely a desirable goal but a condition for survival." (100)

The essential need for developing countries is for more food and a higher standard of living, factors which seem to be interdependent. For this reason the "pump priming" role of external agencies seems basic to development in this area. In so many cases, improved nutrition is as much a matter of public attitudes, customs and traditions as of insufficient land or lack of concern for the children. Continuous effective propaganda directed at parents and administrators is a vital supplement to intensive campaigns of health and agricultural extension, and family planning. Teacher-training programmes should stress the importance of adequate nutrition, for the teacher as well as his pupil. Nutrition programmes should be incorporated into overall national economic planning, and a comprehensive and coherent policy for children drawn up. The eventual aim should be to eliminate the effects of malnutrition be removing the cause, although this can only be in the long term. Malnutrition must be considered as an important contributory

factor, primary or secondary, to many of the handicapping afflictions suffered by children in developing countries. To disregard it when considering programmes for the alleviation of handicap may well lead to the expensive error of treating the symptom rather than the disease:

> "It would be possible to go into detail about the diseases which afflict humanity other than the deficiency diseases, but malnutrition is really the backcloth on which all these catastrophes depict themselves." (101)

APPENDIX A

THE MAJOR CAUSES OF MALNUTRITION

Malnutrition is normally a combination of numerous causes. The following suggested causes are purely tentative; the Nutrition Survey and Services Project, described below, will provide the firm data on which to plan.

A. Sociological

1. Bottle feeding is one of the greatest killers, due to unhygienic bottles and unduly diluted feeds.

2. The increased rate of parity and employment of women has resulted in earlier weaning.

3. The lessening period of breast feeding has been unaccompanied by an adequate knowledge of the child's nutritional needs.

4. Thin gruels of maize or cassava flour are used for weaning, with little or no protein added; gravies from relish dishes supply negligible amounts of protein.

5. Traditionally meals are limited to two per day, often much less, e.g. an average of 1.34 meals per day at Shikamushile.

6. The size of a child's stomach precludes adequate intake on a basis of two meals per day.

7. In communal feeding, intake varies with the size of hand and manual dexterity, to the disadvantage of the young child.

8. There is maldistribution of food within the family, the father having the master's share of both staple and relish.

9. The sale of sweet aerated drinks, fostered by massive advertising, has a pernicious effect on young children. On a follow-up recently of 107 serious cases at Ndola, 60% of mothers fed their children with such drinks.

10. Increase in migrant labour since the twenties has denuded the rural areas of man-power for traditional agricultural tasks, resulting in an ever-increasing spread of cassava cultivation replacing millet production.

11. Increased beer consumption results not only in over-indulgence affecting the family budget and preparation of meals, but in the use of beer as a soporific.

12. The effect of food taboos has significance, but in most areas alternative foods can be found.

13. There is no concept of deficiency disease; the explanation of the unknown is deemed to be supernatural.

14. The underweight child is so common that it is regarded as being normal.

15. There is lack of knowledge of human nutrition among all socio-economic levels of the population, and among most professional and auxiliary staff.

16. There is lack of budgetting skill and bad spending habits.

17. Obligatory, traditional hospitality makes heavy demands and although the visitor is seldom the guest of the child, it is the child who suffers.

18. There are plenty of changes in food habits taking place, but most are nutritionally detrimental. Consumption of bread and buns is increasing by about 20% per year.

19. Crowded housing conditions in urban areas make consumption demands beyond the capacity of kitchens.

20. Young children are at special risk when they are twins, illegitimate, children of broken marriages, displaced by a new pregnancy, youngest member of a family over four and when the parents are alcoholics.

B. Environmental

1. There is only one rainy season, which limits production to one harvest without irrigation, and results in shortage of greens at the end of the hot dry season.

2. Rainfall is heavy in the north where the soils are leached, and moderate in the centre and south, where, in years of under-average rainfall, yields are low. Excessive rainfall, as experienced this year, also affects yield.

3. Monkeys, bush pigs and birds cause serious losses of growing crops. The traditional bird scarers now attend school.

4. Research studies have shown that 30% of grain stored under village conditions is lost to insect pests and rats.

5. The usual tropical pests and plant diseases are prevalent, as are diseases of domestic animals.

6. Vector borne diseases are also prevalent, especially malaria, bilharzia and hookworm, all of which are synergistic with malnutrition.

7. The herds of wild game have been reduced from abundancy to scarcity outside the game reserves; thus the most important traditional source of animal protein has been lost.

8. In many areas there is no tradition of cattle-husbandry and tse-tse fly preclude cattle over vast areas.

9. Soil erosion affects not only local resources in the hilly areas, but through silting in the valleys, results in flooding and loss of arable land.

10. Where the chitimene system of cultivation prevailed, much of the woodland has been cut out, and cassava replaces the former grain crops.

11. Traditional land tenure handicaps development; lands are held in trust tribally and a system of usufruct prevails in most lands.

12. A population density averaging 12 per square mile results in dispersed small communities, thus hampering the provision of services.

13. The state of secondary roads during the rains and the distances involved are obstacles to marketing.

14. In urban areas there is little provision for vegetable gardens.

C. Economic

1. About 70% of the population depends in whole or in part on its own production to feed the family; they do not have the purchasing power to buy from commercial producers.

2. The cost of foodstuffs consumed by the lower economic sector has increased in price by 54% during the last four years.

3. Although wage rates have increased since independence, the basic labourer's wage is very close to the poverty datum line.

4. Payment of wages monthly results in lavish spending at the beginning of the month; and near destitution at the end.

5. The introduction of cash crops, an essential diversification of production, can be detrimental to food production.

6. The historic dependence on fruit and vegetable supplies from the south, results in short supply and inflated prices.

D. Demographic

1. According to the results of the last census (1963), it was deduced that the natural rate of increase is 3.2% per year, thus the population is doubling every 22 years.

2. Food production per caput is falling behind the rate of population increase.

3. In 1963, 46.6% of the population were under the age of fifteen years. It can be assumed, therefore, that at least half of the population is non-productive.

4. The drift to the towns from the rural areas is marked. Urban dwellers are increasing at an estimated rate of 8% per year, resulting in the creation of septic fringes round the cities, which generate their own peculiar problems.

(extract from "An Assessment on Activities in Zambia," Lusaka, National Food and Nutrition Commission, 1969).

APPENDIX B

"A great improvement in the children's health came about very quickly in 1963 when the village had little land cleared and consequently hardly adequate food supplies. This first improvement was brought about by better management of the children's feeding. Every evening there was a lot of crying amongst the village children and much shouting at them by their mothers. An African mother is a very busy person cooking for her family, collecting firewood, carrying water from the river, doing the family washing, bathing the children, all on top of the biggest of the jobs, working in the fields. When she returns to the house at night she is understandably tired and thus easily irritated by her children. The youngsters are also tired at that time of the day and hungry, both of these making them miserable. The food has to be cooked, during which time it grows dark and the children, sitting around the kitchen fire, after a few bites tend to drop off to sleep when they are picked up and laid down for the night, not having eaten properly. It was suggested that one or two of the women should come in early from work and prepare food for all the children - explaining the reason. The idea was strange to the women and not easily accepted at that time. It was in fact the men who first saw the value of it and asked for it to be put into operation. These sorts of operation generally need a time of helping whilst people come up against and overcome the inevitable problems. For instance, in this case the feeling amonst the women that everything had to be fair meant that the women had to do the children's cooking in turn, it not being "fair" that one pair of women always do it while the rest are still out in the fields. This meant that every week started with having to explain everything to new mothers. It was possible in quite a short time to see the benefit of this and later it was extended almost automatically to the midday meal."

Ibbott, R. An Account of the Origins, Growth and Destruction of the Ruvuma Development Association (unpublished) 1971.

APPENDIX C

Kano Middle School Diet, 1953

Normal constituents

Tuwo	-	a dough made from powdered guineacorn or millet, eaten either by dipping in soup or as cakes fried in groundnut oil.
Rice		
Gari	-	powdered cassava
Soup	-	a liquid made from some or all of: marrow (kabewa), locust beans, tomato, onions, baobab leaves, peppers, palm oil and salt.
Milk		

Average weekly menu per boy

Monday to Thursday

0700 hours	1 tuwo cake
0915	tuwo, soup, meat (small piece)
1400	guineacorn and milk
1830	tuwo, soup, meat (small piece)

Wednesday (occasionally)

1830	rice and soup or gari and soup

Friday

0700	1 tuwo cake
0915	tuwo and soup
1400	guineacorn and milk
1830	tuwo and soup

Saturday

0915	tuwo cake, tuwo and soup
1400	rice, beans, groundnut oil, salt
1830	1 tuwo cake, 1 banana

Sunday

0915	tuwo and soup
1400	guineacorn and milk
1700	tuwo and soup

A Unified Diet for Secondary Schools

6. Cost of feeding - The costs of food vary according to season, locality and availability. Cost per head decreases with an increase in numbers and, when adequate storage and transport facilities are available, with bulk buying. Thus the larger secondary schools recommended in this report offer prospects of economies.

7. A Unified Diet - At present Nairobi wholesale prices for schools, using cheaper alternatives, some fresh and some dried skim milk and very little variety, an adequate diet could be provided at a minimum cost of Shs.2/- per head, but this would not allow scope for reconciling different customary feeding habits. A diet with a little more variety, an occasional better cut of meat, rice and bread could be provided for Shs.2/50 per head. Shs.3/- is a more realistic figure. This diet is calculated on the basis of the menu shown in paragraph nine (below).

8. Trained Caterers - To deal with the problem of a Unified Diet and to ensure good value for money, it is recommended that each school should have the services of a trained caterer (see paragraph 399) and that the Kenya Polytechnic should provide courses of training for this purpose.

9. A suggested menu for a Unified Diet - The following menu has been drawn up by Miss Norah Gibbs, a dietitian working with the W.H.O. team in Kenya. It meets the nutritional needs of an average secondary school pupil and can be used as a basis for other menus. The greater the variety, the safer the diet will be nutritionally.

	Girls	Boys
Maize and other cereal	10 oz.	16 oz.
Sugar	1½	1½
Meat or beans	4	4
Milk	30	30
Potato or Arrowroot or Casava	8	8
Fruit or Vegetables (at least half of this should be of the dark green or yellow type, e.g. spinach, pumpkin, curds, pawpaw, mango, etc.)	6	6
Fat	1	1½
Salt	½	½

10. Maize or other cereal = same quantity of maize flour, wheat flour, rice. Wheat flour could be used in cakes, pastry, bread - 1 oz. maize flour = 1½ oz. bread.

A variety of these cereals should be served during the day. Thus, for the girls' menu (10 oz cereal), this could be:

BREAKFAST: 2 oz. Maize flour as porridge
3 oz. Bread

LUNCH: 2 oz. Rice, served with meat, etc.
1 oz. Cereal with milk for pudding

EVENING: 3 oz. Maize (served with beans)

11. Meat 4 oz. = Fish (fresh) 6 oz. = Fish (dry) 4 oz. = 4 eggs = 4 oz. cheese = 4 oz. beans or other dry legume (i.e. peas, lentils, dahls, etc.) (or groundnuts), = 1 pint milk.

Again, a variety of protein food may be served thus:

Lunch - 2 oz. meat
Evening - 2 oz. beans

12. MILK - Could be dried skim milk.

13. At least half (3 oz.) of the fruit and vegetables recommended should be in the form of dark green or yellow vegetables, or fruit. This is to ensure an adequate source of Vitamin A.

If there is difficulty in obtaining these foods, it is suggested that the fat used be oil or margarine, fortified with Vitamin A. (Suggested vitaminised oil, produced by the East African Industries, which contains 4,000 I.U. Vitamin A per oz.).

(extract from Kenya Education Commission Report, 1964).

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THE PROVISION OF BUILDINGS AND EQUIPMENT

Buildings

Despite the admirable efforts of the Unesco Regional Building Centres and some national organisations, the general standard of school building in developing Commonwealth countries remains very low. Much of the research undertaken has been directed primarily at producing more cheaply schools of conventional design. Investigations have concentrated on materials and construction methods rather than a reappraisal of needs and the evolution of new types of educational building. It may be that some authorities might be prepared to encourage experiment in the provision of buildings for handicapped children in the expectation that pilot ventures in this field would have relevance for the general educational programme.

Government (and government-assisted) building projects are dogged by tradition. Standard plans and established construction methods using conventional materials produce known, measurable and accountable results. Ministries of Works, frequently obliged to rely on inferior quality contractors, are reluctant pioneers. Special education may offer a means of breaking the deadlock by making possible experiment on a limited scale in an area not yet controlled by the traditionalists.

One major revolution could take the form of the use in government-assisted projects of "temporary" materials, mud, wood and sandcrete. The distribution of handicapped children in rural areas will vary over a period of time. Provision made on an expensive scale in permanent materials can easily be found to be in the wrong place as the pattern of need changes, or in the wrong style as the methods teaching and training develop. There would, therefore, be much advantage in promoting buildings for special education which combined flexibility with economy. The anticipated building needs of the overall education system over the next two decades are most obscure, because of population movement and new educational methods. It would, therefore, be possible for the expenditure on pilot building ventures in special education to be recouped by savings over the whole education system as a result of innovations tested on this limited scale.

When considering developments in special education it must be assumed that there will in future be the minimum number of schools and ancillary buildings erected for the exclusive use of the handicapped. That implies two considerations for architects and educationists: general educational buildings should limit as little as possible the full enjoyment of their facilities by the handicapped, and, secondly, special buildings for the handicapped, in forms such as resource centres, deaf units and hostels, should be simple, economical and transportable. Buildings which can be used freely by handicapped children need not cost more than those for normal children provided that designs incorporate the necessary features from the very beginning. Most developing countries, for example, would find little difficulty in standardising on single-story buildings, or buildings of more than one storey which allow for each child to spend his day as far as possible at one level. Wider doorways, handrails, washing and toilet facilities accessible to the physically handicapped, lever-type door handles, louvre windows rather than casements, these and many other details helpful to the handicapped should add only minimally to total costs (1). All children would benefit if architects approached school design from the height and

scale of the child rather than the teacher; this single consideration would do much to help both the handicapped child and his normal schoolfellow.

The system of prefabricated modular rural schools pioneered in Mexico seems to offer a valuable method of providing special classes and units in the most economic and effective way (2). Objection has been raised in the past on the grounds that centrally manufactured, prefabricated parts militate against the interests of local contractors (3), but the overall advantage to be gained outweighs this. The Mexican system is based on the provision from government funds of a light steel roof structure and metal roof, windows and frames, furniture and equipment. The local community provides the base plinth and the wall in-filling to certain minimum standards but using such local material as may be available. This operation has resulted in the establishment of light steel and plastics industries, while numbers of otherwise unemployed school leavers have been formed into teams of steel-erectors, travelling the countryside with the packaged schools. The modular form of construction provides for complete flexibility in the dimensions of the buildings which may be erected, while accommodation for the teacher is also included as part of the scheme. Such an arrangement seems ideally suited to the construction not only of special education annexes and units, but of resource centres, and, in many areas, ordinary schools. The final advantages of such buildings is that they can be easily repaired with replacement standard parts, altered in size and shape at little cost to meet changing needs and, if necessary, moved to new sites, leaving only the plinth and wall in-filling as lost investment. For specific assessment work or remedial teaching a mobile combined resource-room and classroom might be appropriate in some areas.

Equipment

Equipment for handicapped children falls into two overlapping categories, medical and educational. The purpose of both types is to enable the exceptional child to develop on terms as near equal as possible to his normal colleagues. Many of the basic aids for the handicapped are compensatory in just this sense. They compensate through conscious provision for some of the experiences familiar to ordinary children but of which handicapped children are deprived. Devices enabling a handicapped child to sit upright or move independently, for example, give him the opportunity to acquire some of the experiences available to all normal children. The bulk of these aids fall into the "medical" category although their educational role is unmistakable. Aids to mobility and aids to communication, devices which increase the opportunities for independence for the handicapped child, are essential if later formal education is to have any real meaning. In a sense these aids fulfil the same function as pre-school, headstart programmes for the inner-city child. Many mildly handicapped children, particularly those mildly mentally handicapped, do in fact originate in deprived communities, so that pre-school preparatory programmes are doubly important for them if they are to benefit in any degree from the educational process.

Toys fall into an intermediate category, combining as they do therapy and active learning. Increasing recognition is being afforded to the value of carefully selected toys to assist in the development of handicapped children, particularly at the earliest stages when motor skills are being developed (4). A recent innovation in this field is the concept of a toy library from which materials may be borrowed for the child to be used at home (5).

The possibility of such a system succeeding in a developing country will depend on a number of variables, not least the attitude of parents and availability of transport, but small-scale schemes might well be considered in some of the larger centres of population such as Accra, Hong Kong, Kampala, Nairobi, Port of Spain or Singapore. The advantages of such a system include making large toys available to parents who would not otherwise be likely to invest in them and bringing together a group of highly motivated parents who might later undertake additional activities. A toy library seems to have much to commend it to the various service clubs - Rotary, Lions, Apex - or volunteer bodies as a community service project.

More formal educational aids need to be developed commensurate with skills, materials and funds available in each developing country. The example has already been quoted in an earlier chapter of electronic equipment for the deaf deteriorating in the tropics because of the lack of air-conditioned storage space. At these early stages of special education development in the poorer countries the criterion for equipment should be cheapness and sturdiness even at the cost of some degree of performance. Nor should the more obvious aids be overlooked for blind children, a small animals collection, for example, simple models, outline maps and action exhibits can be assembled at minimum cost. Manufacturers, museums and private collectors can often be induced to donate suitable items (6).

Special education should aim to justify its case to financial authorities by leading the search for more effective methods of learning. Radio, for the physically-handicapped and blind; television, film-loops and cassettes for the deaf; programmed instruction, correspondence lessons, all deserve the fullest investigation. The experience of many newly independent countries in the educational use of the new media and new technologies has frequently been very disappointing. Special education now has the opportunity to learn from these errors and explore on a limited scale better means by which the undoubted potential of such aids can be realised.

Much could be achieved in the developing countries in the development, production and distribution of educational materials for handicapped children. Indian manufacturers, for example, have succeeded in producing hearing aids relatively cheaply, although foreign exchange problems and import duties on components which could not at first be produced locally raised the price and limited the production (7). The Committee on Technical Aids, Housing and Transportation (ICTA) of the International Society for Rehabilitation of the Disabled is at present engaged on an international survey on technical aids for children with physical handicaps and issues regular publications (8); these could provide a valuable service of information for adaptation in the developing countries.

The ICTA survey is a useful pointer to the activities which would be possible for the developing countries of the Commonwealth. The exchange of information, especially between developing countries whose possibilities and problems will be similar, could stimulate local and regional activities. Means by which this exchange could be achieved locally might include exhibitions and newsletters and internationally a journal based on a Commonwealth Association for Special Education. Economies often result from a large volume of production and this could be achieved even when the needs of each country are relatively modest by central production on a national or regional scale. The ILO and Unesco have both supported this principle, particularly when it is undertaken in workshops staffed as far as

possible by handicapped employees (9). Standardisation of sizes and parts would allow for maximum interchange and simplify improvements and replacements. For regional supplies to be effective, however, governments would need to eliminate taxes and duties on materials for the handicapped, in the same way as at present Contracting States to the Florence Agreement permit the free movement of Braille publications (10).

The provision of the material necessities for special education and vocational training for the handicapped should be undertaken with a considered understanding of the realities of the situation. Governments in developing countries can invest in this field only if it is seems likely to yield a return in terms of direct benefits to the country or of public moneys saved. If those responsible for special education seek to develop buildings and equipment on the principles of "intermediate technology," using local materials adapted to local conditions, official support may become more generous. This generosity is likely to increase if the techniques evolved appear to relate to the needs of the remainder of the education system. Special education has the opportunity to prove its integral relationship and value to education in general by providing the opportunity for experiment which can later be transferred into the system as a whole.

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ATTITUDES TO HANDICAP AND PUBLIC ENLIGHTENMENT

The birth of any child has an effect on the family and the community, especially in traditional societies. The birth of a handicapped child, or the development of handicap in an older child also affects both family and community, although the nature of the effect and the reactions evinced vary much from place to place. Whether the child is rejected or considered afflicted of God, whether the mother is de facto head of the house (as frequently happens in the Caribbean) or a chattel of her husband, the presence of a handicapped child alters the life pattern of those about him. Any study of handicap, therefore, must take into account the background against which the child moves, the setting in which he is placed.

Attitudes towards handicap vary between communities and there is little foundation for the general comfortable assumption that traditional societies normally accept responsibility for their handicapped members:

> "The commonly held opinion that the handicapped child is care for and accepted in village life is quite intrue. Most congenitally handicapped children die in infancy, often unnecessarily, as do many of those acquiring a handicap early in life, while surviving children are frequently grossly neglected. Even where tribal traditions ensure that the child is fed and clothes he is not expected to work or encouraged to develop any skills" (1).

The degree of acceptance of such children may be related to the stage of development of the society:

> "Tolerance of the handicapped has varied throughout history according to the economic ability of a tribe or nation to support them without sacrificing the security or life needs of its normal people" (2).

In the developing countries, fear and ignorance combine to influence public attitudes towards the handicapped. The fear of catching leprosy or fear of the startling manifestations of epilepsy, for example, lead to ostracism of those suffering from such diseases. Rationalisation of such attitudes often takes the form of attributing affliction to divine retribution for sin. Traditional attitudes in India, Europe and the Middle East may be cited in evidence of this (3). To fear, as one prime origin of adverse attitudes, there may be added fatalism, the attribution of the birth of a crippled child to:

> "the evil influence of the lunar eclipse, or the charm of a witch or the non-observance of certain customary practices during pregnancy" (4).

Finally, embarrassment may also play a part in denying acceptance to the handicapped person as a full member of the community; such a reaction is particularly common in respect of deafness, as has been indicated in the part of this study which considers hearing impairment.

The handicapped child and his family

The handicapped child imposes on his family an undoubted burden, both pysical and mental. Feelings of guilt and responsibility on the part of the parents militate against the child being treated as a normal member of the family. The child is almost always over- or under-protected, coddled and not allowed to realise his limited potential, or rejected. Exaggerated compensatory attitudes towards the handicapped result not infrequently in overexpectation, parents hoping to assuage their guilt through seeing the child at a high level. Such expecations when unrealised merely add to the distress of the family.

Those working on behalf of handicapped children should attempt to influence the family towards a realistic appreciation of the limited potential of each child and explain the positive role which the family can play in assisting him to achieve it. As has been noted previously, the most helpful approach to the problem of the exceptional child is that which works towards a "planned dependence". If parents can accept the real possibilities of their child and the extent to which a normal life will be possible for him, they may come to terms with the residue of dependence which cannot be removed from them. A full explanation of the child's likely limitations can often reconcile the parents to the situation, especially if the family can at the same time be shown how to play to positive role in helping the child to develop as far as possible. Parents and others in the family compound, for example, can be encouraged to continue talking to a hearing-impaired child even though he may be very slow in responding:

> "A mother can do a great deal to help her deaf baby or toddler .... It is all too easy to avoid ever speaking to a child who does not respond except to gestures. But even though the child may not seem to hear, speech should be kept up" (5).

There is now general recognition of the vital role which parents should play in the early education of children, normal or exceptional. Efforts, therefore, should be directed specifically at helping the parents of a handicapped child to take an active and informed part in his education and training. This implies the need for adequate support to be available for them in the form of expert assistance and professional backing, and also through regular relief from their continuing burden. Voluntary bodies in the developing countries may well find an increasing involvement in alleviating the pressures on families of handicapped children through the provision of playgroups, short-stay hostels and special furniture and equipment for the home. The formation of groups for mothers to discuss and share their problems in informal surroundings can also help much to relieve stress. The timing and methods of introducing of such innovations will, of course depend on the particular community's attitudes and reactions.

The attitude of the community at large towards the handicapped child and his immediate family is frequently antipathetic or hostile. Examples have been given of the refusal of communities to accept handicapped children into their schools, particularly epileptics or children cured of leprosy. In the face of such reactions it calls for considerable strength of will on the part of the handicapped child's family to confront public opinion and attempt to change established attitudes.

Professional involvement

The family of a handicapped child often needs the help of the social worker more than the child does (6). Frequently, however, parents, even in the more developed countries, find it very difficult to obtain sympathetic help from professional staff. Medical officers are often reluctant to take parents into their confidence. The suggestion made in 1967 by the World Health Organisation that a series of pamphlets be published on the care of children who are handicapped in different ways, could well be followed up in the context of the developing countries. The Younghusband Report emphasises the need for professional workers to provide sympathetic and competent support for the families of handicapped children (7). The most effective support is that which provides accurate information, allays parents' apprehension and self accusation, and treats parents as responsible partners in the work of caring for their handicapped children.

The professional workers themselves, however, must first be made conversant with current thinking on the subject of child handicap and accept their position as part of a team including medical, education and welfare staff and the child's family. It has been suggested recently that one effective way of inducing older doctors to take an interest in this area is by ensuring that medical students are taught about it. The older doctors will then feel that they should inform themselves in order not to be left behind the advance of knowledge and techniques. A direct approach to the more senior members of the profession might not meet with a similar success.

Liaison should be established, too, among workers of different professions. At the village level a combined approach by medical, school and welfare representatives will be both more effective and more economic than a piecemeal approach with each dealing only with particular aspects of the problem. The francophone countries of Africa have made some effort to train "animateurs," village leaders who can induce changes in traditional attitudes by reason of their recognised status in the area backed by a degree of expertise and command of development techniques. The existence of such individuals could be of considerable advantage to many Commonwealth countries, where one of their roles could be the linking of all disciplines necessary to the care and welfare of the handicapped child.

Professional workers in the field have the need for a continuous supply of information with regard to child handicap. This could best be given through a centre established to process and disseminate general information, in addition to which each particular profession should be linked to an information centre for specialised information. A formal liaison might be established between schools of nursing and workers in the field, a liaison which could usefully include the provision of in-service courses at regular intervals (8).

Public enlightenment

The Younghusband Report quotes the mother of a handicapped child:

> "People are very good at sympathising with you, but when it comes to giving practical help, they don't want to know you" (9).

Helen Keller once said:

> "Not blindness but the attitude of the seeing is the hardest burden that the blind has to bear" (10).

In many communities parents cannot expect even this negative attitude; rather is the presence of handicap taken as a threat to the society, to be met with hostility. Even when active hostility is absent the handicapped may be regarded as unable to play any active role, to contribute towards the well-being of themselves and others. Typical of the attitude towards the handicapped in many parts of the developing world there may be cited:

> "There they sit, fed and housed by more or perhaps less sympathetic relations, but regarded by all as useless and unproductive" (11).

The purpose of public enlightenment may fairly be said to be the changing of the climate of opinion towards acceptance of the handicapped as a full person and a potentially valuable member of his community, rather than an unwelcome burden.

Endeavours to influence public opinion are best based on providing a realistic appreciation of the capabilities and limitations of the handicapped. The methods employed will depend on the type and state of each community. In some cases the promotion of informal associations in which normal and handicapped can approach each other may help to dispel irrational prejudices. Teachers can indicate the lack of foundation for many antipathetic attitudes based on fear and ignorance by teaching accurately about the causes and nature of the most frequently encountered types of handicap in the area. Retarded persons in particular can be shown to be slower than normal but by no means incapable, a factor not often appreciated by employers.

The problem of employment for handicapped persons in developing countries arises from far more complex factors than simple prejudice. With unemployment rates for normal young people causing concern and unrest, the placing of handicapped persons presents additional problems. The ILO has done much to show how jobs can be adapted for the disabled (12) and has publicised widely the success of an umbrella factory in Ethiopia staffed entirely by handicapped employees (13). This publicity does something to help to answer the question of how to place handicapped youngsters in a highly competitive labour market, by showing employers something of the potential available. The ILO lists a number of methods which might be adopted to persuade and encourage employers to engage handicapped persons, the most important of which involve the effective operation of placement officers backed up by measures designed to promote employers' confidence in the ability of the handicapped (14).

Three possibilities seem to offer the best likelihood of success in promoting confidence in the employment capacities of the handicapped. Combined workshops might employ handicapped and normal workers in a commercial or semi-commercial setting; handicapped workers might combine in a commercially viable enterprise; or the handicapped school leaver might take up rural based employment which is of value to the community but less attractive to normal young men whose objective is urban employment. Experience in England has shown that employers respond positively to evidence that handicapped workers do not prejudice production (15).

Changing public attitudes towards afflictions which inspire fear rather than embarrassment presents another type of problem. Acceptance of persons who are mentally handicapped, cured of leprosy or with their epilepsy suppressed, for example, depends on a long-term campaign of public enlightenment. Voluntary societies have a definite role to play in this, since the scope for their activities is wider than for official agencies. Voluntary activities, such as the Ghana Cripples Aid Society, can co-operate with more formal campaigns in order to promote the acceptance of the handicapped.

Influencing public opinion

Attitudes can be modified, though rarely in a short time. Campaigns directed to this end can be self-defeating if continued for too long; the most effective approach seems to be short campaigns repeated at intervals. Support must be evinced by influential groups, Governments should put their official weight behind the endeavour, as, for example, the Ghana Government did in 1970 when backing a campaign for rehabilitation and care of the mentally retarded (16). Education authorities have their part to play. Nigeria, for example, has started a parent-guidance clinic to help parents of deaf children, while the presence of handicapped children in open education schemes presents immediate evidence of the capacity of these previously unconsidered youngsters:

> "For the first time, in the isolated villages of our country, our people could watch the blind and apparently helpless child they had known for years actually learning to read and write" (17).

The mass media, too, can usefully be involved in campaigns of public enlightenment. Radio, film, television, booklets, pamphlets and posters, newspaper items, can all play their part in an overall programme directed at entrenched attitudes. In the end, however, the most effective projection of the case for the handicapped is the example of a handicapped person undertaking successfully a recognised role in society as pupil, worker or member of the family. The pioneers among the handicapped must be prepared to demonstrate their competence to society at large:

> "The man who has made good in spite of his handicap should be persuaded to forget any modesty he may have and to appear publicly, as often as possible, and in any way that is appropriate, giving for example interviews to the press or radio and television, appearing at public functions and speaking at official ceremonies; he should be the local 'hero'. In this way he will be doing more for his disabled friends than a host of occupational therapists and rehabilitation officers" (18).

A number of outstanding handicapped individuals have borne out this contention in recent years. The example of John Wilson, the widely-travelled blind Director of the Royal Commonwealth Society for the Blind, must have influenced an uncountable number of public figures in developing Commonwealth countries. Jack Ashley, the English Member of Parliament, has displayed the possibilities of overcoming the sudden onset of profound deafness, and this in a career where efficient communication is all-important. The cause of the deaf-blind was first brought into the public consciousness by the outstanding example of Helen Keller, while President Roosevelt demonstrated how the effects of polio might be overcome. The elevation to

the peerage of Baroness Masham both recognised her courage in overcoming the effects of a crippling accident and acknowledged the service which she has been able to give to the community since. On a less publicised scale, considerable good was done in Ghana some years ago when the partially-sighted, partially-hearing teenage daughter of a university lecturer demonstrated her ability to travel alone on public transport each day to her secondary school and qualify eventually for entrance to university when her family returned to Australia.

Attitudes are changed as the result of a conscious effort on the part of those who wish to effect the change. The "engineering of consent" through the manipulation of public relations "is the world's biggest business" (19). Those working on behalf of the handicapped must be prepared to tackle the problem with this premise that the change of public opinion must be inspired, it will not come as the result of the natural course of events. As one delegate said to the First Caribbean Mental Retardation Conference:

> "In the end you are not really going to succeed in any sort of agency or organization unless you are publicity conscious And it is no use just having a good story to tell - good stories are not news" (20).

Effective stories have to be engineered: the work of the Experimental Theatre for the Blind in Brazil which benefits both the highly competent actors and their audiences (21): the expedition sponsored by the Royal Commonwealth Society for the Blind in which a group of blind boys successfully climbed Mount Kilimanjaro aroused interest in the capacities of the blind far beyond East Africa, being reported widely throughout the world (22). In 1969 an Olympics was held for the retarded in Toronto, with an encouraging sequel:

> "A year and a half later if you take an opinion poll of the Canadian public and say, 'What do you know about mental retardation?' they won't mention our 14,000,000 dollar service, or our programmes for the parents, or what the professional people are doing, they say, 'Wasn't that Olympics a wonderful thing! I did not know the retarded could do all these kind of things!" (23).

For the Western world the two World Wars probably had an overall positive effect on public attitudes towards handicap, because so many families came into tragically close contact with both physical and mental defects. Western literature, on the other hand, has rarely given help to the image of the handicap. For every Mr. Dick, Max Carrados, Jack Archer or Ironside there appear numerous sinister or unpleasant handicapped characters, whose affliction adds to their menace - Quasimodo, Pew, Richard III, Caliban, Quilp, suspected leprosy and a hare lip in Sherlock Holmes adventures, a viciously squinting murderer in a Father Brown story, "Psycho" or "The Collector". Speech defects and minor physical deformities are still used as comic properties on the stage. In developing countries, too, traditional myths and stories tend to associate deformity with evil.

In the case of handicapped children in the developing countries public enlightenment campaigns should insist on the basic fact that these are children, handicapped and in need of help, but essentially children. The most suitable campaign leaders in any community are the parents and

the teachers, who between them can achieve much. The repetitive approach, the stimulation of informal contact between normal and handicapped in schools and clubs, the organisation of Health Weeks, will eventually result in more positive attitudes on the part of the public at large, especially if supplemented by carefully planned material presented by the mass media. It is, however, a process which takes time.

Public sympathy, which can be induced fairly easily, may act against the best interests of the handicapped. A universal appeal to humanitarian instincts may reinforce negative attitudes: "Help those who cannot help themselves." The objective should not be public sympathy but public enlightenment, informing the community realistically of the needs and capacities of the handicapped, seeking for them acceptance and an acknowledgement of their claim to participate in the society of which they are members.

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THE ROLE OF ORGANISATIONS OTHER THAN NATIONAL GOVERNMENTS

The extension of facilities for handicapped children in all developing countries will depend to a considerable extent on the effective supplement to national government provision by other organisations. Most developing countries at present look to agencies other than the national government to supply initiative, personnel and finance for special education. Increasingly, however, governments are displaying their readiness to support these activities, usually by some form of grant in aid, most often related to the salaries of trained teaching staff.

Organisations involved in work for handicapped children can be categorised in two ways, either by their origin or by their purpose. Origins include international governmental or intergovernmental bodies, churches and missions, medical and educational groups, charitable, social and service bodies, and charitable trusts and foundations. Categorisation by purpose emphasizes how many of these organisations are devoted to closely defined aspects of the care, education and training of the handicapped, pointing the need for the promotion of co-ordinating groups and information centres, capable of relating separate activities to the overall context. It is perhaps worth noting that few well-known bodies exist which have been established by handicapped individuals to promote their own cause, such as the Disablement Income Group or the Groupement des Intellectuels Handicappés Physiques, the latter vased at Vandoeuvre in France and now working on the international scene through the Comité International pour la Réhabilitation des Intellectuels Handicappés Physiques.

International governmental activities

The United Nations Organisation and its specialised agencies have long been active in the field of the handicapped, although concentrating until recently upon prevention and rehabilitation rather than education. The appointment to the Unesco staff of an officer specialising in the education of the handicapped occurred within the last five years. Even now the budget for activities in this sphere remains extremely modest (1). Useful work has been undertaken in the production of surveys, the promotion of studies and the organisation of meetings, but the scale of activities has necessarily been extremely circumscribed. The special education directory published by Unesco in 1968, for example, contains information about only fourteen of the Commonwealth countries and three dependencies. The 1971 Unesco "Survey of the Present Situation of Special Education" lists only five Commonwealth countries (3). In both publications the entries relating to Commonwealth countries is fragmentary. Unesco may well be correct in deciding to move into this field with caution. The exploratory stage, however, should soon be drawn to a close, priorities for involvement established and a programme designed for maximum impact, possibly based on concentrated teacher-training courses and the support of "centres of excellence."

The International Bureau for Education, now taken over by Unesco, performs a useful role in publishing enrolment and staffing statistics relating to special education (extracts from which are included in Table 7) and recently devoted one issue of its Bulletin to a bibliography of special education (4). It is unfortunate, however, that in the annual returns sought from member governments the I.B.E. still lists special education as an "auxiliary service."

TABLE 7

SPECIAL EDUCATION: INSTITUTIONS, TEACHERS AND PUPILS*

(Based on International Yearbook of Education, Vol. XXXI - 1969, Unesco: I.B.E., Geneva)

*not including handicapped pupils in ordinary schools and colleges, or in units and annexes attached to ordinary schools.

Country	Total population (1)	School year beginning	Number of institutions	Teaching staff			Pupils enrolled		
				Total	Female	F%	Total	Female	F%
Barbados	254,000	1964 1966	3 4	14 16	6 ..	43 ..	107 137	19 31	18 23
Ceylon	12.25m.	1965 1966 1970	8 8 24	62 64	28 30	45 47	840 909 1,324	252 264	30 29
Cyprus	630,000	1966 1967 1969	5 6	40 43	14 14	35 35	223 264 278	59 74	26 28
Fiji	506,000	1970	1	7			94		
Ghana	8.6m.	1966 1967 1970	4 6 18	41 61	7 9	17 15	356 482	126 169	35 35
Guyana	742,000	1966 1967 1970	1 2 3	4 11 22	4 8	100 73	71 165 200	28 61	39 37
India	533m.	1965	263	1,914	647	34	22,365	5,230	23
Jamaica	2m.	1964 1965 1971	3 3 6	15 23	.. ..	.. ..	237 253	.. 119	.. 47
Kenya	10.5m.	1964 1968 1971	11 26	59 117 113	25 41	42 35	785 913 1,346	201 460	26 50
Malawi	4.4m.	1965 1967	2	15 23	1 3	7 13	106 128	24 31	23 24
Malaysia	10.6m.	1967 1970	5 9	112 137	54	48	896 1,322	334	37
Malta	323,000	1965 1966 1971	1 1 4	28 31	13 13	46 42	296 281	85 88	32 31
Mauritius	825,000	1967 1968	3 3	10 10	9 8	90 80	94 68	17 14	18 21
Nigeria	64m.	1970	12						
Sierra Leone	2.5m.	1963 1964 1970	3 3 3	.. 5 6	.. 3	.. 60	52 43 52	16 17 16	31 40 30
Singapore	2m.	1966 1967 1970	6 6 13	27 36 90	23 25	85 69	300 453 938	122 169	41 37
Tanzania	13m.	1964 1965 1970	2 3 13	46 10	.. ..	.. ..	184 140 250	.. ..	.. ..
Trinidad & Tobago	1m.	1966 1970	6 6	81	22	27	459	132	29
Zambia	4.2m.	1964 1965 1967	14 10 26	47 30 78	8 4	17 13	692 594 1,061	245 205	35 35
Nauru	6,000	1964 1965	.. ..	.. ..	.. ..	.. ..	27 24	.. ..	.. ..

Note: (1) Population figures are those estimated for mid-1969 by the World Bank, except for Ghana (1970 census figure).

Some good might be achieved by the promotion of this heading to greater prominence. UNICEF contributes usefully to special education in the form of equipment and experts, but most of its work is concentrated on prevention, notably in conjunction with the World Health Organisation, the Food and Agriculture Organisation and the latter's World Food Programme. The Unesco Institute for Education in Hamburg has held useful seminars on deprivation and disadvantage (5), although these again concentrated more on nutrition and disease than on handicap in specific relation to education. The International Labour Organisation and the United Nations Economic and Social Council are heavily engaged in rehabilitation activities, some of which bring direct or indirect benefit to handicapped children (6). Their work could be of even more value to special education programmes were vocational training for handicapped school-leavers incorporated into every course, as at the Model School at Dehra Dun in India (7).

Churches and missions

Churches and mission bodies became involved at an early stage with special education in the developing countries. This was due in no small measure to their willingness to care for those unfortunate children rejected by their own communities. For many years, for example, religious groups alone worked in the field of leprosy. The Leprosy Mission and British Society for the Relief of Lepers (now Lepra) have probably more experience in this field than any other organisations. All Christian denominations are committed to work in special education. The Pope in 1969 donated $50,000 towards the Iganga Training College for Teachers of the Blind in Uganda, while evangelical bodies at the other end of the denominational spectrum such as the Salvation Army, the Sudan Interior Mission and the Methodist Mission have established schools and workshops for the handicapped in many of the developing countries of the Commonwealth.

Medical organisations

The largest number of organisations working on behalf of the handicapped are those devoted primarily to the medical aspects of one or more handicaps. Of these the greatest single group comprises national and international groups combatting blindness. As has been indicated previously, this situation results from historical accident. Blindness has always been regarded as the most terrible of afflictions - an opinion not universally held by those affected by more than one handicap, notably Helen Keller - and has attracted the most sympathy and support. The many local national and local associations look to major international societies for co-ordination. Within the Commonwealth the Royal Commonwealth Society for the Blind, although working only since the Second World War, is now active in all continents. The American Foundation for Overseas Blind operates particularly in Commonwealth Asia and has contributed much to planning and teacher training, while the World Council for the Welfare of the Blind offers a valuable means of consultation for organisations working for the blind in different countries.

The provision for the deaf is less comprehensive. The Commonwealth Society for the Deaf owes its existence largely to the initiative and continued enthusiasm of Lady Templer, and still works on a modest scale with very limited resources. Voluntary organisations can exist only by attracting freely given support, and deafness has little of the dramatic appeal of blindness. More people are affected by hearing defects than visual handicap, and a greater proportion of the deaf can be helped relatively cheaply, but funds do not flow to this work as they do to help the blind. The Common-

wealth Foundation has displayed welcome initiative and a realistic appreciation of the situation by making a grant of some £50,000 for the development of a school and treatment centre for deaf children, together with teacher training facilities, at Montfort College in Malawi. The same foundation has also supported professional workshops on deafness in India and regional seminars on deafness in Africa and the Caribbean. Such investments, however, come late to the international scene, well behind activities for the blind.

It has already been noted that mental handicap probably represents the greatest incidence among all handicaps, yet organisations working for those afflicted in this way are rare in the developing countries. The recent work towards the formation of a Caribbean Association on Mental Retardation demonstrates how the need may be met by practical measures. The World Federation for Mental Health co-ordinates numerous activities. Once again, the Commonwealth Foundation has injected funds to promote wider interest in an under-subscribed area by supporting workshops on mental health in Africa.

The International Bureau for Epilepsy operates under the additional incubus of public distaste towards this handicap, but continues to publicise its cause in selected areas. A projected Nigerian Association for Epilepsy, however, has experienced some difficulty and is not yet fully operative; no other developing Commonwealth country has even reached this stage.

Rehabilitation

Rehabilitation of the physically handicapped is undertaken by a number of strongly supported international organisations, for which Rehabilitation International, based on New York, acts as a point of central reference and information. Six developing Commonwealth countries (Cyprus, Hong Kong, India, Jamaica, Trinidad and Tobago, Uganda) have organisations related to Rehabilitation International.

Social and service bodies

Organisations falling under this heading have originated in many different ways and are promoted on widely varying scales. Several of the best known groups have been stimulated by the need to arrange care for children for whom other provision was not available. Notable among these are Dr. Barnardo's Homes, now active in Commonwealth East Africa as well as in Britain, and the Cheshire Homes, established in a number of developing countries including Ceylon, India, Mauritius, Nigeria, Papua-New Guinea and Sierra Leone. Volunteer organisations such as Voluntary Service Overseas and the Peace Corps have arranged for skilled technicians and other professional staff to help handicapped children in several developing Commonwealth countries. Girl Guides and Boy Scouts frequently help in less skilled work in the own countries. The International Union of Child Welfare co-ordinates the activities of a number of national Save the Children Fund organisations. Throughout the world affiliated clubs of Rotary International and Lions International conduct projects in their own areas or sponsor them in other countries. The Lions take a particular interest in work for the blind while Rotary tends to be more comprehensive in its approach. Unfortunately, because each club in these two organisations operates as a separate unit and no regular reports are required by their international headquarters, it has not been possible to compile a comprehensive list of their activities. Those which have been identified are included in the Commonwealth Secretariat Directory (8).

Charitable trusts and foundations

Also included in the Directory under the listing for each country are recent grants from major trusts and foundations. Some of the work of the Commonwealth Foundation has been mentioned already. Other bodies which have contributed to work in developing Commonwealth countries include the Beit, Carnegie, Ciba, Dulverton, Ford, Gulbenkian, Nchima, Nuffield, Joseph Rowntree, Van Leer and Wolfson charities. Although their contributions have been substantial and generally well used, they have almost always been given in response to ad hoc requests by individual associations. The question must be asked as to how much more effective these grants would be if national co-ordinating bodies existed in developing countries to plan the development of special education and training for handicapped children.

Proposals concerning organisations other than national governments

Recognising that organisations other than national governments are at present providing or contributing substantially towards special educational facilities in developing Commonwealth countries, the primary needs are for the maximum degree of co-operation and co-ordination among these bodies, assisted by the greatest possible exchange of information. Table 8 indicates the various types of organisation known to exist at present in developing Commonwealth countries.

Some progress has been made in the exchange of information. In 1953, following two conferences convened by the United Nations of non-government organisations concerned with the handicapped, the Conference of World Organisation Interested in the Handicapped was formed to assist the United Nations and its specialised agencies to develop a well-co-ordinated international programme for rehabilitation of the handicapped and to act as a clearing-house of information. Its publications, however, are few and its membership is limited to those 24 organisations which are in consultative status with the United Nations. Its impact, therefore, is limited.

Although such co-ordination seems desirable to the outside observer it is not accepted unreservedly as such by the organisations themselves. A suggestion by the writer some two years ago that there might be some merit in a round-table meeting of organisations based in Britain but working on behalf of handicapped children in developing countries received only moderate support. The reasons are obvious. Voluntary organisations rely for financial support upon loyal members and a public predisposed to their cause. Many bodies feel that this support would drop away if it appeared that the organisation no longer controlled its own destiny but was merely one part of an impersonal conglomerate. Another reservation expressed by some representatives concerned the possibility that particular handicaps would not receive their due share of attention because they are "too difficult". Still others believed that different forms of handicap have little in common and doubted the value of concerted action. Finally, there was the fear that such a grouping would create an undesirable distinction between the normal and the handicapped, setting aside the latter as a separate community within society at large.

Despite these very real considerations it appears on balance that in the circumstances of the developing countries organisations representing the handicapped must co-operate if their work is to prosper. The formation within each country of a National Council for the Handicapped (with a Special Education Committee operating within it) would make possible a concerted

TABLE 8

DISTRIBUTION IN DEVELOPING COMMONWEALTH COUNTRIES OF SOCIETIES AND ASSOCIATIONS RELATING TO HANDICAPPED CHILDREN AND YOUNG PERSONS

COUNTRY	National Councils	Other General Associations	Blind	Deaf	Physically Handicapped	Epilepsy	Mentally Handicapped	Rehabilitation
Barbados			x	x			x	
Ceylon	x		x				x	
Cyprus			x					x
Fiji			x		x		x	x
Ghana			x	x	x		x	
Guyana		x	x					
India	x	x	x	x			x	x
Jamaica		x	x	x			x	x
Kenya	x	x	x	x	x			
Malaysia		x	x	x	x		x	x
Malta			x				x	
Mauritius		x	x	x			x	
Nigeria		x	x	x		(x)		
Sierra Leone	x		x	x	x			
Singapore			x	x	x		x	
Swaziland	x							
Tanzania		x	x					
Trinidad			x	x	x		x	x
Uganda			x	x	x		x	
Zambia			x				x	
Bahamas		x						
Bermuda			x					
Br. Solomon Is.		x						
Gibraltar		x	x					
Hong Kong		x	x	x	x		x	x
Montserrat		x						
Papua-New Guinea							x	
Caribbean Region			x				x	

approach to government bodies. This would be more effective than separate approaches by a number of groups each with special needs. It would also predispose governments to react favourably, responding to the voluntary organisations' demonstration of unity and efficiency in forming such a body. Beyond the National Councils there could be Regional Councils and a Commonwealth Council, modestly conceived, for the conduct of a continuing exchange of information. At each level, too, there might be Special Education Associations acting within the aegis of the Councils; a valuable service could be provided in the form of a Commonwealth Special Education Newsletter and a Journal of Special Education which would contain information about developments, abstracts of current research, and promote direct links between those working in related fields in different countries. The need is so great and the provision so modest that means need to be found whereby organisations other than national governments can best co-ordinate their activities at national and international level, so achieving efficiency in their operations and credibility in the eyes of those governments in whose territories they operate.

Notes and References

1. The approved Unesco budget for 1971-72 shows $40,000 for studies under the regualr programme, $38,000 for assistance to member states under the regular programme, and up to $100,000 available under UNDP Technical Assistance. This amounts to $178,000 out of a total Unesco budget for education of $52 million, or 0.003 per cent.

2. International Directories of Education: Special Education, Paris, Unesco, 1968.

3. A Study of the Present Situation of Special Education, ED/MD/16, Paris, Unesco, 15 March 1971.

4. Bulletin of the Iternational Bureau of Education; Special Education, Year 44, 2nd and 3rd Quarters 1970, No. 175/176, Geneva.

5. Passow, A.H. (ed.) Deprivation and Disadvantage: Nature and Manifestations, International Studies in Education 21, Hamburg, Unesco Institute for Education, 1970; and Meeting of Experts on Deprivation and Disadvantage in Developing Countries held at the Unesco Institute for Education, Hamburg, November 1970 (documentation mimeo).

6. See, for example, the annual Summaries of Information on Projects and Activities in the Field of Rehabilitation of the Disabled, prepared by the Department of Economic and Social Affairs, United Nations, New York.

7. Report to the Government of India on the Vocational Rehabilitation of the Blind, Geneva, International Labour Office, 1967.

8. Directory of Educational Provision for Handicapped Children in Developing Commonwealth Countries, London, Commonwealth Secretariat, 1971.

THE FUTURE OF SPECIAL EDUCATION IN THE LOW-INCOME COUNTRIES

Not more than 2 per cent of recognisably handicapped children in developing Commonwealth countries attend schools at present. Few governments have found it possible to regard special educational provision for the handicapped as more than peripheral to their overall development plans. Superficially this attitude seems to have justification, for resources are limited and claims numerous. It may be questioned, however, whether many authorities responsible for the planning and financing of education appreciate the extent of the problem. The Isle of Wight survey in England indicated that approximately 16 per cent of all children could benefit from special educational treatment for a longer or shorter period (1). Although the causes and pattern of handicap in the developing countries may be quite distinct from those in England, there is no reason to assume that the overall incidence in the poorer countries will be any lower.

More handicapped children die in infancy in the developing countries than in the richer countries. The percentage of handicapped children in the poorer countries, however, is kept relatively high because of the numbers who contract diseases and handicapping conditions later in childhood. Over all children in the emergent countries hangs the threat of malnutrition, to the extent that almost all handicapped children in these areas may be considered to be multiple handicapped - by their obvious defect, by malaria and by malnutrition. The advance of medical care implies a greater survival rate of multiple handicapped children so that it is reasonable to assume that the dimension of the problem for developing countries is likely to be aggravated in the future.

It is frequently overlooked that the gradations of handicap are continuous from the mildest to the most severe.

To some extent we are all handicapped in that none is perfect in all respects.

Many mildly handicapped children pass unrecognised into the schools, many drop out before completing the course. Were appropriate facilities available, were suitable forms of diagnosis and assessment determined, the benefit to both schools and children could well prove a greater economy in the long term than the initial outlay.

Special education and international agencies

The attitude of international agencies to special education reflects its indeterminate place in the overall field of education. There is some justification, perhaps, for Unesco grouping it together with work against discrimination in education, the democratisation of education and the education of women and girls under the general heading of The Right to Education, although one effect is to cut this section away from the total picture of a comprehensive educational service for all members of the community. More difficult to defend is the classification of special education by the International Bureau for Education as an "auxiliary service," or that by the Asian Institute of Educational Planning and Administration as a "special problem" (a category which also includes girl's education and teaching aids). If governments are to be persuaded to accept special education as an integral

part of their education systems then the major international agencies should set the example by integrating this area into the normal divisions of their administration. Particular care should be taken to advocate the case for special education as an integral part of the educational system.

The changing role of voluntary agencies

In most developing countries such special facilities as exist are supplied in large measure by agencies other than the national government. As the administration of ordinary schools passes increasingly into the hands of central and local government it may well be that the pioneering traditions of the voluntary agencies could usefully be concentrated upon developing the area of special education. This approach would at once provide a valuable supplement to the governmental sector and lay the foundations for the eventual incorporation of special education into the general system. The extent of the role of voluntary agencies in developing countries should not be over-estimated, however, for the state of the economy in these countries is such that voluntary effort, even with the best intentions of the people, is unlikely to be able to take a major element of responsibility. The pattern of the richest countries cannot be replicated for some time. In these countries, large-scale voluntary participation still remains essential to the provision of facilities for the handicapped, parents and social service organisations both acting directly in creating and administering special units and schools and also maintaining constant pressures on the authorities for adequate official support and participation.

General considerations

No one pattern of development can be evolved to serve all developing countries of the Commonwealth, varying as they do in size, population, financial resources and stage of educational development. Sufficient common features, however, remain to make possible useful general indications.

Surveys

While short-term action should not be delayed in the face of undoubted urgent need, efficient longer-term planning depends on the accumulation of a sufficient quantity of reliable data on the incidence and distribution of the various forms of handicap. Surveys are needed to establish the pattern of need and the extent of existing provision, but such surveys should not be devised on too ambitious a scale. Little purpose is served by conducting a meticulous survey in order accurately to determine the dimensions of a problem when resources will not be available to support a subsequent remedial programme. Initially, surveys carried out by teachers and students will be adequate in extent and depth. Eventually, the aim should be to introduce a full system of "at risk" registers to ensure identification at the earliest possible stage. This will probably best be implemented by working outwards into the countryside from the main population centres.

Pre-school activities

Authorities, both educational and medical, stress the importance of early diagnosis, assessment and treatment of handicap. In the circumstances of most developing countries this will remain an ideal unlikely to be realised for an indefinite period. Pre-school clinics and nursery classes exist already in some countries, such as Kenya and Uganda, but their establishment can in every case be attributed to the efforts of small groups of individuals or

voluntary organisations (for example the Round Table Polio Clinic in Kampala). The realistic approach to this situation requires the most effective deployment of very limited resources, possibly by the setting-up of urban and rural polyclinics to which are attached paramedical staff additionally trained in basic diagnostic techniques. Simple remedial work for mildly handicapped children could thus be made possible at an early stage. Essentially, handicapped children need help in learning to live with their handicap. The aim of the medical worker and teacher should be what has been termed "planned dependence." This involves assisting the child to develop to the full those abilities which he has, and to encourage his family and peers to provide the necessary compensation for those abilities which he can never have.

Teaching and other staff

Very few developing countries can afford to employ a high ratio of well-qualified and experienced teachers. Education already accounts for up to one third of all annual recurrent revenue in most of the countries concerned, and this with about half the teaching force untrained or of low quality. Yet useful work with handicapped children depends largely on the expertise of the teacher. This may well mean an arbitrary limitation on the number of handicapped children accepted into the educational system so that standards may be maintained. Specialist teachers need to be attracted and held in this sector of education by the existence of a permanent career structure, additional payments for extra qualifications, and the enhancement of their professional status through recognition of their particular form of service. Professional bodies designed to link all those working in special education and to encourage research and development would also add to the prestige of teachers. In-service and sandwich refresher courses can play a useful role both in keeping teachers up to date with developments and also inspiring a sense of continuing purpose and community among the profession.

The additional costs involved in providing a highly qualified teaching force for handicapped children could be offset in part by the engagement of a range of auxiliary staff and teaching aides. The principle of employing a limited number of highly qualified specialists supported by para-professional staff could well act as a pilot scheme from which to assess the possibility of extending the system to the general educational scene. Supporting paramedical staff, too, could work both with handicapped children and in the local health service. Simple diagnosis and treatment could be undertaken by staff of the calibre of the Rural Medical Officers proposed for Northern Nigeria some years ago (2); the establishment of cadres approximating to the Chinese "peasant doctor" could probably be investigated further to advantage. Multipurpose nurses and social workers (on the lines suggested by the Commonwealth Conference on Education in Rural Areas (3)), sharing a common basic course of training with village teachers and agricultural extension workers could fill a vital role. Such multipurpose workers are already being produced at the Pan-African Institute for Development's "Ecole des Cadres" in the Cameroons. Anglophone countries might usefully consider how this training might be adapted to their purposes. These specialist "animateurs", trained to local involvement and local leadership can fulfil a function which includes the care of handicapped children but which also ranges wider. Such an approach may also have a beneficial effect on public opinion.

In addition to the production of specialist teachers and supporting staff, all teachers should be given some basic knowledge of the problems relating to handicapped children. The front-line operator in the educational system will continue to be the village teacher, and it is on him that the burden

of the work will fall for some time to come. Once a programme of special education is introduced, the village teacher will be responsible for identifying the handicapped children in his area. Many such teachers will have to accept handicapped children in integrated classes, and work in co-operation with visiting specialists. It is, therefore, largely upon the village teacher, often working in isolation from professional advice, that the fundamental part of the programme for handicapped children will depend. The Association for Special Education in England has for some time been advocating that all teachers in their training should become acquainted with the basics of special education, and this seems to be even more desirable in the context of the developing countries. All teachers should learn to recognise the manifestations of the most usual handicaps which they are likely to encounter, and have some knowledge of the most frequent causes. Initial progress will have been achieved if children with limited sight can be moved nearer to the teacher or into a better light, if children with limited hearing are addressed distinctly, and if slow learners are encouraged rather than being continually failed and made to repeat work in the same conditions as before. Such simple improvements depend solely on guidance being given to co-ordinating teachers as to how to make the best of prevailing circumstances, but could be a valuable contribution to the education of handicapped children.

Schools and curriculum

Practical considerations will require that provision for handicapped children in developing countries should be made as economically as possible in terms of buildings, equipment and staff. This points towards the greatest degree of integration into ordinary classes or association with ordinary schools. Some residential special schools on the traditional pattern will be required where low incidences of severe handicap, sparse population or poor communications make any other form of provision impossible. Some handicaps, too, can best be deal with in residential schools, namely profound deafness, severe mental handicap, and handicaps resulting from infectious diseases. Even where residential schools are the best form of educational provision, consideration should be given to the possibility of children attending as weekly boarders or, at most, termly boarders. The more developed countries are not alone in experiencing parents and guardians who are willing to pay fees in order to send handicapped children to residential establishments and so dispose of an embarrassing presence. Every effort should be made to maintain constant links with the home so that children are not totally abandoned into the care of the school. Put at its lowest level, this link gives hope for the eventual re-integration of the child into his community.

Teaching other than in special schools or hospital classes can best be organised in conjunction with ordinary schools. Some children may be fully integrated into ordinary classes, probably with the regular support of visiting specialist teachers based on resource centres; this system will work best at levels above primary, when the handicapped child has acquired some facility in mobility and communication. Special units or annexes associated with ordinary schools and staffed by specialists represent probably the most economic and efficient means of accommodating handicapped children at primary level. In some areas, mobile remedial units might be feasible. The problems of poor staff and large unselected classes in primary schools will continue to exist and units and annexes should be constructed as far as possible at the better schools.

A strong case exists for the establishment of "centres of excellence", selected schools given preferential help to reach the highest possible

standards. This approach is sometimes opposed on the grounds that special advantages should not be given to a few children at the expense of others. In the context of the developing countries this argument does not seem valid; not all children (and even more so, not all handicapped children) can be accepted into the educational system, so those who do gain places are already privileged. This is not used as an argument to stop other education activities. In the same way, centres of excellence can serve as examples, research centres and experimental units, to the eventual benefit of all.

The role of parents

In conjunction with public enlightenment campaigns it may prove possible in favourable circumstances to draw parents into direct responsibility for some parts of the education of their handicapped children. Many parents have indicated their sense of responsibility for these children, together with a lack of knowledge of how to help them. Now that transistor radios are available to almost every compound,programmes could be produced for visually handicapped and physically handicapped children who have been unable to find school places. (Much of the content of these programmes could be common material for use by normal children who have never attended school or who have dropped out). The effectiveness of such series would depend to some extent on the literacy of the parents, but the knowledge that they could subsequently help their children could provide the motivation for a functional literacy campaign among the parents. Supplementary printed material and radio courses linked to correspondence schools would reinforce the programmes. It might even be possible to arrange for periodic "live" courses of the type organised in England in the National Extension College. Home education, too, could be linked in to the local school if this latter were organised as a community centre, serving the needs of the locality in a large number of different ways.

The disadvantage of basing education on the home would be the saddling of parents with an additional burden, when the care of a handicapped child poses such problems in any case. The provision of a parents' relief service (where the extended family does not function in this way) might be a function of community service volunteers, of unemployed school leavers, or of service clubs. Parents will frequently accept the heaviest of burdens if they have the prospect of short reliefs at regular intervals.

The object of education for the handicapped child should be to enable him to fit into his own community as unobtrusively and effectively as possible. For this reason his educational experiences should be designed to compensate for what he loses as a result of his handicap and also give him the broad coverage afforded to his normal peers. The emphasis should lie on developing the child's capabilities and not on regretting the limitations imposed by his handicap. The curriculum for each handicapped child should be as demanding as he can reasonably accept. On no account should it be reduced in breadth or depth or diluted to such a degree that the child loses the challenge to perservere. Children, handicapped or normal, tend to live down to their teachers' expectations. The degree of adaptation of the curriculum will depend on the individual child; skilled teachers should be allowed the widest discretion in their approach.

The handicapped child needs more support than most of his normal contemporaries in his out of school activities. These may vary from provision such as a "sheltered" farm for severely mentally handicapped children (4) to meeting places on the lines of the British "Gateway" clubs (5) to

facilitate the mixing in informal surroundings of handicapped and normal children. As adolescence and the termination of formal schooling approach the links with the childs' community must be strengthened to avoid as far as possible an unsettling break at this stage. As for the normal child, education for the handicapped young person should be viewed as a continuing process, in the manner advocated by O.E.C.D. as "recurrent education". Here again, if the school acts as the community centre, the conditions will be appropriate for the handicapped person to develop at his own pace unencumbered by the approach of an arbitrarily designated leaving age.

Buildings and equipment

Flexibility should be the essential feature of buildings designed for handicapped children. Assuming that physical features have been suitably designed (in terms of such items as ramps, handrails, door spaces, toilet facilities and furniture) the essential overall approach should be of buildings for small units. The between-wars approach of large schools and hospitals is now replaced by the principle of designing as far as possible "home units". Large institutions need to be broken down into units meaningful to the child. (One factor which may have contributed to the large hospital idea is that nurses are usually cheaper to employ than teachers, so that handicapped children in large hospitals make least financial claim on the community.)

Modular and prefabricated buildings probably offer most scope to the developing countries and can also offer maximum economy. Rooms provided on the Mexican rural school principle, or similarly designed using local materials such as wood, mean that facilities can be quickly erected and can also be easily moved to alternative sites if the pattern of need changes. So many developing countries have found themselves with expensive permanent buildings in the wrong places. Special education, starting essentially from scratch, can at least avoid this error. Where distances and roads make it feasible, mobile resource rooms and classrooms for handicapped children might be provided on the lines of Ontario's remedial reading trailer (language teaching material and other specialised equipment installed in a trailer manned by expert consultants (6)) or Liverpool's educational priority area "playmobile" (an old bus converted to provide travelling play centre for pre-school age children (7)).

Equipment for handicapped children needs to be appropriate, plentiful and cheap. Its main functions are to facilitate mobility and communication and to promote learning. Where equipment has to be imported from more developed countries, governments should ensure that the free flow of items is unrestricted by import taxes and facilitated by preferential postal rates. (For historical reasons the blind enjoy more privileges than other handicapped persons in these ways. This anomaly should be remedied, by the extension of the privilege to all handicaps). Local equipment can often be designed in conjunction with university departments and manufactured centrally by prison labour or in sheltered workshops employing handicapped school leavers. For some purposes regional workshops might be established, as, for example, for the large-scale manufacture of Braille reading material.

Preparation for employment

"Rehabilitation" is hardly an appropriate term to apply to handicapped school leavers; "preparation for employment" is perhaps more appropriate. The problems of finding employment are very difficult in many places and will grow worse. 173 million additional young people in the Asian

region alone will be seeking employment by 1980 (8). The Indian government has considered reserving a certain number of posts for the handicapped, but it is doubtful if this will remain practical politics as pressures increase from the healthy unemployed. Fortunately, alternatives exist. In the first place, a certain number of the handicapped will succeed in self-employment, running small-scale enterprises and workshops in such trades as shoemaking, leatherwork and tourist craft-work. Others may find security in sheltered workshops or protected employment, such as the Ethiopian umbrella factory sponsored by I.L.O. Other workshops could concentrate on the production of prosthetics and orthotics, and on toys and educational materials. While much of the output could serve the special schools there is no reason why many other schools should not draw their supplies from these sources. For their own continuance, and for the self-satisfaction of those employed in them, such workshops should be as fully competitive as possible in the commercial world. Finally, the world-wide drift to the towns may be used to the advantage of the handicapped. The building-up of the rural areas will depend to no small extent on the availability of services to make the farmer's life agreeable and profitable. The handicapped youngster may well find openings in the local co-operative office, farmers' association, local transport office, local store, or other similar activities. Supported by continuing care (another possible contribution by voluntary agencies and service clubs) many of the handicapped may in these ways be able to live both independent and satisfying lives, requiring little in the way of special consideration. They may well contribute valuably to the development of their countries.

Public enlightenment

The work of special education can go forward effectively only if prevailing attitudes towards handicap can be made more positive and more understanding. The continuous grading from what is accepted as normal to what is considered as handicap needs to be publicised, so that there may be general awareness that handicapped persons do not constitute a separate species. Emphasis should be laid on the essential normality of most handicapped persons, showing, for example, that up to 97 per cent of the handicapped can be rehabilitated to take a full part in the life of the community (9). Parents need to be encouraged to bring their handicapped children forward for treatment and to accept them as participating members of the family. The best advertisement for treatment is the evidence of successful treatment; activities such as the eye clinics organised in India and elsewhere by the Royal Commonwealth Society for the Blind show dramatic and immediate results in terms of sight restored. The benefits of treatment should be continuously and widely publicised by the most direct means available.

The mass media have an important part to play in two ways. Firstly, radio, newspapers and television can do much to reduce the ignorance which causes much handicap in the developing countries. Information about hygiene and diet can be extended to mass audiences to supplement field operations by extension workers and "animateurs". This preventive function should be supplemented by programmes designed to influence attitudes towards the existing handicapped. Programmes on the pattern of the "Radio Doctor" can explain symptoms and causes of handicap; more general programmes can be directed towards the elimination of the "ghetto mentality" of many handicapped young people and encourage participation in group activities. Youth clubs, community centres, and other means permitting informal association of the handicapped and the normal should be promoted; the link between such groups could well be through a centrally organised radio, television or newspaper "club".

The role of national governments

Most governments in Commonwealth developing countries have accepted responsibility in principle for the education and care of handicapped children and young persons, but have been unable to allocate funds on a scale commensurate with the need. In these circumstances national governments could best view their role as that of co-ordination and guidance, helping voluntary organisations and providing an overall development policy.

A realistic appraisal should be made of the resources which may become available in each country, from government, private and external sources. It has, for example, been suggested that educational provision for handicapped children should keep pace with that for normal children, so that if 40 per cent of normal children of a particular age-group are in school then provision should also be made for 40 per cent of handicapped children. This apparently reasonable case, however, can be interpreted as laying claim to a disproportionate share of available funds. It must be acknowledged that to provide education and training for handicapped children and young people usually costs more than for normal children. To make provision, therefore, for the same percentages of handicapped and normal children would imply the allocation of a greater proportionate sum for the handicapped than for the normal. A more realistic approach would be to seek for the education of handicapped children funds based on the unit costs of education for normal children. Thus, if 40 per cent of normal children are in primary schools a per capita annual cost of, say, $25, then funds should be sought for the education of handicapped children at the rate of $25 multiplied by a figure equal to 40 per cent of the known handicapped children. This would mean educational provision (if made on conventional lines) for fewer than 40 per cent of the handicapped children, but the allocation of public funds could be defended as equitable.

Such an approach implies the need for a single government department accepting overall responsibility for all aspects of the care and education of handicapped children, and acting as a co-ordinating agency for activities outside its professional competence. This department should be the Education Department. Co-operation and co-ordinating of government involvement can be ensured by the institution of an inter-Ministerial Committee, such as exists in Malaysia. Represented on the Committee should be those departments responsible for agriculture, health, information, labour, community development and social welfare.

Government and voluntary organisations

The operation of an inter-Ministerial Committee could be made most efficient were it able to deal directly with a co-ordinating body representative of all forms of handicap, a National Council for the Handicapped, such as that formed recently in Sierra Leone. An extensive reconsideration of the preconceptions and traditions in activities on behalf of the handicapped is implied in this suggestion. Organisations representative of one type of handicap or based on a particular religious grouping are not yet all prepared to co-operate within national or regional bodies. Such bodies, however, have the support of major international organisations working in the field, such as I.L.O. Objections to such co-operation are based with some justification on grounds such as the anticipated difficulty in ensuring continued voluntary support for such a general organisation when donors tend to ally themselves with a particular society or denomination. There is, too, the fear that those suffering from certain handicaps may not be given their full share of the

available provision as a result of negotiations undertaken by a larger grouping. The blind, especially, fear being left behind in these circumstances because they are "too difficult". Finally, a strong doubt about the desirability of a comprehensive organisation centres on the possibility that such alliances will confirm public opinion in regarding the handicapped as a distinct and separate community within the nation. This would militate against the ultimate aim of all provision for the handicapped, which is to minimise differences and strive for the maximum degree of integration into the normal community. Nevertheless, despite these understandable objections and apprehensions, present circumstances in the developing countries make it plain that a combined approach to government has more prospect of success than a multiplicity of appeals from disparate groups.

The role of inter-Ministerial Committees and National Councils would centre on the production of a guiding policy, to agree on financing arrangements, and to promote to the maximum degree possible the interests of all handicapped children. Overall planning by this joint consultative body would include the disposal of aid funds for special education, the allocation of overseas training places and consideration of employment possibilities for handicapped school leavers. Strategies for the utilisation of funds will be determined by a consideration of essential questions: the disposition and conduct of pilot schemes, the relative involvement in rural and in urban areas, the appropriate amount of concentration on specific age groups, the production of projections of anticipated needs for staff, schools and training centres, the balance of special schools and integrated education. The basis for decisions in all these areas should be the principle that the handicapped should be allowed to participate as fully as possible in helping themselves and each other.

The role of voluntary organisations

Governments will continue to rely heavily on the co-operation of voluntary organisations in the field of special education and rehabilitation. Certain activities will remain largely the responsibility of voluntary bodies, and a number of new areas offer themselves for these organisations to investigate and expand. Voluntary organisations include churches, missions, service clubs, charities and voluntary bodies. Their role will change as governments take over general policy control but will remain vital nonetheless. Besides participating in National Councils these organisations should be able to expand in activities which governments cannot undertake but which are basic to the success of special education; pre-school activities and vocational training. The Commonwealth Youth Exchange Council has already advocated the inclusion of handicapped young people in exchange programmes (10), so emphasising the normality of the handicapped, an essential function. Voluntary organisations,too, will remain a vital source of funds and practical assistance for special education.

Research and planning for special education

Research and evaluation are needed in a number of fields related to special education if realistic plans are to be made. Research should include, for example, the effect on traditional family structures of the presence of a handicapped child, and the effect on a handicapped child of the disintegration of traditional family ties in many countries. Evaluation of the effectiveness of different types of existing provision should be undertaken. Particular attention should be paid to following up handicapped school leavers in an attempt to identify factors contributing to later success or failure in their

lives in an open community. Reports of success could usefully be circulated widely as part of the campaign of public enlightenment about the potentialities of many among the handicapped, Other matters for research might include the development for each area of locally valid and reliable systems of diagnosis and assessment of handicapped children, and investigations into the most effective use of the available mass media in the special education programme.

In planning the future development of special education in a developing country the emphasis should be strongly on realism. It should first be established how far those working in the field of education and training for the handicapped are responding effectively to the existing situation. If success to date has been so limited that, for example, in the developing countries of the Commonwealth fewer than 2 per cent of the known blind children are in school, it is apparent that a full reappraisal of the approach to special education and training is overdue. The scale of the overall education problem in developing countries has only recently been fully recognised and present governments with formidable problems. In these circumstances the handicapped must be prepared to compromise in their requests for education; they must learn to accept the possible rather than wait for the ideal. The choice open to the handicapped in the developing countries is not between the ideal and something less, it is between what is possible politically and financially, and nothing at all.

Despite limited resources, planning should envisage adequate financial support for such developments as are undertaken. The principle should be that of maintaining standards in which effective work can be carried on rather than attempting to cover the whole handicapped community in the shortest possible time. As has been indicated elsewhere in this work, the inculcation of confidence in the value of special education is an important aspect of the provision. It should not, therefore, prejudice its case by proliferating low-quality institutions. Priorities should be established and will probably include the provision of more training places for specialist staff. If it is politically feasible this could be carried out most economically on a regional basis in view of the modest numbers which can be absorbed in any one country. Other priorities may cover the location of services in centres of population and initial concentration on provision for the less severely handicapped. The voluntary organisations could be encouraged to concentrate their efforts in the fields of prevention, nutrition education, family planning programmes, pre-school provision, vocational training, and pilot schemes in anticipation of the growth in numbers of the multiply handicapped. All planning should be subject to regular review and if possible programmes should be financed on a rolling budget to allow for maximum flexibility.

Planning should take into account the desirability of convincing governments that funds devoted to special education bring some return to the community at large. Some reservations must be expressed here as to whether the present policies of Unesco in this field are well advised. On numerous occasions Unesco spokesmen have emphasised the saving to governments of rehabilitated handicapped persons in terms of social security benefits unpaid (11). This carries little weight in the developing countries where no such benefits exist. Rather should planners concentrate on the "earnings foregone" argument, showing that the handicapped frequently cost other members of their family or community money in terms of earnings foregone while the handicapped person is cared for or supervised. In addition the positive potential contribution of the rehabilitated handicapped person should be stressed. Handicapped young men and women, trained and independent, can contribute materially to the development of their country,

especially in roles such as servicing rural activities, which do not attract ordinary young people. It is, therefore, to their country's economic advantage to allocate public funds to them. (The United States Department of Labour estimates that 100,000 rehabilitated handicapped persons add a minimum of $500 million to that country's gross national product (12)).

Information exchange

Too often do government agencies, voluntary organisations and international bodies work in isolation from each other, concentrating on particular geographical areas or specific types of handicap or limited ranges of professional responsibility. Within each country the suggested Inter-Ministerial Committee and National Council for the Handicapped will help to break down the barriers and help all concerned to appreciate the overall national picture. More is needed. Information exchange on a regional or international basis should be promoted more effectively. At present, information is circulated from many sources but not on a world-wide basis covering all aspects of special education and training. What developing countries need to know is what has been tried and found successful or unsuccessful elsewhere. (The development of a vocabulary for the admission of failure without loss of face would be valuable). Adoption may not always be possible but adaptation may. Existing clearing-houses should be publicised further and supplemented by a Commonwealth clearing house for special education, deriving its material from publications and contacts with the widest range of countries and organisations. A Commonwealth journal of special education could be designed specifically for developing countries and provide regular information on developments, projects, research trends and innovations. Occasional publications associated with the journal could deal with specific aspects or problems. Such publications would not duplicate present activities of any other body. The Fifth Commonwealth Education Conference, meeting at Canberra in February 1971, accepted the desirability of information and experience exchange, and the formation of inter-Ministerial Committees and of National and Regional Councils for the Handicapped (13).

Proposals for the immediate future

The longer the delay before policy is determined, plans formulated and action started, the more intractable will the problem appear. As school-age populations continue to expand faster than national resources, the limited funds available for the handicapped will increasingly seem so inadequate in the face of apparent needs as to make their allocation appear futile. Before this point is reached governments should be encouraged to make a commitment to special education, by reaffirming (or acceding for the first time to) the Declaration of Human Rights (14), and the Declaration of the Rights of the Child (15).

Governments may determine policy in several different ways. One or two smaller countries, such as Cyprus, Malta or Singapore, might work towards full provision for the handicapped and establish model systems upon the experience of which other Commonwealth members might draw. Other governments, in conjunction with universities and research institutes, might develop special education as a pilot activity from which material of general relevance might be fed back to the benefit of the main education system.

In the developing country even the handicapped child is a survivor from the high infant mortality rate and deserves better than he gets today. Economic considerations as much as humanitarian demands call for the provision of special educational and training facilities, although it must be recognised that special education cannot claim unduly high priority. Delaying action only widens the gap between the handicapped and the normal, and the problem will not disappear merely because it is disregarded. The beginning of the Second Development Decade seems to provide an appropriate point for governments of developing countries to reconsider their involvement in the care, education and training of their growing population of handicapped young citizens. Realistic policies can do much directly, by making provision for the handicapped, and indirectly, through the consequential effect of such programmes on public opinion and the stimulus to voluntary activity. The size of the problem should not be allowed to act as a deterrent:

> "It is better to light a little candle than curse the darkness."

Notes and References

1. Rutter, M., Tizard, J. and Whitmore, K. Education, Health and Behaviour, London, Longmans, 1970.

2. The Kano Medical School, established in 1953, was designed to give a four-year post-secondary course leading to an intermediate medical qualification. In the event, the few students who graduated proceeded to complete full medical studies.

3. Education in Rural Areas, London, Commonwealth Secretariat, 1970.

4. The National Society for Mentally Handicapped Children, based in London, has established a Rural Training Unit at Lufton Manor in Somerset, supported by Local Authorities, the National Farmers' Union and the Ministry of Agriculture, Fisheries and Food.

5. The Federation of Gateway Clubs, established in 1966 by the National Society for Mentally Handicapped Children, now has more than 100 affiliated clubs, at which normal and mentally handicapped young people come together. The Elfrida Rathbone Society organises youth clubs for educationally handicapped school children.

6. Rachlis, L. News Release 365-6407, Ontario Department of Education Information Services, 25 February 1969.

7. Cubitt, K. "A playgroup in a pensioned-off bus", The Times Educational Supplement, 18 November 1970.

8. ILO "World and Regional estimates and projections of labour force 1950-2000" (James and Ypsilantis), UN Inter-regional seminar on long-term economic projections for the whole world economy, Denmark, 1966. The increases in the labour force are given as 128 million from 1960 to 1970 and a further 173 million from 1970 to 1980.

9. Villeneuve, P. Education for Handicapped Children? Paris, Unesco, 1970.

10. Exchanges have already taken place of physically handicapped young people between England and Malta; further exchanges are planned of deaf young people between Britain and Canada and Britain and Cyprus.

11. See, for example, Report of the Seminar on Special Education for Handicapped Children, Denmark, 20 August-27 September 1968, Paris, Unesco, 1968, p. 36.

12. Cooper, N.E. "Economics of vocational rehabilitation," Geneva, International Labour Organisation (mimeo).

13. Report of the Fifth Commonwealth Education Conference, Canberra, Australian Government Publishing Service for the Commonwealth Secretariat, 1971.

14. Declaration of Human Rights, New York, United Nations, 1948.

15. Chanlett, E. and Morier, G.M. "Declaration of the Rights of the Child", International Child Welfare Review, Vol.XXII, No. 1, December 1968, pp. 4-8.

SUMMARY OF PROPOSALS

The role of governments

1. Governments should be encouraged to declare a formal commitment to the provision of special education, acknowledging the Declaration of Human Rights and the Declaration of the Rights of the Child.

2. National governments should co-ordinate and guide programmes of special education within the context of an overall development policy.

3. Responsibility for all aspects of special education should be vested in the Ministry of Education acting as co-ordinating authority for an inter-Ministerial Committee representative of all departments involved in the care, education and training of the handicapped.

Co-ordination for development

4. Non-government bodies representative of all forms of handicap and work for the handicapped should come together to form in each country a National Council for the Handicapped.

5. Inter-Ministerial Committees and National Councils for the Handicapped should be responsible for advising on policy and priorities, and recommending the disbursement of public moneys for special education.

Planning special education

6. Plans for special education should be framed realistically in the general context of development, with emphasis on the potential contribution of rehabilitated handicapped young people.

7. Financial provision from public funds for special education should be allocated according to a formula designed to provide an equitable distribution.

The role of voluntary organisations

8. Voluntary organisations should seek new areas for their involvement as governments increasingly assume responsibility for more aspects of the educational systems. This could include pioneering the advance of special education and vocational training for the handicapped. Voluntary funds will remain essential to the development of special educational provision.

The role of international agencies

9. The major international agencies should integrate their functions with regard to special education into their normal administration in order to avoid any suggestion that education of the handicapped is ancillary to other education rather than an essential part of the overall provision.

Ascertainment of handicapped children

10. Surveys, on a scale commensurate with possible provision, should be undertaken to establish the nature and incidence of handicap in each country. Teachers, student-teachers, students and schoolchildren can play a valuable role in these surveys.

11. "At risk" registers should be established wherever possible, probably by starting in large centres of population and working out towards the rural areas.

12. Early diagnosis, assessment and treatment should be the goal in every country, possibly through polyclinics, with the establishment of pre-school clinics and nursery groups an essential concomitant.

Education for handicapped children

13. Education for the handicapped child should be designed to develop his capacities to their fullest extent and provide him with as many as possible of the experiences available to his normal peers.

14. School provision for handicapped children should be associated as closely as possible with that for normal children. Residential schools should be limited to essential cases. Special units or annexes are preferred where full integration is not possible.

15. "Centres of excellence" should be used to set standards, conduct applied research and develop experimental units.

16. Research and evaluation should be undertaken as an essential part of the development of special education programmes. Particular attention sho should be paid to diagnostic and assessment tests, the follow-up of handicapped school-leavers and the place of the mass media in special education.

Buildings and equipment

17. Buildings for handicapped children should be flexible. Large institutions should be broken down administratively into "home units".

18. Modular and prefabricated buildings offer most in terms of efficiency and economy.

19. Mobile resource rooms and classrooms should be considered wherever practical.

20. Equipment should be locally produced by economic means when possible; imported materials should incur no taxes or duties.

Teachers and other staff

21. Teachers of quality need to be attracted to work in special education, preferably through the offering of a career service, national salary levels, extra payment for specialist qualifications, and an enhanced status in the profession. Continuous in-service and sandwich course provision should be available to enable teachers to keep up to date in professional matters.

22. All teachers during their training should become familiar with the manifestations and causes of the more frequent handicaps, and should learn how to deal with them educationally and give simple medical treatment.

23. Specialist teachers should be supported by paramedical and para-educational staff, both to increase efficiency and lower costs.

24. Local leaders, "animateurs", might be trained for work including the promotion of special education.

Parents

25. Parents should be encouraged to present their children for treatment. Such encouragement may sometimes take the form of evidence of successful treatment.

26. Parents should be involved as directly as possible with the education of their handicapped children, probably in conjunction with the mass media and correspondence schools.

27. When parents are so involved, help should be available to relieve them at regular intervals of their constant attention.

Provision for the older handicapped child

28. Handicapped school leavers may best find employment in an increasingly competitive situation in self-employment, sheltered workshops concentrating on the supply of material for special and other education, and in service occupations in rural areas.

29. Support for older handicapped children should be provided in the form of sheltered occupations, clubs and continuing educational facilities.

Public enlightenment

30. Public enlightenment campaigns should stress the basic normality of the handicapped and the ability of almost all handicapped persons to play a full part in the life of their community if not prevented by adverse public opinion.

31. The twofold role of the mass media is to encourage preventive measures and to stimulate acceptance of the handicapped through the dissemination of information and the promotion of informal activities involving handicapped and normal people.

Model systems

32. Small countries might establish model systems of special education. Larger countries might use special education as experimental groups from which findings of general relevance might be fed back into the mainstream of education.

Commonwealth co-operation

33. Arrangements should be made for information exchange on the widest possible scale. A Commonwealth clearing house for information, publishing a regular journal could probably best perform this function.

34. The Commonwealth Secretariat Clearing House Fund and the Commonwealth Fund for Technical Co-operation might assist by promoting the interchange of experience.

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