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Teaching of Leprosy

Proceedings of a Symposium held on the occasion of
the 20th Annual General Meeting of the
All Africa Leprosy and Rehabilitation Training Centre (ALERT)

Editor: Morten Harboe

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in

ADDIS ABABA, MARCH 1986

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Preface

This supplement contains the papers presented during a Symposium on the TEACHING OF LEPROSY held in Addis Ababa, Ethiopia 19th March 1986, on the occasion of the 20th Anniversary of the All Africa Leprosy and Rehabilitation Training Centre (ALERT).

The purpose of this Symposium was to show how the teaching of leprosy has been developed according to a multidisciplinary approach at ALERT, also taking the opportunity to present essential aspects of the history of this institution.

The paper of Professor Paul Brand provides a unique documentation of the initial events and the concepts behind the foundation of ALERT. The paper by Dr. Widad Kidane Mariam describes the further development of the institution, and the Chairman of its Board, Dr. Yayehyirad Kitaw comments in his introduction on major concepts and principles involved in this development. The relationship between ALERT and its foreign sponsors is described by Herr Kober, the obvious candidate for this presentation due to his extensive work with ALERT over many years and his function as ILEP coordinator for Ethiopia.

The Kellersberger Memorial Lecture is a distinct feature of the relationship between ALERT and the Ethiopian Medical Community. We appreciate the contribution of Dr. Azeb Tamrat from the Ethiopian Medical Association in this regard giving credit to Dr. Kellersberger and American Leprosy Missions making this important series of lectures better known internationally.

The papers on training are quite varied, as they should be, since training obviously concerns many different aspects of leprosy in its regular execution at ALERT. Dr. W. Felton Ross comments on the dual need for knowledge and development of attitudes to work, rightly emphasizing the latter. The papers on training also illustrate the essential contribution of the hospital to training, the tremendous influence of the introduction of the WHO multi drug therapy regimens at a grand scale at ALERT on training, and the interaction between ALERT and the Armauer Hansen Research Institute on the same compound. In my view, the close collaboration and mutual interdependence of these two institutions make this compound unique in the leprosy field.

The final paper concentrates on prospects for the future of ALERT in the African context as seen by an African. We appreciate greatly that Gizaw Tsehai, the Ethiopian Minister of Health, presented this view.

I thank all authors for collaboration and prompt delivery of manuscripts.

The Proceedings of this Symposium are published as supplements to *Ethiopian Medical Journal* and *Leprosy Review* according to the decision by ALERT's Board of Directors. Having the supplement in the *Ethiopian Medical Journal* will enable the material presented at the Symposium in Addis Ababa to be available to a large audience within Ethiopia, while the supplement of *Leprosy Review* will permit distribution of valuable experience at ALERT and AHRI to leprologists and scientists on a world wide scale.

I thank the Editorial staff of both journals for their efforts and contribution to this fine example of international collaboration.

I also wish to thank Kari Bertelsen, Alison Olsen, and Carol Østby for editorial assistance and all their work to make the manuscripts ready for printing.

MORTEN HARBOE

Introduction

YAYEHYIRAD KITAW
Chairman of the ALERT Board

Twenty years in the fight against a disease such as leprosy, which has been a scourge of mankind for millennia, might appear quite a short time. On the other hand, twenty years in the second half of the 20th century, the period of the scientific and technological revolution, is quite a long period. Such is the apparent dilemma of leprosy in the two decades of ALERT; many reasons for hope, but few for technological optimism.

The hopes, the developments and the setbacks in the teaching of leprosy will be discussed at this symposium, with special emphasis on the experience at ALERT. I shall therefore only highlight some important events and trends.

The two decades of ALERT can, generally speaking, be divided into a first decade of establishment, and a second of consolidation.

The first decade was characterized by the exhilarating experience of launching a new idea, of translating it into a programme, giving it an organizational structure, securing funds and personnel. That was indeed the heyday; a time of commitment as well as diplomacy.

A number of names are associated with the establishment of ALERT. Some, I am sure, will be mentioned in the «Historical outline of ALERT». But three names are particularly attached to this first decade. A programme of training, specifically tailored to work on leprosy in Africa with a strong component of control, had to be developed and consistently carried out. Relevent research programmes had to be developed, and the establishment of the Armauer Hansen Research Institute (AHRI) during this period was a milestone in this endeavour. Creating the necessary organizational framework, the funding, soliciting and sustaining sponsorship meant foresight, tact, diplomacy and managerial capability. ALERT was fortunate to have these three persons for the greater part of this first decade: Dr. W. Felton Ross, Director of Training, Major Onni Niskanen, Executive Director, and Professor Charles Leithead, Chairman of the Board.

The second decade has been a decade of consolidation. Based on an extensive and thorough evaluation, programmes and management were reorganized, administrative procedures were more clearly established. Penetrating discussions on future development of the leprosy control programme, organizationally and technically, were undertaken.

Organizationally the issue of integration was discussed at a conference, and is still being explored. Training in tuberculosis has been started in association with the International Union against Tuberculosis.

The leprosy control programme has been enlarged and now encompasses the whole of the Shoa Administrative Region. More importantly, after long and thorough consideration, the multiple drug therapy (MDT) approach was adopted. In view of the development of dapsone-resistant strains, in whose recognition ALERT has played an important part, the change in control method was inevitable. But because of the nature of *Mycobacterium leprae,* ALERT, like many similar organizations, has followed the WHO recommendations closely in the MDT programme, realising that a number of issues have yet to be resolved. The MDT programme therefore needs very close follow-up, and has to be supported by further research.

An important aspect of the development of an exemplary MDT programme at ALERT is that the training of African leprosy control workers in this new and important field is now well established. The Medical Advisory Committee (MAC), which has been consolidated in the course of the decade, has played an important role in this and other technical develop-

ments at ALERT. ALERT has played an important role in the training of leprosy control workers in Africa. A testimony to this is the fact that, at a recent African meeting on leprosy control, the majority of those in positions of leadership were people who had been trained at ALERT. Its trainees are also found in many other parts of the world.

With the introduction of the MDT programme on a large scale, with the training in tuberculosis, with the active clinical research programme in association with AHRI and with a diversified, well established and acknowledged training programme, the stage is set for the Third Decade of ALERT.

I am convinced that the third decade will be one of innovation and accelerated development for ALERT and leprosy control in Africa, and consequently one of hope to leprosy patients, to whom all the sponsors and members of ALERT are dedicated.

Symposium on the TEACHING OF LEPROSY, Addis Ababa, Ethiopia, 1986
Lepr Rev (1986) 57, Suppl 1, 1-8

The beginning of ALERT

P W BRAND
Gillis W. Long Hansen's Disease Center, Carville,
LA 70721, USA

I am very happy to offer my warmest greetings and congratulations to the staff and sponsors of ALERT on the occasion of the celebration of 20 years of service and of progress. As I have had several opportunities of returning to Addis Ababa in the past few years, it has been a joy to observe the way in which the whole institution has grown. It has been even more gratifying to see the way in which it has responded to changes in staff and changes in its environment. About 100 local staff received certificates for 20 years' service at this meeting. The program has responded to new ideas in medicine, to a new social order, to a political revolution, to the stresses of famine, and to the crises in the patterns of funding. Through all of these events, the basic aims and objects have remained true and stable, and all this time a balance has been maintained between an emphasis on scientific excellence and a compassionate concern for individual patients.

This is how a living organism survives. It is small and fragile at first, but it senses the environment in which it lives. It takes advantage of the opportunities and avoids the dangers that appear, until it becomes strong enough to assert its own influence and change the things that need to be changed.

Thus, ALERT is not just buildings and staff and programs. It is a living idea which uses buildings, which inspires staff and which helps students to mature so that they, in turn, may help others.

I have tried to remember something about the conception of this idea that is living and working at ALERT today.

In the early 1960's the International Society for the Rehabilitation of the Disabled (now called Rehabilitation International) established "The World Committee on Leprosy Rehabilitation" and asked me to be its chairman. We had

representatives from many countries, some of whom were experts on leprosy, some on rehabilitation, and a few who had worked on rehabilitation in leprosy.

At a meeting of the committee, held at Carville in 1963, we had an open discussion to try to define the greatest single need in the field of leprosy rehabilitation worldwide.

After lively exchanges it was agreed that, in this field, knowledge was ahead of practice. We knew better than we were doing. The greatest need was to train personnel to implement what was already known. The next question was, "Where"? It was agreed that Africa was the continent in which the need for training was greatest.

Finally in response to the question, "What can we do?", the committee determined that there should be a training centre, based in an African country and open to students from all African countries, where an international staff of experts could organize a complete and balanced program of leprosy control, treatment and rehabilitation which would serve also as a centre for research.

During the previous 10 years great advances had been made in the scientific understanding of leprosy, and enough was already known about the diagnosis, treatment and prevention of the disease to make leprosy control and the prevention of disability in individual cases a real possibility in many countries of the world. Tens of thousands of patients had been treated effectively with sulphones, and isolation of patients for life in segregated institutions was no longer thought necessary. Leprosy had already been proved to be of great interest to research workers in microbiology, immunology, neuro-anatomy, pathology, orthopaedic surgery, preventive medicine and the social sciences, and many felt the time had come to integrate leprosy into the whole fabric of medicine generally. However, despite these advances, few, if any, centres existed where young medical practitioners could obtain systematic training in all aspects of leprosy, and it was this need that we sought to meet.

Dr. Stanley Browne and I were deputed to explore possible locations for the training centre. We felt that a suitable site would have to meet these conditions:

1. The location should be politically acceptable to the majority of independent nations in Africa.

2. The government of the country concerned should welcome the establishment of the centre and be willing to actively cooperate with it.
3. The country should be considered to be politically stable.
4. Leprosy should be a significant problem.
5. There should be a national university with a faculty of medicine eager to collaborate on the work at the institution.
6. The institution should be within easy reach of an international airport.

After a serious search, Addis Ababa, Ethiopia, was judged to fulfill these criteria. It was my personal responsibility to present the idea of an international training centre to donor agencies who might be willing to fund its development. It was a remarkable experience for me to meet and talk with so many men and women of many countries, whose lives and interests were committed to the meeting of real human need. Many were astute managers of finance, and all of them felt responsibility for the wise use of money that had been donated by hundreds of thousands of kind-hearted people. We had no established institution, no famous staff members already at work. We had an IDEA and a proposal and a focal city, but no more. However, the time was right for this idea, and within a year commitments had been obtained from 10 major donor agencies in Europe and North America. This enabled us to go ahead, confident that if agreement for the new centre could be reached in Addis Ababa, funds would be available.

Memorandum of Association - December 1965

In December 1965 I had the privilege of being present at a meeting of the Ad Hoc local group, officials of the Ministry of Health, of the National University and representatives of OMAR donor agencies in Addis Ababa. During the meeting on the morning of December 11, an agreement for the formation of a new training institution, to be called ALERT, was signed at the Ministry of Health, by the Minister himself, the President of the National University of Ethiopia and representatives of donor agencies.

The presence of both the President of the National University and the Minister of Public Health emphasized the importance that was attached to fostering training that would prepare trainees to meet real needs in real situations and also

achieve internationally acceptable academic standards.

The agreement specified the main goals of ALERT as follows: "To train men and women in all aspects of leprosy with special emphasis on control, treatment and rehabilitation, for work in African countries." And, "in pursuance of the above" the agreement added 5 principles, later expanded by the inclusion of a sixth, which continues to be important for ALERT.

1. "To build up a leprosy service in a limited area which shall demonstrate comprehensive medical care and rehabilitation of leprosy patients as part of a national anti-leprosy campaign and linked with general and public health services." This commitment to care for the whole patient and to foster the integration of leprosy patient care into the health system generally, has not yet been fully implemented by ALERT, but efforts to attain this goal have had and continue to have far-reaching consequences for ALERT and for the trainees who accept this philosophy as their own.

2. "To accept responsibility under the auspices of the Ministry of Public Health for the management of the existing Princess Zenebework Hospital and to add staff and facilities so that it may become a training center for medical, surgical and paramedical skills needed by leprosy patients." At the time, this seemed the normal and logical thing to do. However, it demanded, I believe, a quite extraordinarily statesman-like decision from the Minister of Public Health. It meant that the Minister delegated responsibility for his main leprosy hospital to a relatively untried and independent non-government agency. Implementation of this principle was delayed until November 1967, but implemented it was, and it has had several very important results for ALERT. First, it has enabled ALERT to develop an integrated structure and to adopt commom policies for service and training in the hospital and in the field. Secondly, it has given ALERT a great deal of freedom to develop a context for training which meets the real needs of leprosy workers throughout Africa. Thirdly, it has trusted ALERT to provide a level of service that would move towards the goal of comprehensive medical care for all leprosy patients and that, at the same time, could be replicated in the field, in Ethiopia itself and elsewhere. The statement also set ALERT on the path of competency-based learning. Since that time, ALERT has consistently endeavoured to give men and women opportunities to

acquire real skills in the field of leprosy rather than provide them with curriculum-based academic training.

3. "To accept the guidance and assistance of the medical faculty of the Haile Selassie I University in the training program and to encourage the medical faculty to accept increasing responsibility in training and research in the field of leprosy." The relationship with the faculty of medicine has turned out to be a two-way street. To begin with, ALERT benefited greatly from the support and participation of faculty members, especially that of the Professor of Medicine, the late Dr. Charles Leithead. Later ALERT was itself able to reciprocate. For a number of years, training has been provided at ALERT for students from the medical faculty.

4. "To build up rehabilitation services for disabled leprosy patients, such services to be available also for persons disabled by other causes." At the time ALERT was founded, leprosy patients were largely excluded from participation in general rehabilitation agency programs, and it was hoped that by making the rehabilitation facilities of ALERT available to all disabled, ALERT would encourage other agencies to open their doors to leprosy patients.

5. "To organize conferences, training seminars, and in-service programs, in collaboration with the governments of other countries in Africa and with the World Health Organization (WHO) and voluntary organizations working in the fields of leprosy and of rehabilitation." This principle continues to form the core of ALERT'S activities.

6. A sixth principle was added in 1968 as follows: "To contribute by basic research to the knowledge of leprosy." This task was taken up by the Armauer Hansen Research Institute which was founded as an independent agency, but integrated with ALERT, in 1969. The phenomenal success of AHRI has been amply documented.

Clinical research was not mentioned in the original principles, but became a prominent function of ALERT with the arrival of the Medical Research Council team in 1973. Other articles in the memorandum detail the management and administration of the new organization. One is worth a comment. "Article 9. The duration of the corporation shall be 10 years." That this article has been subsequently amended is obvious, or we would not be meeting today. Setting a time

limit on ALERT was a wise decision, since it gave a certain urgency to the work of the institution and, because contributions were limited in time, it gave confidence to the Government of Ethiopia and to donor agencies, and enabled them to be more generous with their contributions to ALERT than might have been the case if no limit had been set.

The Executive Committee

One of the actions taken by the inaugural meeting was to appoint an Executive Committee to guide the affairs of ALERT until the next meeting of the Board, scheduled for December 1966. This committee included:

1. Professor Charles S. Leithead, Chairman
2. Dr. E.W. Price, Secretary
3. Dr. Don McClure, Treasurer

These three formed the core of the main executive bodies of ALERT for many years and each had a crucial influence on ALERT's development. Professor Leithead was a tower of strength and of wisdom. His patience and tolerance were a model for all chairmen everywhere. I cannot speak too highly of his devotion and integrity, which helped us all through some difficult early years.

Dr. Price was at the time de facto Director of Leprosy Services for the Government of Ethiopia. In this capacity, he was primarily concerned about realism in leprosy control and leprosy patient care, and his presence on the Board ensured that ALERT was never in danger of becoming an "ivory tower". Dr. Don McClure, a missionary of the United Presbyterian Church, was a long-term resident of Ethiopia, with a deep love of that country and its people. His disinterested and deep involvement in the affairs of ALERT gave sponsoring agencies confidence in its management, and his rich personality and evident joy in his faith was a constant source of encouragement to the staff.

During 1966, the Executive Committee was active in staff recruitment and the development of architectural plans for the new hospital that ALERT was deemed to require.

Executive Director.

At its first annual meeting the Board took the important step of appointing a lay Executive Director for ALERT. The first

Executive Director appointed subsequently withdrew his acceptance, and in March 1967, Major 'Onni Niskannen was recruited to replace him. At that time, the appointment of a lay administrator as head of a medical institution was somewhat unusual. In fact, ALERT remains unique in this regard amongst major leprosy training centres, but the appointment of Major Niskannen proved to be an inspired choice. He was widely known and highly respected in Ethiopia at the time. He had arrived in the country soon after World War Two as an instructor in physical education for the Ministry of Education. He was a skilled light aircraft pilot, and claimed to have had more experience of crash landings than anyone else in Ethiopia. He was a rally driver, a trainer of Olympic gold medalists, a highly successful administrator of the Ethiopian Red Cross, and a phenomenally successful fund raiser for that organization. He made a unique and abiding contribution to ALERT during the 12 years he held the office of Executive Director. He was administrator, fund raiser, conciliator, arbitrator and much more. He proved beyond doubt that lay administrators can run medical training institutions, provided they know how to administer.

Director of Training.

We were fortunate to be able to recruit Dr. Felton Ross as the first director of training, since he was already experienced in leprosy work in Nigeria, where he combined an emphasis on leprosy control with a parallel program for the prevention of deformity and for the rehabilitation of the disabled.

Dr. Ross held this post for many years, and was able to establish priorities and guidelines that would last up to the present time.

Conclusions

What did ALERT stand for in the minds and hearts of those who set it up in 1965?

1. First, cooperation to reach common goals between nations.
2. Secondly, trust, on the part of the national government, in the ability of non-government agencies to meet their commitments to provide resources and staff.
3. Concern on the part of all involved, for leprosy patients and for their welfare as people, exemplified by the commitment

to provide "comprehensive medical care" and "rehabilitation".

4. Trust by non-government agencies and their members that, through ALERT, they would be able to meet the challenge, and be given an opportunity to do something really significant for leprosy patients in Africa.

5. Confidence on the part of all concerned that the people problems could be solved, that a new institution could be grafted on to an old one, and that new staff could work with existing staff; that programs could be developed that would really fit into the Ethiopian context and, at the same, provide appropriate training for men and women from all over Africa.

6. For many involved there was also a basic belief that Almighty God was interested in this enterprise and that the dominical command to treat and cure leprosy patients still held good in the 20th century, that this was work which God was well pleased for us to engage in, and that whatever the difficulties, he would see us through.

It is now 23 years since the dream of an international training centre for leprosy work in Africa was started, and 20 years since it became a reality in Addis Ababa.

At an international level, ALERT has become a demonstration of the ability of people from a wide diversity of national, cultural and religious backgrounds to adapt to one another, to transcend political changes, and to work together to achieve a common purpose.

At an organizational level, ALERT has shown that in an atmosphere of mutual trust and good will, a national government, international governmental agencies, and a wide variety of religious and secular, private and voluntary organizations can pool their resources, adopt common policies, and collectively achieve far more in real service to leprosy patients, useful training and, valuable fundamental research than would ever have been possible if each agency had sought to work on its own.

Today, the pace of the battle against leprosy is quickening, and it is my warm wish and earnest prayer that ALERT will continue to receive adequate support and that leaders and teachers will continue to come forward to complete the task that has been so well begun.

Symposium on the TEACHING OF LEPROSY, Addis Ababa, Ethiopia, 1986
Lepr Rev (1986) 57, Suppl 1, 9-25

Historical outline of ALERT

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Addis Ababa, Ethiopia

This is the story of the All Africa Leprosy and Rehabilitation Training Centre (ALERT), the story of its birth, growth and development, which started 20 years ago from a small nucleus at the Princess Zenebe-Work Hospital (PZWH), and through the years became a model leprosy education and research centre for Africa.

The tremendous work carried out by a long line of fine and dedicated men and women cannot be portrayed in words, no matter how ably put or expressed, nor can the dimensions and perspectives of the human elements that caused the seed of PZWH to blossom into ALERT as it is today. Therefore, before I attempt to review the history of ALERT with you, I should like to apologize for any unintentional omissions or important events that may have been overlooked.

The year was 1934 when the Sudan Interior Mission (SIM) under the auspices of the Ministry of Public Health (MOPH), built PZWH in the midst of a gloomy, dismal and overcrowded leprosy village on a hilltop then just outside the city limit of Addis Ababa. Figure 1 shows this building as it stands today on the ALERT compound. Fortunately, the grounds around the hospital were spacious and open, allowing plenty of room for the great number of patients and their relatives who had come to seek medical help from all over the country. In its initial phase both SIM and the American Society for Assistance to Leprosy started the good work at the leprosarium, but they were interrupted by the Italian occupation which forced them to leave the country, leaving behind an overcrowded leprosarium.

The Italians in their turn continued to provide the services at the leprosarium during their 5-year stay in Ethiopia, thus

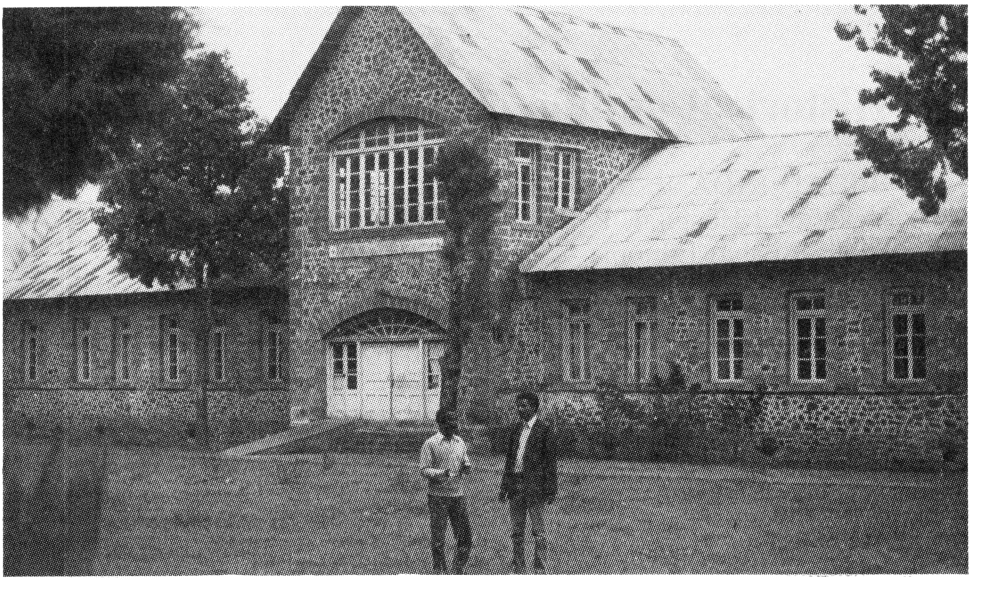

Figure 1. Princess Zenebe-Work Hospital built in 1934 by the Sudan Interior Mission.

encouraging the influx of more patients and their families from all over the country. In an effort to create order and overcome the overcrowding at the leprosarium, the Italians built 30 thatched-roofed brick houses, then known as "the Children Street Section" of the hospital and shown in Figure 2. At present you can find two of these huts standing between the Armauer Hansen Research Institute (AHRI) and the Training Department of ALERT used as the demonstration and the Crafts Shop tukules respectively.

For many years after the Italians left, numerous diligent pioneers, missionary workers as well as volunteers and organizations, continued to provide medical and other care to the ever-increasing number of leprosy patients and their families. In the mid-1950s the MOPH, in an attempt to improve the living conditions at the PZWH, started building the third section of the leprosarium, which consisted of barracks with thatched roofs and chika (mud mixed with straw) walls on stone foundations. One of them is shown in Figure 3. Eventually there were 15 of these barracks each accommodating a minimum of 100 patients with their relatives. Furthermore, construction of the remaining, necessary facilities i.e. the operating,

Figure 2. Tukules in "the Children Street Section" of the hospital built by the Italians.

X-ray, examination and treatment rooms, kitchen, utility, library, conference and administration buildings, and the second "Children Street Section" of the hospital, known at present as Ward 5, was eventually made possible through the help and assistance of individuals and organizations in general, and the Swedish Save the Children Fund in particular. Moreover, the leprosarium which had always lacked water, was at last connected to the city water supply system. It is worth pointing out here that during the above period of struggle, Dr. S.K. Schaller was the only physician and Miss Ragnhild Wahlborg the matron of the leprosarium, and their tremendous efforts, hard work and contribution in creating order and better conditions for the unwanted and forsaken leprosy patients and their families cannot be forgotten. They were also instrumental in establishing the very much needed core of health workers in the hospital from their cured patients.

In the meantime, around the early 1960s the government in cooperation with missionary workers, volunteers and organizations settled a great number of cured leprosy patients with their families at Gende Beret, Shashamane and Tibilla in Shoa Province in an attempt at agricultural rehabilitation which was the only sure way of solving the major problem

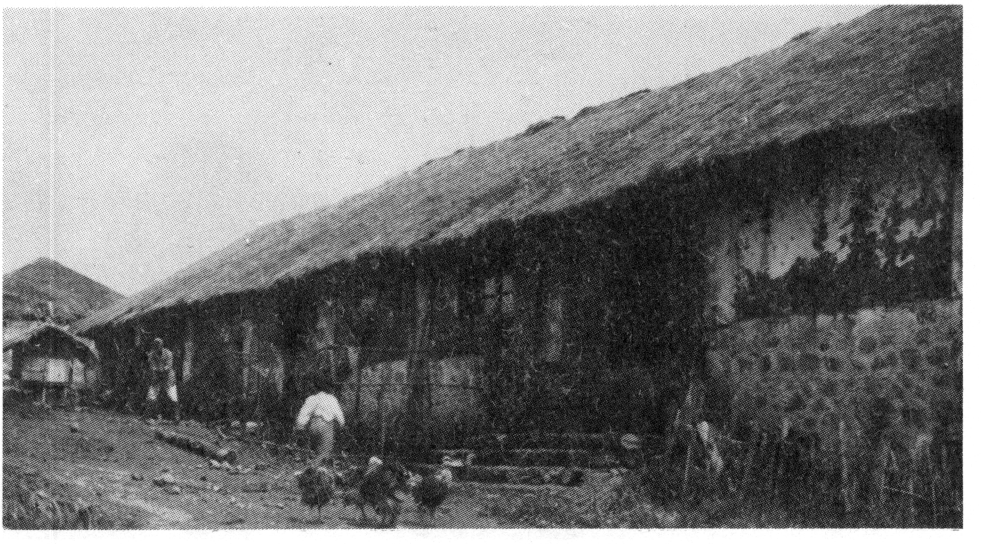

Figure 3. One of the barracks built in the mid-1950s to improve the living conditions around the Princess Zenebe-Work Hospital.

of overcrowding at the leprosarium.

In 1964, it was interesting to note that the general situation at PZWH had improved, with the barracks out of the way and the hospital staff strengthened by Dr. E. W. Price and Dr. M. Fitzherbert, as well as by a number of qualified national and international health workers.

Furthermore, the idea of establishing a training centre for Africa had already been conceived elsewhere, although the place and site was not yet decided upon. However, Dr. P. W. Brand (International Society for Rehabilitation of the Disabled) and Dr. S.G. Browne (Leprosy Mission, London) who were delegated to find a suitable place for it, during one of their missions to Ethiopia in late 1964 discovered the potentiallly rich grounds for leprosy work at PZWH. Hence their findings, coupled with the excellent reception they got both from MOPH and the Medical Faculty of Addis Ababa University (AAU), turned what was then a possibility in their minds to a certainty, namely, "to establish a training center in Addis Ababa for Africa".

Consequently, in December 1965 Dr. P. Brand, Mr. Orie Miller

and Mr. A.D. Askew were delegated by the International Society for Rehabilitation of the Disabled, the American Leprosy Mission and the Leprosy Mission, London, respectively, to establish in cooperation with the MOPH and the Medical Faculty of the AAU, the Training Centre for Africa at PZWH in Addis Ababa.

On December 11, 1965 ALERT was officially founded in Addis Ababa, Ethiopia. The MOPH and AAU together with the International Society for Rehabilitation of the Disabled, the Leprosy Mission, London, and the American Leprosy Mission were the founding members. The main purpose of ALERT was specified as "to train men and women in all aspect of leprosy with special emphasis on control, treatment and rehabilitation for work in African countries". Also, to enable the Centre to pursue its goal, it committed itself "to build up a leprosy service in a limited rural area, which shall demonstrate comprehensive medical care and rehabilitation of leprosy patients as part of a national anti-leprosy campaign and linked with general public health service". Moreover, "to accept full responsibility under the auspices of the Ministry of Public Health for the management of PZWH, and to add staff and facilities for administration, so that it may become a training centre for medical, surgical and paramedical skills needed by leprosy patients".

Thus the seeds of ALERT were sown at PZWH, and the laborious and painful process of its growth and development began.

When MOPH delegated the responsibility of the management of PZWH to the ALERT project, they also contributed in kind by sponsoring Dr. E. Price, the Hospital Director, Dr. M. Fitzherbert, a senior physician, and the matron, Miss P. Radford with all her staff and the hospital budget. Furthermore, the good will and unfailing support of all member and non-member organizations (see Appendix) made it possible for the ALERT project to recruit the required core staff for strengthening and improving the quality of services provided at PZWH, who in turn shouldered the responsibility for making ALERT a reality. They were as follows:

The Rev. D. Sensenig was recruited on 1/5/66 as the business manager, Miss J. Neville on 7/5/66 as occupational therapist, Mr. D. Ward on 1/7/66 as physiotherapist, and Dr. W. Felton Ross on 24/9/66 as the director of the ALERT project. Nevertheless, in order to be able to concentrate on the preparation, planning and implementation of the training component of the project, Dr. W. F. Ross opted to assume the training directorship instead. Therefore, on 15/4/67 Major. O. Niskanen was appointed as the executive director.

In October 1966 the first Annual General Meeting (AGM) of the member organizations of ALERT was held in Addis Ababa, and the following important decisions were made:

I. Election of officers:

1. President	Minister of Public Health, at that time H.E. Ato Abebe Kebede
2. Vice President	President of Addis Ababa University, H. E. Lij Kassa Wolde Mariam
3. Secretary	Dr. E. W. Price - Director of PZWH
4. Treasurer	Dr. W. Don McClure, with Rev. D. Sensenig to act as his substitute.

II. The executive committee was appointed to carry out the policies and decisions of the AGM until the next meeting with the following members:

2 representatives from the Ministry of Public Health
2 representatives from the Medical Faculty of A.A.U.
representatives from the ALERT Staff, and
3 representatives among the supporting organizations.

Professor C. S. Leithead, who was then representing the Medical Faculty of AAU was elected as chairman (See Appendix).

III. A medical advisory committee (MAC) was appointed to guide and advise the ALERT project, with the following members:

Dr. P. W. Brand, orthopaedic surgeon
Dr. Stanley G. Browne, leprologist
Dr. D. L. Leiker, epidemiologist
Dr. Olaf Skinsnes, leprosy pathologist

IV. A subcommittee was set up for the proposed Armauer Hansen Research Institute (AHRI). It was reported that the progress of the plans for the Institute was very promising. Both Rädda Barnen, Sweden and Redd Barna, Norway were prepared to sponsor it. The aim of the Institute was to enlarge the knowledge of leprosy through basic research.

During the initial years a great deal was accomplished; general rules were made, various activities were decided upon, and plans for the construction of the new hospital as well as other necessary facilities were worked out. Moreover, the rural area to be used as a field laboratory was established at Debre Berhan. Furthermore, an agreement with MOPH was reached and signed which was effective for an indefinite duration, to be revised every 5 years. Also, in order to increase the activities of ALERT, the MOPH delegated the responsibility for the full management of PZWH to the ALERT project in 1967.

In the meantime, the AGM was held every year except for the second one, which was scheduled for October 1967 and had to be postponed until April 1968. The AGM decides on major issues regarding ALERT's activities and its future development. The AGM also appoints senior staff for ALERT, Officers of the corporation and the members of the board of directors of ALERT to serve for a 2-year term.

During the third AGM, the executive committee, which had reached the end of its 2-year term of office, was dissolved and replaced by the board of directors of ALERT (see Appendix). Professor C. S. Leithead continued to serve as chairman up until October 1975. It is important to note here that Professor Leithead played an important role in the initiation

and formation of ALERT. He also had a major and decisive influence on its further growth and development. Dr. Yayehyirad Kitaw, the vice-chairman, took over as acting chairman until the succeeding AGM. Since then he has continued as chairman of the board of directors until the present time. Under his able chairmanship many important matters have been dealt with in a most efficient way.

Furthermore, the unfailing support and assistance of all members and non-member sponsoring organizations made it possible for all the buildings and facilities needed for the ALERT project to be realized step by step. Briefly one can summarize the development as follows.

In 1968 the foundation stone for the new hospital was laid and the hospital was completed in 1970. The old hospital facilities were converted to accommodate the training unit, and the old laboratory building to accomodate the orthopaedic appliance workshop until 1980, when the newly constructed orthopaedic appliance workshop was completed. Moreover, an improved gate clinic was built in 1968 to improve the general urban leprosy control service, and in 1974 the new gate clinic, as an extension to the hospital out-patient department was completed. Furthermore, in 1969 the very much needed water tank was erected and AHRI with its staff houses was completed. To be able to provide the much needed accommodation and acceptable services for all the trainees and guests, the student hostel buildings and the cafeteria facilities were completed in 1970, and depending on availability of funds and other priorities, staff houses and other supportive service buildings were gradually constructed.

In the meantime Dr. W. Felton Ross was busy developing his Department of Training. In 1967 he made an exploratory visit within and outside Ethiopia in order to prepare the ground for the future work of ALERT. The outcome of his endeavour was:

1. It was decided that the rural area, that was to be used for training leprosy field workers in the methodology of survey and leprosy control, should be in the north eastern parts of Shoa including Menz and Yifat, Tagulet

and Bulga, with the centre at Debre Berhan.

2. It was clear that ALERT was both needed and wanted by all the African countries visited. The general opinion was that it should concentrate on training senior technical staff and that priority should be given to the following areas:

   (i) Physiotherapy
   (ii) Rural area supervisors
   (iii) Medical officers and other health workers with emphasis on the care of the feet.

3. ALERT should provide suitable teaching materials on leprosy, and also prepare a system of record-keeping and data collection which could be standardised throughout Africa.

4. ALERT should participate in, and help to finance and organise seminars at suitable centres both inside and outside Ethiopia.

5. ALERT should provide scholarships for trainees.

To this end, and as a preparatory step, the training unit conducted in service training courses in leprosy for nurses and advanced dressers for ALERT staff, as well as 9-month physiotherapy courses for men who were trained to provide technical services at the physiotherapy section at ALERT. Also, intensive courses for leprosy field workers were given and 7 of the successful students were employed for the Rural Unit at Debre Berhan and the remainder at PZWH.

Consequently, both international and national training courses were conducted regularly throughout the year. It is very encouraging to note that the number of indigenous African trainees has been increasing since 1980.

Briefly, the following trainees have participated in the various training programmes provided.

International courses	Up to 1985	1985
Doctors	387	50
Supervisors	393	40
Physiotherapists	70	5
Rehabilitation technicians	57	
Laboratory technicians	50	50
Orthopaedic workshop technicians	31	70

II. National courses	Up to 1985	1985
Medical students	379	76
Nursing students	694	146
Tutors	21	
Health assistants	407	

Furthermore, the training department has actively participated in international training programmes, conferences and seminars over the years, given in both English or French depending on the availability of staff at the time. Moreover, a great deal of effort has been put into the preparation of teaching material suitable for various health workers (see Appendix). Most of the manuals and guides produced are very useful and very much in demand.

In summary, one can say that a great deal has been achieved by the training department, and most of the credit goes to its first director, Dr. W. F. Ross, who had played an important role in the initiation and development of ALERT.

In addition, valuable and successful contributions were made by the other senior staff of the department. Their tremendous efforts to maintain a high standard during the difficult period of ALERT's development will not be forgotten.

In concluding my review, I would like to briefly mention some of the remaining important events in the history of ALERT:

1967 - an agreement was signed between ALERT and AHRI, and the Institute was inaugurated in 1970. Its first director, Dr. Morten Harboe, took office in 1969 and joined the ALERT board of directors in August that year. It is important to note here that the Institute has always played a vital part in the

setting up and development of ALERT.

1976 - the study group on the goals of ALERT presented a summary of the goals, targets and activities for the ALERT project.

1978 - many of the ALERT/AHRI staff participated in the XI International Leprosy Congress, which was arranged in Mexico City.

1979 - The 12-year period of office, in which Major O. Niskanen had given devoted and valuable service as the first executive director ended. He was very rightly referred to as "the man worth more than his weight in gold". The great achievements ALERT can now congratulate itself on are to a great extent due to his tremendous and valuable contributions as well as those of his successor Mr. B. Johannessen.

1981 - ALERT was designated as a WHO collaborating centre for training in leprosy.

1982 - ALERT was awarded the Gold Mercury International Award Ad Honorem in recognition of its work in the African continent. That same year the first tuberculosis course was held at ALERT, and the MDT pilot project was implementet.

1985 - Mr. B. Johannessen terminated his work at ALERT after 6 years of devoted service as executive director contributing greatly to the development of the institution.

Finally, ALERT could not have achieved its present level of excellence without the tremendous contributions of its board of directors. It goes without saying that, under the able chairmanship and guidance of Dr. Yayehyirad Kitaw, they have played an unusual and significant part in both the development and achievements of ALERT. Moreover, without the unfailing support and assistance of all member and non-member organizations (see Appendix), the seed that was sown over 20 years ago at PZWH would never have grown into what ALERT is today. Hence, for ALERT and all the parties concerned, I can say that "this is the end of the beginning".

I Members of ALERT

American Leprosy Missions (Founder Member)
Ministry of Public Health, Ethiopia (Founder Member)
Addis Ababa University, Ethiopia (Founder Member)
Rehabilitation International (Founder Member)
The Leprosy Mission, London (Founder Member)
Associazione Nazionale Amici dei Lebbrosi, Italy
Christoffel Blindenmission, Germany
Dutch Government Technical Aid, Ministry of Foreign Affairs
Emmaus Suisse
German Leprosy Relief Association
Mennonite Mission, USA
Netherlands Leprosy Relief Association
Norwegian Save the Children Fund
Belgian Ministry of Foreign Affairs and Development Cooperation
Swedish Red Cross
Swedish Save the Children Fund
World Council of Churches (WCC) and its member organizations

II Non-member

Agence Canadienne de Development Internationale (ACDI)
Danish Save the Children Fund
Danish International Development Agency (DANIDA)
Fame Pereo, Canada
Interchurch Coordination Committee for Development Projects (ICCO), The Netherlands
LEPRA, Colchester, UK
Raoul Follereau Foundation, France
Raoul Follereau Foundation, Luxembourg
World Council of Churches, Swedish National Committee
Organization Netherlands Volunteers

III 1966 Executive Committee

Professor C.S. Leithead	- Chairman	Addis Ababa University
Professor Sehofield	- Member	Addis Ababa University
Professor Y. Larsson	- Member	Sponsoring organization
Dr. D. McClure	- Member	Spondoring organization
WCC representative	- Member	Spondoring organization
Dr. W. F. Ross	- Member	ALERT
Rev. D. Sensenig	- Member	ALERT
Dr. E. W. Price	- Secretary	Ministry of Public Health
Dr. B.E.C. Hopwood	- Member	Ministry of Public Health

IV 1969 ALERT Board of Directors

Professor C.S. Leithead	- Chairman	Addis Ababa University
Dr. R. Geil	- Member	Addis Ababa University
Dr. B.E.C. Hopwood	- Member	Ministry of Public Health
Dr. E. W. Price	- Member	Ministry of Public Health
Professor Y. Larsson	- Member	Sponsoring organization
Mr. P. Gingrich	- Vice Chairman	Sponsoring organization
Mr. M. Mageröy	- Member	Sponsoring organization
Dr. W. Don McCline	- Member	Sponsoring organization
Dr. Jamal Abdul Kadir	- Member	Ethiopian Medical Association
Major Onni Niskanen	- Member	ALERT
Ato Negussie W. Aregai	- Member	Princess Zenebe-Work Hospital
Dr.G.Connacher (invited)	- Member	Duke of Harar Memorial Hospital

V 1985 Annual General Meeting of ALERT

President: Brigader General Dr. Gizaw Tsehai
Minister of Health of Ethiopia

Vice President: Dr. Widad Kidane Mariam
Yekatit 12 Hospital, Ministry of Health

Dr. Abiye Kifle, President of Addis Ababa University

Board of Directors

Dr. Yayehyirad Kitaw	- Chairman	Independent Member
Dr. Jemal Abdul Kadir	- Member	Addis Ababa University
Dr. Bayou Teklu	- Member	Addis Ababa University
Dr. Milkias Shamebo	- Member	Ethiopian Medical Association
Ato Atnafu Tariku	- Member	Ministry of Labour and Social Affairs
Professor S. Britton	- Member	AHRI
Professor Morten Harboe	- Member	Norwegian Save the Children Fund
Mr. Herman Kober	- Member	ILEP
Dr. Per Olcén	- Member	Swedish Save the Children Fund
Dr. Mesfin Demissie	- Member	World Health Organization
Dr. Amin H. Salama	- Member	Organization of African Unity
Ato Tadelle Tedla	- Member	Ministry of Health
Dr. Taye Tokon	- Member	Ministry of Health
Dr. Widad Kidane Mariam	- Member	Independent member

Ex-Offico Members

Mr. Urban Gjerulf	ALERT
Dr. Taye Tadesse	ALERT
Dr. S.J. Nkinda	ALERT
Dr. M. Becx Bleumink	ALERT
Ato Adane Kassa	ALERT

VI Executive Directors

Major Onni Niskanen	April 1967	-	April 1979
Mr. Bernt Johannessen	April 1979	-	Sept. 1985
Mr. Urban Gjerulf	Sept. 1985	-	To date

VII Directors of Hospital Services

Dr. E. W. Price	1965	-	Nov. 1970
Dr. W. F. Ross	Nov. 1970	-	Sept. 1974
Dr. Berhanu Getahun	Sept. 1974	-	May 1976
Dr. Mesfin Demissie	June 1976	-	Aug. 1979
Dr. Fekade Yosef	Sept. 1979	-	Dec. 1980
Dr. Taye Tadesse	April 1981	-	To date

VIII Directors of Training

Dr. W. F. Ross	Sept. 1966	-	May 1976
Dr. H. Wheate	June 1976	-	Jan. 1980
Dr. J. Warndorff	July 1980	-	June 1984
Dr. S.J. Nkinda	August 1985	-	To date

IX Deputy Directors of Training

Dr. J. Nsibambi	August 1979	-	1984
Dr. N.B.B. Reddy	Dec. 1985	-	To date

X Directors of Leprosy Control

Dr. E. W. Price	Nov. 1970	-	1984
Dr. J. Cap	April 1971	-	June 1979
Dr. W. Beaumont	Nov. 1979	-	June 1983
Dr. M. Becx Bleumink	June 1983	-	To date

XI Business Managers

Mr. D. S. Sensenig	May 1966	-	1970
Mr. K. W. McClenaghan	1970	-	1974
Ato Issias Tessema	1974	-	1976
Ato Getahun Mola	1976	-	1979
Ato Haile Taye	1979	-	1983
Ato Asnake G. Giorgis	1983	-	1984
Ato Adane Kassa	1985	-	To date

XII Medical Advisory Committee

1984 - 1986

Professor M. Harboe (Chairman)
Dr. A. J. de Rijk
Dr. W. F. Ross
Dr. M. F. R. Waters

1986 - 1988

Dr. W. F. Ross (Chairman)
Dr. P. Olcén
Dr. A. J. de Rijk
Dr. M. F. R. Waters

XIII ALERT Publications

- A Guide to Leprosy for Field Staff
  W. F. Ross, 1975, 1977, 1983.
  French translation by J. B. A. Van Droogenbroeck, 1975.
  Arabic translation by Haider Abu Ahmed.

- Essentials of Leprosy
  W. F. Ross, 1973.
  J. M. H. Pearson and H. W. Wheate, 1979.
  J. M. H. Pearson, 1986.

- A Guide to Health Education in Leprosy
  J. P. Neville, 5th ed. 1983.

- A Foot Wear Manual for Leprosy Control Programmes
  Part I. P. J. Neville, 3rd ed. 1983.
  Part II. P. J. Neville, 2nd ed. 1983.

- Practical Guide to the Diagnosis and Treatment of Leprosy in the Basic Health Unit
  H. W. Wheate and J. M. H. Pearson, 3rd ed. 1985.

- Management of Paralytic Deformities in Leprosy
  J. G. Andersen and J. W. Brandsma, 1984.

- Manual for Implementation of Multiple Drug Therapy of Leprosy
  M. Becx-Bleumink, 1985.

Symposium on the TEACHING OF LEPROSY, Addis Ababa, Ethiopia, 1986
Lepr Rev (1986) 57, Suppl 1, 27-32

The sponsors and ALERT: expectations and obligations

H KOBER
German Leprosy Relief Association, P.O. Box 348,
8700 Würzburg 11, Germany

On behalf of the International Federation of Anti-Leprosy Associations (ILEP) I should like to express my heartfelt congratulations and my thanks to all those who contributed to the foundation of ALERT, to all those who during the last 20 years have made ALERT one of the most important international training centres for leprosy, and to all those who are responsible for this project today.

At this moment, I think with particular respect and thanks of the first Executive Director of ALERT who was a good friend of mine and of many others, Onni Niskanen. He loved this country and its people, he helped to establish ALERT and put it on the right road. We will never forget Onni Niskanen and his involvement in ALERT.

I am pleased that the Government of Ethiopia has realized the value of an institution like ALERT and has supported ALERT during all these years, even in difficult times, and that it is represented today by high officials.

First, I should like to say some words about ILEP, as the representative of which I am talking to you here.

I may speak to you as the representative of ILEP and at the same time as the representative of the German Leprosy Relief Association which, by the decision of ILEP members, acts as coordinator of all their assistance and support to Ethiopia and also ALERT.

The reason for this is that the German Leprosy Relief Association is a real child of Ethiopia. The first leprosy colony, which was supported by the German Leprosy relief Association, was at San Antoine near Harrar, and the first leprosy project that was built up with the help of the German Leprosy Relief Association in the year 1958 was the leprosy relief centre, Bisidimo.

Since 1957/58, the German Leprosy Relief Association has invested 47 million DM in the fight against leprosy in Ethiopia including ALERT.

Now, let us have a look at ILEP.

ILEP, the International Federation of Anti-Leprosy Associations (1966), brings together 23 national bodies based in 21 industrialized countries concerned with helping leprosy sufferers. They cooperate with 99 countries where leprosy is endemic: 46 countries in Africa, 22 countries in Asia, 15 countries in the Americas, 5 in Europe, and 11 in Oceania.

Altogether these countries constitute a kind of international leprosy community, where more than 2.5 million individual donors, through the 23 member organisations of ILEP, are cooperating with over one million leprosy patients through government and private projects.

Ethiopia is one of the oldest members of this international community, and according to the well-organised national leprosy control programme and ALERT, one of the most important ones.

As a matter of fact, in 1984, more than 900 projects with 1,250,000 leprosy patients were supported by a total budget of nearly US$ 34 million, of which 39% was expended in Asia, 38% in Africa, over 8% on research programmes, and the remainder in the Americas, Europe and Oceania.

ILEP is a coordinating body whose member organizations are partners in a working community. Everything, except information, is decentralized within the Federation: funds and resources, operation activities in the field, decision-making.

Through the coordinating structures of the Federation however, all partners of the community work together. The Federation itself is represented in the field mainly through its coordinating members, called coordinators as mentioned above.

The various aspects of leprosy work, social and humanitarian as well as medical and scientific, are to be found among ILEP's activities, including leprosy control, research, training, health education, and rehabilitation.

In order to cover all these aspects of work, ILEP set up a series of commissions, ad hoc working groups, and temporary partnerships. The most important commission is without doubt, the Medical Commission, which assembles the most experienced leprologists in the world. Other working groups deal with

health education, leprosy and primary health care, leprosy and tuberculosis, teaching and learing materials, and last but not least there is an ad hoc working group for training which is of the utmost importance, above all for ALERT.

Since the very moment we realised that monotherapy i.e. the application of DDS alone in leprosy treatment, produces resistance and thus prevents the curing of the disease, it became evident that it would be necessary to use combined drug regimens which would mean the treatment of the disease with a combination of different drugs. Taking this into consideration, even more importance has now to be attached to the training of medical personnel, which has always played a key role in leprosy control and the fight against leprosy.

And with this, the importance and responsibility of ALERT at present and in the future becomes clear.

ILEP members are very well aware of ALERT's importance and have therefore continuously supported the centre.

In all, the ILEP members have contributed a total of 20,866,400 Birr to ALERT.

Based on the annual budget of ALERT, which is presented to the ILEP members by the Executive Director of ALERT and by the Coordinator at the December session of ILEP, the financing of the budget follows a specific system which considers the financial power of the individual member association and fixes the percentage of the contribution analogous to the ILEP quota system.

For the years 1969 to 1985, ILEP support was as shown in Table 1.

In 1986 ILEP member associations are prepared to make available a total amount of 2,538,883 Birr which includes the cash budget and the so-called sponsored staff.

The allocations are as shown in Table 2.

Of course, with this amount, not all the needs of ALERT can be met but there is no doubt that ILEP members make a considerable contribution to the running of ALERT.

This means that ILEP has certain expectations as regards ALERT, its board and its management.

ALERT has to make sure that the best training for doctors and medical staff is guaranteed, a training that always needs to be oriented towards the latest findings in leprosy.

Table 1. ILEP - Contributions towards ALERT 1969 - 1985

ILEP Members	Period of contribution	No. of years	Total contributions Birr	%
DAHW	1969 - 1985	17	5,390,958	25.85
AL	1972 - 1985	14	1,210,764	5.80
ALES	1969 - 1985	17	1,336,322	6.40
AIM	1975 - 1985	11	998,316	4.78
DFB	1971 - 1985	15	1,694,682	8.12
FFF	1972 - 1985	9	726,516	3.48
FFL	1972 - 1985	14	387,880	1.86
FP	1980 - 1985	6	617,966	2.96
LEPRA UK	1982 - 1985	4	588,920	2.82
LTB, NEW ZEALAND	1985	1	14,356	0.07
NSL	1969 - 1985	17	2,765,930	13.26
OM	1982 - 1984	3	90,000	0.43
RD	1976 - 1985	10	212,898	1.02
RN	1974 - 1985	12	1,254,256	6.01
RS	1970 - 1985	14	2,386,454	11.44
SLC	1971 - 1985	7	657,084	3.15
TLMI	1970 - 1985	16	533,066	2.55
Total amount in Ethiopian Birr			20,866,368	100%
corresponding to US$ 43,193,385				

I should also like to address the Government of this country: The international character of this centre should be maintained. ALERT is one of the best training centres for leprosy, if not the best, in Africa and the whole world.

Further, I have a message for all African countries in the Organisation of African Unity: This centre is called "All Africa". The founders and all those who maintain this centre today, first of all had in mind that this centre should be a training centre for the African continent. We all know that

Table II ILEP Participation in ALERT 1986 Budget

Name of ILEP member	Sponsored staff Birr	Cash contribution Birr	Total confirmed Birr
Amici dei Lebbrosi		196,900	196,900
Emmaus Switzerland		147,675	147,675
American Leprosy Missions	96,400	51,275	147,675
Damien Foundation Belgium		113,723	113,723
German Leprosy Relief Ass.	148,400	294,540	442,940
Fond. Follereau France		253,845	253,845
Fond. Follereau Luxembourg		49,225	49,225
Fame Pereo Canada		147,675	147,675
LEPRA UK		147,675	147,675
Leprosy Trust Board, New Zealand	5,000	5,000	
Netherlands Leprosy Relief Ass.	137,000	59,900	196,900
Save the Children Denmark		51,250	51,250
Save the Children Norway	149,900		149,900
Save the Children Sweden	208,900	22,700	231,600
Le Secours aux Lepr. Canada		196,900	196,900
The Leprosy Mission UK	30,000	30,000	60,000
Total	770,600	1,768,283	2,538,883

Corresponding to US$ 5,255,480

many of the countries of this continent have big problems. Nevertheless they should show sympathy and recognition and provide some support to ALERT. I am very pleased that in this respect steps have been taken again in ALERT's jubilee year and I should like to encourage the management to follow this up.

And, finally, an address to the international organisations that do not belong to ILEP: Please continue to give your generous support, as in the past. It must be our common aim

to integrate the treatment of leprosy patients into the general health services and thus make leprosy be considered a disease like any other disease. This aim can only be achieved if we train medical staff adequately. To teach teachers is the task of ALERT.

Let us therefore cooperate in solidarity and friendship for the benefit of this excellent project and for the benefit of the people who need our help.

Symposium on the TEACHING OF LEPROSY, Addis Ababa, Ethiopia, 1986
Lepr Rev (1986) 57, Suppl 1, 33-39

Teaching leprosy: the need for knowledge and for the development of attitudes to work

W F ROSS
American Leprosy Missions, 1 Broadway,
Elmwood Park, NJ 07407, USA

Most leprosy programs have three basic purposes:

1. The control of leprosy as a public health problem aiming at prevention of infection of otherwise healthy people;
2. The care and, as far as possible, cure of individual patients;
3. The prevention and alleviation of disability.

For the time being, the strategies available to us for fulfilling these purposes are limited to:

1. Chemotherapeutic isolation of infectious cases, as early as possible in the disease process;
2. Clinical care of individual patients.

It is obvious that the implementation of these strategies requires cooperative action by the patients themselves, the community at large, and workers in the health system as a whole. Given these premises, it is not difficult to draw up a list of professional and non-professional tasks which must be accomplished by different individuals if the goals of the leprosy program are to be met.

So far so good, but there is a danger that in the development of professional tasks, human aspects of leprosy patient care and the need for different people to accept their differences and work together to achieve a common purpose will be lost sight of.

Lists of tasks clearly focus on objective descriptions of a job to be done. What is also needed to balance this are subjective descriptions of the human qualities needed to enable people to relate effectively with others to do those jobs.

In order to convert a job description into such statements in a systematic way, it is useful to have, at least as a check list, a suitable classification of educational objectives. The taxonomy should be comprehensive, and should take into account the different kinds of learning experiences required for

reaching particular objectives. A taxonomy has been provided by R. G. Carter (1). It is summarized in Table 1.

Table 1 Summary of a taxonomy of objectives for professional education

	Mental characteristics	Attitudes and values	Personality characteristics	Spiritual qualities
Personal qualities	Openness Agility Imagination Creativity	Things Self People Groups Ideas	Integrity Initiative Industry Emotional resilience	Appreciation Response
	Mental skills	Information skills	Action skills	Social skills
Skill	Organization Analysis Evaluation Synthesis	Acquisition Recording Remembering Communication	Manual Organizing Decision making Problem solving	Co-operation Leadership Negotiation & persuasion Interviewing
	Factual knowledge		Experimental knowledge	
Knowledge	Facts Structures Procedures Concepts Principles		Experience Internalisation Generalization Abstraction	
	Cognitive		Affective	

Carter categorizes educational objectives into three broad groups:

1. Knowledge (what the practitioner knows).
2. Skills (what the practitioner can do).
3. Personal Qualities (what the practitioner is).

Ideally, any particular course of comprehensive professional training should provide opportunities for achieving objectives in all three categories in a balanced way. This is not always the case. For instance, "In a recent questionnaire addressed to medical students of British medical schools, one of the

questions asked was the amount of time devoted to teaching knowledge and concepts, skills, and attitutes. In general, the students identified 75%-80% of the time devoted to knowledge and concepts, 20%-25% to clinical skills (largely physical rather than psychological skills), while the rest of the time was spent on promoting the view that awareness of one's attitude and behavior towards patients was an important clinical attribute" (2).

Clearly, the time allocated to development of personal qualities, including attitudes, is very limited in these schools, though the importance of them is no doubt often discussed and well recognized.

1. Knowledge (What the practitioner knows)

An essential component of any training is the acquisition of knowledge.

Carter divides knowledge into two broad groups.

First, factual knowledge, i.e. knowledge acquired mainly by information transfer through listening and reading. However, factual knowledge may also be acquired by experience, though this is a time-consuming process, effective but not very efficient. The acquisition of factual knowledge occupies an enormous proportion of most training courses and time spent on this could be substantially reduced if trainers were to clearly distinguish between facts students need to know by heart, and facts which students need to know where to find.

Secondly, Carter identifies "experiential knowledge." A good example of what is meant by experiential knowledge is provided by Norman Cousins in his best seller, Anatomy of an Illness. In this book, a correspondent, Carole, says of her doctor, "I don't think my doctor has ever been very ill himself, seriously ill, that is. He doesn't know how long a day can be, how difficult it is to have goals when nothing happens, how your mind turns on all the things that you aren't supposed to think about, like how you aren't getting any better, and how week after week passes without any progress" (3).

I suggest to you that experiential knowledge of this type is particularly important for leprosy workers. We need to know how the patient feels about his disease. We need to know how the patient feels about himself as a person. We need to understand and accept his loss of self respect, his poor self image, his fear of disability, the sense of loss he suffers

when his limbs become anesthetic and his despair when he is ostracized by former colleagues just because he has leprosy. Perhaps it is only those who have had leprosy who can really acquire this kind of knowledge.

2. Skills (What the practitioner can do)

As Carter points out, "It is self-evident that there is a world of difference between knowing how to do something and being able to do it competently." However, the development of a skill need not and often does not require a great deal of knowledge. Characteristic of skills is the fact that they are largely acquired by practice, and this is necessarily a time-consuming process.

Carter usefully identifies four broad groups of skills (Table 1). First, mental skills: skills in the manipulation and creation of ideas; second, inforamtion skills: skills which enable us to acquire, store, and communicate information; Third, action skills: skills which include manual or practical skills and also the more intellectual skills used in planning and organization, decision making, and problem-solving. His fourth category is social skills, which he designates as cooperation, leadership, negotiation and counseling skills.

Is this characteristic of skills relevant to the design of training for leprosy work? Many of the named skills certainly are. For instance, the ability to obtain information from individuals and to identify relevant information in case histories is crucial. The ability to make good clinical records is also important, as is ability to share ideas on an informal one-to-one basis or in the more formal delivery of health education to groups.

Action skills important for field workers include not only manual skills but even, perhaps especially, the ability to organize their own activities, and to plan the effective use of their own time, as well as to make significant decisions about patient care. Social skills, as defined by Carter, are clearly very important to anyone working in health care. It is self-evident that ability to work cooperatively as a member of a team, to negotiate with community leaders, to persuade patients and others to adopt appropriate courses of action are all important.

3. Personal Qualities (What the practitioner is)

Finally, Carter identifies four groups of personal qualities:

namely, mental characteristics, attitudes and values, personality characteristics, and spiritual qualities.
These are much harder to define than either knowledge or skill, but are at least as important in the skillful and creative application of the scientific disciplines of health care to the human problems of leprosy patients.
Health workers have to deal with a wide variety of different situations and different people and often have to solve problems with very inadequate resources. This requires considerable mental agility, openness to new ideas, creativity and resourcefulness, and often the ability to "glory in improvisation.".

The importance of appropriate attitudes and values is self evident. Most of us acquired our attitudes to patients, and even to our work generally, by a process of modeling. My own memories include experiences with the late Professor Charles Leithead and Dr. Paul Brand. I was already a clinician of some years standing when I came to ALERT in 1966, but I trust I shall never forget the care, gentleness and thoroughness which I once saw demonstrated as Professor Charles Leithead examined the abdomen of a patient who had come to him. She was the last patient of the day, at the end of a long and gruelling session in the outpatient department, everyone else had gone home, and she seemed to me to have a trivial complaint - but to Professor Leithead, no appeal for help was trivial.
Nor shall I forget, as a surgical trainee, assisting Dr. Brand to open and clean, with meticulous care, a tiny abcess in a finger tip of one of his patients at Karigiri. He took more care and almost as much time over that procedure as other surgeons took over B.K. amputations.
Those of you who know the field program supervisors at ALERT will not be surprised to hear that again and again, in reviewing subjective evaluations made by trainees, we foundt it was these supervisors who had made the greatest impression on them. These men did not have much to <u>say</u> about appropriate attitudes or motivation or integrity but they exemplified these qualities, and that made talk superfluous.

The importance of the personal characteristics of integrity, initiative, and industry is almost self evident, though difficult to document. However, happily it has been well documented by Huikeshoven and Bijleveld. These social

scientists developed an opportunity to study "patients and ex-patients of two leprosy field workers (LFW) of a vastly different calibur, one a model of conscientiousness and the other somewhat lax in job performance. There was virtually no defaulter problem at any of the superior leprosy field worker's clinics. Some irregularity of attendance did occur, but of acceptable proportions. The field worker's success must first and foremost be ascribed to his holding of clincs on schedule without fail, and his ability to demonstrate personal concern for the well being of his patients. The contrasting field worker did not always appear at his clinics; when he did, his behavior towards patients was abrupt and authoritarian. Defaulters from his clinics, and even patients who continued to attend had built up grudges against the man. He did not seriously attempt to give health education or to motivate patients to ingest medicine punctually." (4) A later study of DDS ingestion by actual measurement of DDS excreted in urine by patients at the superior worker's clinics "tended to confirm the relatively high quality of his job performance. Not only do his patients come to clinics more dependably than most patients in Western Province, but they take their DDS at home, with commendable regularity, compared with regular attenders at clinics in Mwanza, Tanzania" (5).

Carter calls the fourth group of personal qualities "spiritual qualities". By this, he means "the capacity for awe and wonder -- the ability to appreciate value and respond to the world of nature and the highest levels of human acheivement" and leaves open the possibility that "most important of all is the ability to respond to the one who is the author of all these things". As Carter justly remarks, "These qualities are not given great weight in education." Workers in the field of leprosy, in company with all who practice medicine, are often faced with human courage and tragedy which defy scientific explanation, and many of us have learned to value access to spiritual resources as a vital component of our own mental health as well as a source of support for our patients.

Conclusion

Current approaches to education for the caring professions are often based upon the needs of the people to be served. This is a tremendous advance over subject-based education, and is a powerful educational strategy. However, insofar as educational

design is based laregly upon the acquisition of abilities to carry out defined tasks, as it often is, and disregards the need for students to acquire willingness to fulfill these tasks with integrity and compassion, it risks producing a cadre of technicians who are competent but uncaring. It is suggested that the use of and expanded taxonomy of educational objectives, such as that proposed by Carter, will be useful to educators, at least as a checklist. It should be helpful in the development of an appropriate balance between training for the acquisition of knowledge and technical skills and opportunites to develop the personal qualities and attitudes necessary for the effective implementation of leprosy programs and the compassionate care of leprosy patients.

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Functions of an external medical advisory committee

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In considering the functions of the Medical Advisory Committee(MAC) of ALERT, this paper will describe general matters of essential importance for the function of external medical advisory committees in general, and the main topics dealt with at ALERT.

Basis of the work

In considering the basis of our work, two factors spring to mind immediately.

Firstly, a proper structure is essential.

ALERT has had a Medical Advisory Committee since 1966. However, a profound change was introduced on the initiative of the Executive Director, Bernt Johannessen, in 1980, based on the following principles.

i The committee should consist of only a few members, selected to cover various areas of leprosy.

ii The committee should meet on the local site, in Addis Ababa.

iii The committee should have a clear mandate.

iv The meetings were to be well prepared in advance by the ALERT Management, and specific questions and topics presented.

v The committee were to report directly to the Board, immediately after its meeting which was usually held once a year.

The previous composition of ALERT's Medical Advisory Committee was certainly more distinguished as regards leprosy, but we were now given better opportunities, and the committee became more functional.

The general principle and lesson to be learnt are clearly that: Proper structures are required to provide a sound basis for the work of external medical advisory committees of this kind.

Secondly, the question of confidence is essential. To improve conditions, difficulties and inadequacies must be made evident, questions must be raised, and criticism becomes a frequent ingredient in the work. It is easy to criticize, but it is far more difficult, but nevertheless essential, to do it in such a way that it becomes a basis for improvement. The committee attempted to do this, and was met with real confidence and open minds at ALERT. Locally, within the institution, confidence was established, and conditions for work were thus very good. Open criticism such as this, as a basis for improvement of conditions, carries a greater risk of being misunderstood by the institution's external contacts. This risk must be anticipated and accepted by committees of this kind and the sponsors.

Main matters for consideration and development

A. Multiple Drug Therapy (MDT)

The introduction of MDT on a large scale requires extensive resources, development of infrastructures, and detailed instructions concerning procedures. It became evident that the resources available would not be sufficient to allow full coverage of the areas with MDT. Thus, the first question was how to select parts of the areas covered by the ALERT rural leprosy control program and allocate priorities to these as regards the introduction of MDT.

It was decided that the MDT program should be introduced stepwise, area by area. This principle made it possible to introduce cohort analysis in detailed reporting. Furthermore, the importance of learning from experience was stressed from the start so that experience from one area could later be directly built on in the next. MDT was introduced and established according to the regimens recommended by WHO (1).

It became evident, however, that more detailed instructions were required for local Ethiopian conditions. A manual was therefore prepared by ALERT in collaboration with the National Leprosy Control Program of Ethiopia (2) based on the initial assignment of Dr. A. de Rijk as a WHO temporary advisor to the National Leprosy Control Program and subsequent intensive discussions between the Medical Advisory Committee and senior staff members at ALERT and the National Leprosy Control Program.

Planning and development of operations then proceeded according to the instructions in the manual. Experience showed that planning in a given area is essential before MDT is introduced, involving a complete coverage of the leprosy population with reclassification of cases into multibacillary (MB) and paucibacillary (PB) cases. The cohort analysis showed very distinct patterns in the various areas, as described by Dr. Becx later in this volume.

The great challenge now and in the next few years is how to extend the analyses to form a penetrating analysis of the effect of the MDT, administered according to the recommended WHO regimens on the leprosy program itself, and particularly on the leprosy endemic in rural and urban areas.

B. The hospital

The committee has repeatedly evaluated the quality of work at ALERT in view of the responsibilities of the institution as an international training centre for leprosy workers. This requires that senior staff members have extensive knowledge of leprosy and that diagnostic procedures and clinical work are of a consistently high standard.

When acquiring new clinical staff members, the need for a senior leprologist with a profound, detailed knowledge of the disease has been pointed out several times by the committee. This is, of course, a sensitive matter as regards the staff. However, it has far wider implications than those affecting the the ALERT staff.

We live in a phase of transition, and this question is a major challenge to the leprosy field. When the people of my generation who have worked mostly or exclusively with leprosy are gradually being replaced by younger people working in more integrated systems that care not only for leprosy, but also for patients with other, related diseases, a key point becomes evident:

How can we ensure that they will have adequate, in-depth knowledge and clinical experience of leprosy? This is a burning question, and it is essential, if the quality of leprosy work is to be maintained in the future, that a satisfactory answer be found.

In a training institution, the interface between regular clinical work and clinical research becomes essential.

ALERT has a clear responsibility in carefully studying its large patient material. In the current context of introducing MDT on a grand scale, the development of methods for differential diagnosis of reversal reactions as distinct from relapse after cessation of therapy becomes essential. The two conditions are conceptually distinct, but our present methods of clinical differential diagnosis are clearly inadequate. The question of histopathological examinations and the histopathology of immunological marker systems in tissue specimens needs to be intensively explored for this purpose. Further, the committee has advised that the development of a "Grand Round" system with systematic consideration of leprosy from various points of view such as clinical features, histopathology, and prophylaxis becomes essential. In these ventures, training aspects should be incorporated into the system and regularly reviewed by clinical staff members.

C. Training

Considering the essential training functions at ALERT, the committee has analysed the training programs from the point of view that training should be task oriented, embracing knowledge, skills and attitude, with an emphasis on the importance of the final point.

Participants need to be carefully selected to ensure that previous experience and knowledge correspond to the requirements for the individual courses. Further emphasis needs to be given to the training of trainers to increase the effect of teaching at the institution.

The training of the ALERT staff members themselves, has always been considered to be of major importance for the quality and impact of the training activities. Courses in teaching methodolgy for ALERT staff have been introduced on the initiative of the committee.

The issue of integration has been considered, and the committee has taken part in the discussions on the introduction of training in tuberculosis at ALERT and on its significance, not only for tuberculosis work, but for the integrated activities of leprosy and tuberculosis control programs.

D. Research

The committee considers research to be an essential part of ALERT's function as an international training centre. Research is essential to stimulate the quality of the work, and to keep it up to the standard of an international training institution. The compound including both ALERT and the Armauer Hansen Research Institute (AHRI) is unique in combining these two activity areas. Division of work between ALERT and AHRI is essential to avoid duplication and to exploit the advantages of each institution. Catchwords are collaboration and interdependence as illustrated by Dr. Britton in his paper on this issue.

E. The laboratory.

The need for laboratory work of high quality is obvious in a training institution like ALERT, both in regular clinical work used as a basis for training, and in leprosy control work in the field based on MDT. Together with staff members, the committee has markedly improved the quality of work. As part of these activities, the principle of quality control was introduced in ALERT, apparently the first institution in Ethiopia to start this on a regular basis. This work has formed the basis for quality control in an additional, international context (3).

The quality control procedures concerning smear taking and readings should cover the complete chain of events, from the taking of smears at a local clinic in the rural areas to the reading of the smear in the laboratory and the returning of results to the peripheral clinic. Further procedures should be considered with regard to the distinction between BI of 1 or 2 which is of major importance for the treatment and further handling of the patients according to the WHO recommended MDT regimens.

General considerations

An external advisory body, with members who feel associated to particular institution, appears to represent a valuable tool for continual evaluation and for initiating changes and improvements. In this work, care should be taken not to overload the system but to work on long term plans giving priority to one area at a time, so that the institution can

respond adequately to the external advice.

We expect the principle will also be valuable in other institutions in which proper confidence can be established between local members of staff and the external advisory committee, if they are able to accept the challenge as ALERT has done and permit a body of independent advisors to scrutinize the institution as we have done here.

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The Kellersberger memorial lecture

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It is a great honour for me to address the audience on this special occasion: the twentieth anniversary of ALERT, and on such a subject: "The Kellersberger Memorial Lecture."

The Kellersberger Memorial Lecture was established in 1974 by the American Leprosy Mission, under the auspices of ALERT, as a memorial to Dr. Eugene Kellersberger.

Allow me to retrace the exceptional life of the late Dr. Kellersberger.

Eugene Roland Kellersberger was born in Texas in 1888, got his M.D. from Washington University Medical School in 1915, and worked as a medical missionary in the Presbyterian Church from 1916 to 1940. He arrived in Africa in 1916, where he undertook extensive work on sleeping sickness.

He founded Bibanga Medical School and Hospital, in the Belgian Congo, now Zaire. There he founded, in 1930, the first organized Leprosy Hospital; from 1940 to 1953 he worked in the American Leprosy Mission and in 1944, while he was the president, gave a grant for training to the Princess Zenebework Hospital, which, as you know, became ALERT in 1966. Dr. Kellersberger was an exceptional figure, decorated on many occasions for his service; he was a member of the American Society of Tropical Medicine, the International Leprosy Association, the New York Academy of Sciences, and the United States Public Health Service.

It is in the memory of this great man that the first inaugural lecture which coincided with the Xth Annual Medical Conference of the Ethiopian Medical Association was delivered in May 1974 by J. Convit.

The latter, at that time Director of PAHO International for Training and Research in Leprosy and Related Diseases from Caracas, lectured on "Leprosy and Leishmaniasis. Similar Clinical Immunological, Pathological Models". The lecturer

stated quite rightly, "It is for me a most deep spiritual satisfaction to have been designated to inaugurate the Kellersberger Memorial Lectures named in honour of such a distinguished worker in the field of the rehabilitation of the leprosy patient".

The second lecture, entitled "Immunometabolism in Leprosy" was delivered by Olaf K. Skinsnes, Professor of Pathology in Honolulu; based on his own research, it made the audience aware of the role of acid mucopolysaccharide as a metabolic substrate for leprosy bacilli.

Dr. Graham Wedell presented the IIIrd Lecture on May 27, 1976, "A Neuroanatomist Looks at Leprosy".

After an interruption of one year, Dr. SG Browne, from the Leprosy Mission, United Kingdom, a personal friend of Kellersberger, delivered, "Leprosy Control - Present Position and Future Prospects". Taking the audience back to what he called the dark years of the presulphone era, of chaulmoogra and hydrocarpus with exotic names like gorli oil, cajaput, cashew nuts and sap, passing by the illusion and delusion of "30 odd years of widespread monotherapy", he stressed the magnitude of the problem of leprosy in the world and the prospect of multi drug therapy. The integration of leprosy while excellent in intention may in practice lead to an erosion of the quality of the treatment of the leprosy sufferer, Dr. Browne conclude: "so far all in all our efforts do not seem to have succeeded in containing this scourge, though our therapy and care have reduced the toll of individual suffering and apprehension".

The following year the audience had the pleasure of listening to Dr. RC Hastings, Head of the Pharmacology Research Department at Carville, who gave a talk on "Immunosuppressive - Antiinflammatory Thalidomide Analogues", stressing the role of thalidomide in the management of erythema nodosum leprosum.

On 31 May, 1980 Dr. Paul Brand, another prominent figure from Carville, delivered his lecture entitled "Living without Pain".

In 1981 Dr. H. Sansarricq gave a thorough and extensive lecture on the "General Situation of Leprosy in the World". As he rightly put it, "The magnitude of the leprosy problem expressed in number is not in general very impressive...

however, we have to admit that we do not know how to measure human sufferings and social losses". Dr. Sansarricq had a more optimistic view than Dr. Browne, of course; this was after Alma Ata.

In 1982 Dr. Styblo from the International Union against Tuberculosis from Paris, on the hundredth anniversary of Kock's discovery, presented the most opportune lecture. "Tuberculosis and its Control, a Lesson to be learned from Past Experience, and Implication for Leprosy Control Programmes".

Dr. Job's lecture on "Lepromin Test and Its Role in the Management of Leprosy" was received with acclaim.

1984 was a special year for the Ethiopian Medical Association, which celebrated its twentieth anniversary, and on this occasion Dr. Levy's lecture on "Chemotherapy of Leprosy, a Tool for Leprosy Control", was listened to in a spirit of general euphoria.

The "Role of BCG in the control of leprosy" was presented on 31 May, 1985 by Dr. Fine from the Ross Institute, London. This eminent professor gave prolific examples of contradictory results in the protection of BCG against tuberculosis and leprosy, and pointed out with humour: "that leprosy and tuberculosis services are being integrated throughout the world by immunology even if not by bureaucracy".

I have tried to give an overview of the Kellersberger Memorial Lectures given over the years at the annual medical conferences of the Ethopian Medical Association from 1974 to 1985. As you will have noticed, the American Leprosy Mission and ALERT have been extremely meticulous in maintaining a high standard in the selection of the speakers, who always strove to keep the audience abreast of the development of new ideas and controversies.

The Ethiopian Medical Association, on its side, by always reserving the best time on its programme, presented the best forum for all health workers in Ethiopia, for the annual medical conference is now to attract as many doctors as possible from different regions of Ethiopia, and, believe me, no one misses the Kellersberger Memorial Lecture. It is the ideal forum for the dissemination of ideas and I am certain it will continue. Those who have attended this lecture know that the only limitation for attendance is the capacity of the auditorium.

The Ethiopian Medical Association had the pleasure of printing the whole lecture in its organ, the Ethiopian Medical Journal. Since 1982, ALERT contributes financially towards the printing of the journal where the lecture is published, and the Ethiopian Medical Association expresses its thanks for the US$ 5,000 received.

Our thanks go to the American Leprosy Mission and ALERT. Ethiopian doctors and other health professionals have been the beneficiaries of the Kellersberger Memorial Lecture, and on this occasion, I should like to express my deep and sincere gratitude to all who have made this lecture possible.

On the 75th anniversary of the American Leprosy Mission, Julia Lake, the wife of the late Dr. Kellersberger confessed that, in 1930, they had wished to have the world as a wedding gift, and may I say that the Kellersberger Memorial Lecture, in a way, has made their dream come true.

Finally, on this 20th anniversary of ALERT, I should like again to quote Julia Lake: "Love is like a child feeding honey to a bee with broken wings." I enjoy thinking that those who work in and support ALERT and other similar institutions are like this child, feeding honey to a bee with broken wings.

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Functions of the hospital in a leprosy training institution

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The key words here are hospital and training. What then is a hospital? The Webster's New Collegiate Dictionary defines it in three ways:

1. A charitable institution for the needy, aged, infirm or young.
2. An institution where the sick or injured are given medical or surgical care.
3. A repair shop for specified small objects (Clock Hospital) (1).

This presentation will take it in its second definition.

The ALERT hospital provides medical, surgical and ophthalmological services primarily to leprosy patients, but also to cases with skin diseases and a limited number with other diseases that fall within the expertise we have. These services are essential both for the clinical care of patients and the training provided at ALERT.

Training is an essential element already in ALERT's name. Whom do we train? What? And why? Its purpose is defined in the agreement between the Ministry of Health of Socialist Ethiopia (Ministry) and the All Africa Leprosy and Rehabilitation Training Centre (ALERT) including the Armauer Hansen Research Institute (AHRI) which states: "In accordance with the terms of this agreement ALERT under the auspices of the Ministry, shall continue the medical and administrative management in order to keep up to the standard necessary for continuation of activities as an International Training Centre where men and women shall be trained in all aspects of leprosy with special emphasis on the training of qualified teachers and leaders in the fields of control, medical and surgical treatment, and physical and social rehabilitation of sufferers

from leprosy particularly as it applies to the African Continent" (2).

Thus, training in the field of leprosy which includes the transfer of task oriented skills to our trainees, is one of the important obligations of the Hospital. In addition to this, we have clinical service and clinical research. The latter complements, augments and strengthens the service and training functions of the Institution.

What are the problems of leprosy patients that need the services of a hospital? Leprosy is primarily a disease of peripheral nerves. Infection with often results in induction of cell mediated immune reactions and production of circulating antibodies (3). These immune responses are the basis for the problems that leprosy patients have, and many patients go into a hypersensitivity reaction that results in nerve damage. The loss of function of sensory and motor nerves leads to different types and degrees of deformities, injuries and ulcerations. It is to manage these reactions and the outcome of nerve damage that we need a hospital. In the hospital then, trainees observe and learn how these problems are handled to eventually rehabilitate the patients to become useful members in their society.

What do we need? We need to have

I. Financial resources
II. Facilities
III. Staff
IV. Patients.

I. Financial Resources:

Thanks to the continued support by the Ministry of Health of Socialist Ethiopia, ILEP and other sponsors of ALERT, we have had a sound financial basis for running the Hospital. The annual Hospital budget has increased from Birr 834,545 in 1966 to Birr 1,544,186 in 1985.

II. Facilities:

We have 207 beds for divisions of medicine, surgery and ophthalmology with 104, 90 and 13 beds respectively. Up to 20% of these beds are used for non-leprosy patients. Referal of non-leprosy patients to the various divisions of the hospital and the out-patient clinics is essential to meet pressing needs for clinical care and for training purposes providing a varied patient population for demonstrations and training in differential diagnosis. We have three operation days for surgery and two for ophthalmology. The operating threatre is well equipped with two operating rooms.

The out-patient services are organized in different clinics:

A. Medical Clinics:

1. Red Medical Clinic.

Leprosy patients who have developed reactions are referred to this clinic for follow-up after initial treatment as in-patients. Patients suspected of having a reaction are also assessed in this clinic. These patients will eventually be referred to their respective local clinics when their acute problem is controlled.

2. Diagnostic Clinic.

This is a daily clinic where all patients with skin diseases including new leprosy patients come to. It has three examination rooms, two of which can accommodate two doctors. The third room is for group demonstration of interesting cases. This clinic is extensively used for teaching purposes, particularly to learn differential diagnosis and to recognize leprosy cases among large groups of unselected patients with skin disorders.

3. New Case Clinic.

This is where all newly diagnosed leprosy patients go to with the results of all primary investigations. There they

are classified and plans made on their future management. It is held three mornings a week.

4. Sick Out-patient Clinic.

This is a daily clinic where leprosy patients and their immediate relatives with medical problems other than leprosy are attended to. The relatives could have gone to any general hospital had it not been for the strong stigma that prevails.

B. Surgical Clinics:

1. Ulcer Clinic.

Plantar ulcers secondary to anaesthesia is a common problem in leprosy patients. Such patients are taken care of in their respective clinics, but those who need to be assessed by surgeons are referred to this once weekly clinic for management.

2. Leprosy/non-leprosy surgical clinic.

This clinic held once a week attends to leprosy patients for reconstructive surgery and non-leprosy patients referred from other hospitals for similar evaluation. Priority is given to leprosy patients.

3. Club-foot/polio clinic.

Children with congenital deformities like club-foot and with post-polio paralysis come to this once weekly clinic for assessment, preparation and corrective surgery.

C. Ophthalmological clinic:

This clinic is held three times a week and leprosy as well as non-leprosy patients with eye problems are attended to.

D. Dental Clinic:

This is a daily clinic where leprosy patients and their immediate relatives come to. Most are referred from other out-patient clinics and some are appointed from the wards for preventive and curative services.

Supportive Services:

1. Orthopaedic appliances workshop.

Anaesthesia of the foot is an important condition that deserves a lot of attention from all parties concerned in leprosy work. As these individuals are ready made candidates for trauma every day of their life, the provision of protective footwear is crucial in the protection of their feet. To this end, different types of footwear for different grades of foot deformity are made and distributed. Different appliances for different levels of amputations and different deformities are made.

2. Physiotherapy.

Reconstructive surgery without an effective physiotherapy service will invariably fail. Thus we have this service to prepare patients for surgery and to train those operated upon. In addition nerve function assessments are done here, being crucial in the choice of treatment. This section is also extensively involved in in-service training.

3. Medico-social service.

Important medico-social information is provided by this section on all admitted patients. This exercise helps to sort out those patients who cannot afford to pay the nominal fees for footwear and bus tickets back home. It also helps in planning the sort of treatment to be given and in writing transfer letters. Such patients are supported financially from the ALERT wellfare fund. This section is also involved in the social rehabilitation activities in the surrounding village and in teaching

activities related to social aspects of leprosy.

4. Ergotherapy.

Anaesthesia of the hands and the cornea is another disability in leprosy patients which endangers them to trauma and burns. Such patients must have appropriate training that helps them in their day to day life. It is to serve this purpose that we have the ergotherapy or occupational therapy service. Here the ALERT radio, the cooking class demonstration tukule, and the puppet show facilities have been instrumental in the delivery of appropriate health education.

5. Laboratory.

The laboratory provides essential services both regarding diagnosis, classification, and follow-up of the effect of treatment of leprosy patients. These services have expanded markedly in recent years both in quality and quantity to respond to the needs created by introduction of multiple drug therapy in rural and urban areas where ALERT is responsible for leprosy control work.

III. Staff:

The staffing pattern and size have changed over the years. Existing professions have increased and new functions have been introduced, requiring staff with new professional skills to respond to the needs for care and training.

Addis Ababa Leprosy Hospital - ALERT Staff Development

	1965	1985
Doctors	2	11, 6 are Ethiopians
Nurses		25
Health Officers	1	2
Physiotherapists	0	
Orthopaedic technologists		5
Laboratory technicians	1	8
Ergotherapist	0	

IV. Patients:

The Addis Ababa Leprosy Hospital is like a museum as one of my professors of surgery used to describe the hospital he used to work in to illustrate the wide variation in patient population and problems exposed at any one time. This is, of course, an essential basis for the teaching activities of ALERT. In the Diagnostic clinic, out of 351 new leprosy patients seen in 1985, 162 were paucibacillary, 180 multibacillary and four neural cases (4). Table 1-4 provide information on the patients seen in the hospital and the out-patient clinics, being based on data in ALERT's Annual Reports for 1984 and 1985.

Table 1. Attendance at the different out-patient clinics.

Clinics			1984	1985
Medical	Diagnostic	Leprosy	371	351
		Non-leprosy	16,326	11,224
		Repeat leprosy & non-leprosy	12,939	12,616
	Red Medical		4,029	1,997
	New Case		277	314
Surgical	Leprosy patients for reconstructive surgery		577	254
	Others (includes ulcers)		2,209	1,646
Ophthalmic	Leprosy		2,419	1,493
	Non-leprosy		5,036	4,135
	Repeat leprosy & non-leprosy		2,448	2,783

There were 614 medical admissions to the hospital of which 432 were leprosy patients, and out of 625 surgical admissions 414 were leprosy patients. 111 of 477 ophthalmic admissions were leprosy patients.

Table 2. In-patients in the hospital

Service	1984	1985
Medical	783	614
Surgical	839	625
Ophthalmic	359	477

At this juncture, I would like to underline that there are several children among our leprosy patients (Table 3). These are just coming into life with a disease that has such a strong stigma. Thus they are coming into a socially and psychologically traumatizing environment. They need careful attention to prevent disabilities, and this observation should create an awareness to treat infectious cases early enough so as to prevent infection in the younger generation.

Table 3. Leprosy in 2 - 18 years old children in 1984 and 1985

Classification	Male	Female	Total
Paucibacillary	28	43	71
Multibacillary	30	25	55
Neural	3	0	3
Total	61	68	129

Furthermore, the cases cared for in the physiotherapy, orthopaedic appliances workshop, laboratory, ergotherapy and medico-social sections (Table 4) complete the teaching objectives of the hospital.

It is this kind of an exposure our trainees get in the hospital which will equip them with the knowledge for the planning, organization and management of leprosy work in their respective countries.

Table 4. Activities in supportive services

	Services	1984	1985
Physiotherapy	Voluntary muscle testing and sensory testing	5,042	5,136
	Post-operative training	362	294
Ergotherapy	Cooking class attendants	3,460	3,380
	Puppet show to attendants	2,450	2,850
Orthopaedic appliances workshop	Canvas boots	4,698	3,294
	Sandals	318	252
	Plastazotes	434	364
Laboratory	Skin smear for leprosy	13,709	8,163
	Other tests	23,708	21,190
Medico-social section	Admissions and discharges handled	1,583	1,592
	Patients assisted financially for transport, footwear etc.	1,013	1,070
	Displaced leprosy patients attached to Saturday clinic	480	660

In summary then, this paper introduced the topic, then explored the needs, the available resources, and finally showed how these interplay in the attainment of the objectives of the hospital in this international training institution for leprosy.

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Concepts behind the development of multiple drug therapy regimens in leprosy

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Dapsone monotherapy was, for about 30 years, the standard treatment for all types of leprosy. At first very successful, it failed because of three inter-related factors, namely poor compliance, the emergence of dapsone resistance, and the phenomenon of bacterial persistence, the most important being drug resistance.

The Problem

1. Poor compliance

Dapsone monotherapy was long-term therapy. Tuberculoid patients were treated from 18 months to 5 years (1), usually the latter in borderline-tuberculoid (BT) leprosy. Multibacillary patients were advised to stay on dapsone for a full 10 years after achieving skin smear negativity (2), although most lepromatous (LL) patients were, in fact, left on treatment for life. Yet patients seldom saw much improvement after the first 2 or 3 years of therapy, whereas further deterioration could occur from reactions or from secondary damage in anaesthetic limbs. Furthermore, relapses very seldom occurred within months of stopping therapy. Therefore, many patients absconded (more than 50% in one large study, within 4 years of starting treatment (3)), others only attended irregularly, and even among those who collected their dapsone each month, many failed to take their tablets regularly (4). Treatment was far too prolonged for good compliance.

2. Dapsone resistance (DR)

Although DR was sought during the first decade of dapsone monotherapy, it was said not to occur. The late emergence of dapsone-resistant Mycobacterium leprae is known to be due to the bacterium's prolonged generation time of 11 - 12 days and to the high peak blood level obtained with 100 mg. dapsone, some 500 times the minimum inhibitory concentration for fully sensitive strains. When proven DR was first reported by Pettit

and Rees in 1964 (5), it was thought to be a rare phenomenon, with an estimated prevalence in Malaysia of 0.2% and an annual incidence of 0.1% (6). By 1981, 10.1% of all registered LL and Borderline-lepromatous (BL) patients in West Malaysia were considered dapsone resistant, a full half being laboratory proven, although a few primary DR cases were included in this figure. In Ethiopia, the minimal proven prevalence was also around 10%, although a realistic estimate was 19% (7); the prima facie incidence was about 3% per annum (8), and only fell slightly, to around 2% per annum, following the (re)introduction of full-dose dapsone (9). (The definition of proven dapsone resistance in the last report (9) differs from that used in the earlier reports). Most other areas where surveys of secondary dapsone resistance have been performed, gave prevalences in the region of 5 - 10%.

Secondary dapsone resistance has normally only been detected in LL and BL patients. The incubation period between commencing sulphone (that is, dapsone in nearly all patients since 1950) therapy and the time of relapse has been found to be prolonged, but to vary greatly from patient to patient. In Malaysia, an analysis of the first 100 proven cases gave a range of 5 - 24 years, with an average of 15.8 years (10). Most had full dose DR, that is, resistance to 50-100 mg. dapsone given daily. In Ethiopia, the range for 174 patients reported in 1979 (7) was 2 - 21 years with an average of 9.7 years, reflecting the low dapsone dosage commonly used in the previous decade. Most had low or intermediate resistance, equivalent to a dosage of 1 or 10 mg. daily. But the threat of dapsone resistant relapse, although it may diminish with time beyond 20 years, still appears to persist indefinitely in LL and BL patients remaining on dapsone monotherapy. I have studied two patients, who both commenced therapy with solapsone in 1947 and were subsequently maintained on dapsone, who relapsed in 1980 and 1984 respectively, the latter patient receiving all his 37 years' treatment while living in leprosy-free areas. When LL and BL patients relapse with secondary DR, they eventually become infectious once again. Their contacts are infected with resistant bacilli, and those unable to overcome the infection subclinically develop primary dapsone resistant leprosy of any type, including BT, TT and Indeterminate. Primary DR is easier to study in LL and BL

patients as their strains of M.leprae can be subjected to dapsone-sensitivity testing in mice. It has been detected in many parts of the world. The highest prevalences were found in the WHO THELEP drug trials, 35% in Chingleput and 37.5% in Bamako (11), although most strains showed only low-level resistance. Resistance in tuberculoid leprosy has recently been reported (12); it is probable that it has been widely overlooked in the past.

The subject of DR has been well reviewed by Pearson in 1981 (13) and by Ji in 1985 (14).

3. Microbial persistence

Bacterial persistence - the survival of small numbers of drug-sensitive bacilli after the dramatic initial kill with appropriate and continuing chemotherapy - is as important in leprosy as it is in other bacterial diseases such as tuberculosis, typhoid and subacute bacterial endocarditis. Such persisters, in leprosy thought to be physiologically dormant bacilli, can cause relapse after stopping effective chemotherapy.

Waters et al (15) isolated dapsone sensitive strains of M. leprae from 3 of 12 LL patients treated 10 - 12 years with standard dapsone therapy under good conditions. The same group studied 362 LL and BL in-patients treated in Malaysia for 18.5 - 22 years up to 1970 with supervised dapsone monotherapy, and who then stopped chemotherapy (16). Over the next 8 - 9 years, 25 patients (8.8%) relapsed; in a third of these, the dapsone sensitivity of their strains of M.leprae was determined, and half were fully dapsone sensitive and half showed various levels of DR. Therefore in a small proportion of patients treated exceptionally regularly and well with dapsone monotherapy, persistent bacilli might survive for at least as long as 20 years.

Concepts behind the solution

1. Drug resistant mutants and the size of the bacterial population

By analogy with tuberculosis, it is known that in a bacterial population, prior to any treatment, there exists a small, genetically-determined sub-population resistant to a drug. The size of the sub-population varies with the drug used, but is usually of the order of one in 10^6 M.tuberculosis. The chance

that any bacillus is resistant to two drugs is one in 10^{12}. It is thought that the frequency of resistant mutants is similar in M.leprae populations. Resistance to rifampicin and to ethionamide/prothionamide after monotherapy with these drugs has already been described, although only one strain of clofazimine-resistant M.leprae has been reported to date (17), even though this last drug has been used since 1962.

It is estimated that an advanced, untreated case of LL may have a bacterial population of 10^{12} M.leprae, of which 10^{11} are viable. It is therefore essential to treat all multibacillary leprosy (MBL) with three bactericidal drugs, especially as DR might already be present, whether primary or secondary. On the other hand, untreated BT, TT and Indeterminate patients having no smear site as high as 2+ on the Ridley scale (paucibacillary leprosy, PBL), are thought to have a viable bacterial population of less than 10^6 as well as most possessing (or developing) significant cell-mediated immunity. Monotherapy with one bactericidal drug other than dapsone is therefore sufficient. But because of the risk of misclassification under field conditions, or the possibility of having a higher than expected bacterial population in nerves, though not in the skin, it is safer to give therapy with two drugs, although the second could be dapsone as most primary DR is still low level.

2. Persistence and compliance

It has been found in tuberculosis, that the shorter the duration of therapy, the better is the compliance. Furthermore, it has been shown in Ethiopia and Ruanda (18) that eight weekly 900 mg. doses of rifampicin cured PBL, as did a somewhat different short-course regimen of rifampicin and acedapsone in the Philippines (19). Most of the small number of "relapses" now being reported following WHO short-course rifampicin plus dapsone chemotherapy in PBL are probably due to late reversal reactions and not to renewed bacillary multiplication and spread. The PBL multidrug therapy appears to be very well founded.

There is perhaps more uncertainty over the treatment of MBL. Persisters have been detected after 5 years of rifampicin (20) and 15 years of clofazimine (21) monotherapy (prothionamide has not been studied). Nevertheless, combined daily dapsone and rifampicin therapy has been shown to produce fewer persisters at 6 months than dapsone monotherapy (22). In the Malta trial,

where combined chemotherapy with daily rifampicin and Isoprodian (dapsone, prothionamide and isoniazid) was administered to a very mixed group of patients, for about 24 months, Jopling (23) reviewed 116 MBL patients most of whom had been followed 6 - 9 years since stopping all anti-leprosy chemotherapy. None had relapsed clinically or bacteriologically, although 34 were still weakly smear-positive. Moreover, rifampicin given on two consecutive days each month has proved as effective as daily rifampicin, as judged by persister detection at 5 years (24). Similarly, in the THELEP controlled drug trial in MBL, a single dose of 1500 mg. rifampicin was as effective as 600 mg. daily over 2 years (25).

We may conclude that the WHO MBL regimen, selected on grounds of cost, effectiveness (including the prevention of the emergence of rifampicin resistance), acceptability, supervisability and low toxicity, is amply fulfilling its hopes for controlling drug resistance where it is conscientiously and efficiently being applied. The recent THELEP work (25) suggests that the regimen may well be found to be as fully effective in controlling persistence as any other so far investigated, and that it is not a second-best. We may use it with full confidence.

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Multiple drug therapy: implications for field work and training at ALERT

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Introduction

The introduction of multiple drug therapy (MDT) of limited duration is beyond doubt a breakthrough in the campaign against leprosy. However, the application of MDT is not merely the distribution of two or three drugs instead of one; it also implies an extensive re-organization and up-grading of virtually all aspects of a leprosy control programme (1).

With the introduction of MDT the principles of leprosy control, early detection of patients and effective treatment for a sufficient period of time do not change. Proper planning and organization of MDT, in order to guarantee optimal implementation as well as the development of a built-in system for evaluation, are managerial tasks par excellence. It cannot be overemphasized that it is of extreme importance that detailed guidelines for implementation of all aspects of MDT are defined before MDT is introduced.

Implications of Multiple Drug Therapy for field work

With the introduction of treatment regimens of limited duration, rapid changes can be observed in the leprosy control field situation.

In many leprosy control programmes, including the ALERT Leprosy Control Programme, MDT is implemented in area after area. Some years after the introduction of MDT, different areas will be in different phases of implementation. Four phases can be distinguished:

1. Preparatory phase
2. Initial phase of implementation
3. Intermediate phase of implementation
4. Final phase of implementation.

Preparatory phase. The duration of this phase may vary widely and depends on factors such as the number of patients under treatment, the number of clinics, number of staff, accessibility in the area, availability of resources. During this phase main activities are:

- Selection of patients for MDT. This includes clinical and bacteriological examination of all patients under treatment, and reassessment of the classification. So that patients are not unnecessarily exposed to drugs drugs that can give side-effects, many managers of leprosy control programmes have realized that, prior to introduction of MDT, plans should be defined and executed for the release from treatment of patients who should be considered to have received sufficient chemotherapy and need not be given MDT. In Ethiopia the policy of at least 5 years of regular treatment with dapsone monotherapy for paucibacillary (PB) patients and 10 years of regular treatment for multibacillary (MB) patients, in the absence of clinical and baceriological activity at the end of that period, was defined (2).
- Changing to new recording and reporting systems.
- (Re)defining staff tasks.
- Defining and allocation of resources.
- Education of patients and communities concerning the new treatment.

During this phase the workload is high; additional resources, especially manpower and vehicles, may need to be assigned temporarily to the area under preparation for MDT.

Initial phase of Implementation of MDT. This phase lasts 6 months to 1 year and is finished at the same time as the PB patients will have completed their course of chemotherapy.

Main activities during this phase are:

- Start of MDT by the PB and MB patients.
- Clinical examination of the PB patients at the end of the 6 months' course of chemotherapy.

- Release from treatment of the PB patients who have fulfilled the criteria of attendance.
- Application of rules which have been defined for PB patients who did not fulfill the criteria for attendance.
- Application of instructions for follow-up examinations of PB patients after their release from treatment.

The workload during this phase is high; especially at the time of assessment and release from treatment of the PB patients, and may require temporary assignment of additional resources.

Intermediate phase of Implementation of Multiple Drug Therapy. This phase covers the second and third year of implementation of MDT, and lasts until the MB patients have completed their course of chemotherapy. Main activities during this phase are:

- Annual clinical and bacteriological assessment of the MB patients.
- Release from treatment of MB patients; starting two years after introduction of MDT.
- Application of rules that have been defined for MB patients who did not fulfill the criteria of attendance; starting three years after introduction of MDT.
- Application of instructions for follow-up examinations after release from treatment.

During this phase the workload gradually decreases, but at the times of assessment of the patients the workload is considerable.

Final phase of Implementation of Multiple Drug Therapy. This phase starts at the time the majority of the MB patients have been released from treatment, which is usually 3 years after the introduction of MDT. Of the patients who started MDT during the initial phase of implementation, only those who did not fulfill the criteria for skin smear results remain under MDT.

The majority of the patients under treatment will be those who have been diagnosed as having leprosy after the introduction of MDT.

Main activities during this phase are:

- Diagnosis of new patients and relapses.

- Continuation of follow-up of patients after their release from treatment.

The workload will have decreased tremendously. In properly planned and executed MDT programmes, in areas where leprosy control activities with a good coverage of the population have been carried out prior to the introduction of MDT, the reduction of patients under chemotherapy will be in the order of 80% or more 3 years after the introduction of MDT.
This phase will last for many years and certainly until the time leprosy has ceased to be a public health problem.

Training and Evaluation. In order to guarantee proper preparation for and implementation of MDT, training of staff is extremely important. In the ALERT Leprosy Control Programme a phased system of training of staff has been introduced; the phases of implementation of MDT are discussed during separate workshops. Furthermore evaluation is a continuous process which covers the different stages of planning, programming, and execution of the activities. This concerns operational, epidemiological and performance evaluation.

The objective of leprosy control, other than the provision of chemotherapy:
An effective treatment which will interrupt transmission of the disease, cure the patients and at the same time prevent the occurrence of disabilities.

Leprosy control should, however, deal with more than providing treatment. In the excitement of implementing MDT there is a danger that the care for patients who have developed disabilities due to the disease is not given the attention it ought to have. As has been pointed out, the caseload, related to patients under chemotherapy, will gradually decrease for the first years of implementation of MDT. However, the total workload will remain high during many years, due to:

- Provision of patient care directed at existing and potential disabilities. In many leprosy control programmes 30% or more of the known leprosy patients are in need of regular care for existing disabilities or threats of increased disability. With the enormous decrease in patients under chemotherapy an obvious approach is to give more attention to these patients. It is important that resources are not cut in response to the decrease in case load. Of equal importance is that available surgical resources for correction of disabilities can take care of patients who are in need of reconstructive surgery.
- The need for regular follow-up examinations of patients who have been released from treatment. At present neither the risk of relapse in patients who have completed MDT nor criteria for identification of patients at high risk of developing a relapse are known.

The ALERT leprosy control programme

The ALERT Leprosy Control Programme is responsible for leprosy control in Shoa Administrative Region. This region is in the centre of Ethiopia; it covers an area of about 85,000 km^2, with a poulation of 8.75 million. The region is divided into one urban and eleven rural districts. Leprosy diagnostic and treatment services are provided in 292 centres; 60% of these are attached to the general medical services and 40% are leprosy clinics, which have been established in those areas where a general medical services does not yet exist (3).

Multiple Drug Therapy in the ALERT Leprosy Control Programme

MDT was introduced into the ALERT Leprosy Control Programme according to the recommendations of the World Health Organization in 1982 (4) in January 1983. Paucibacillary patients are treated for a period of 6 months; with dapsone, self-administered daily, and rifampicin, administered monthly under supervision (2). Multibacillary patients are treated for a period of at least 2 years, and until the skin smears have become negative; with dapsone and clofazimine self administered daily, and rifampicin and clofazimine administered under supervision monthly (2).

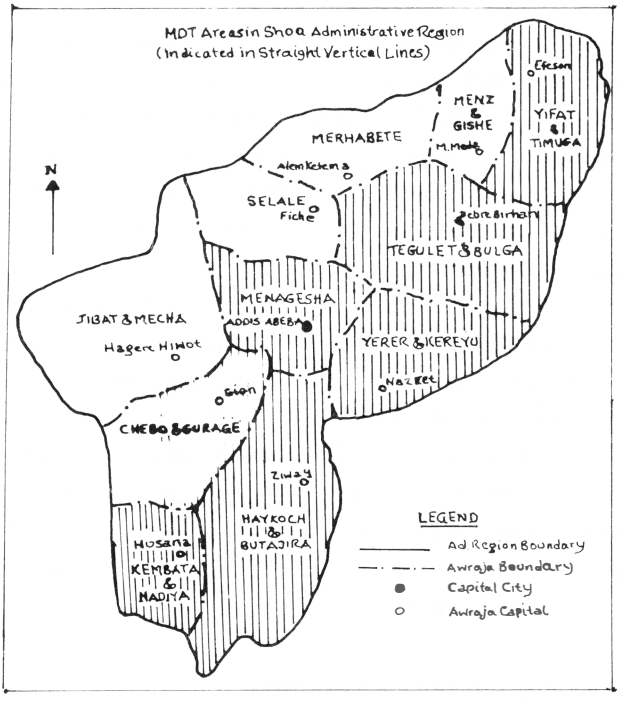

Figure 1 MDT areas in Shoa Administrative Region

During 1983 MDT was introduced in two districts in the north-eastern part of the region, Tegulet & Bulga and Yifat & Timuga, known as the Debre Berhan area; including 64 clinics (Fig. 1).

During 1984 MDT was extended to three districts in the central part of the region, Addis Ababa, Menagesha and Yerer & Kereyu, in the Addis Ababa area; including 48 clinics (Fig. 1). In December 1985, MDT was introduced in two districts in the southern part of the region, Haykoch & Butajira and Kembata & Hadya, the Southern Shoa area, 61 clinics (Fig. 1). During 1986 Selale and Menz & Gishe districts (Fig. 1) will be included in the MDT programme, while during the period 1987 to 1989 MDT will be introduced in Merhabete, Chebo & Gurage and Jibat & Mecha districts (Fig. 1).

At present the different phase of preparing for and implementation of MDT can be clearly distinguished:

Merhabete, Chebo & Gurage and Jibat & Mecha districts are in the first stage of preparation for MDT.

- Selale and Menz & Gishe districts are in the extensive phase of preparation for MDT.
- The districts of the Southern Shoa area are in the initial phase of implementation of MDT.
- The districts of the Addis Ababa area are in the intermediate phase of implementation of MDT.
- The districts of the Debre Berhan area are in the final phase of implementation of MDT.

For the departments' managerial staff, this situation requires different approaches as regards matters such as priorities in supervision, detection of weaknesses, allocation of resources, priorities in training, evaluation of services.

Proper short term and long term planning at central level are essential in order to meet the priorities and requirements in the different areas.

Some results of implementation of MDT

During the period January 1983 to January 1986, 7,587 patients, 3,320 PB and 4,267 MB patients, have been put under MDT.

Of the 2,438 PB patients who started MDT during 1983 and 1984, 2,199 patients (90.2%) completed their course of treatment within a period of 9 months; 196 patients (8.0%) had their treatment discontinued because of irregularity of attendance, while 43 patients (1.8%) were either transferred to a non-MDT area, (19 patients), died (12 patients) or continued the treatment after 9 months (12 patients). By January 1986 803 MB patients had been released from MDT.

In the Debre Berhan MDT area no patients had been released from treatment prior to introduction of MDT, because at that time instructions for release from treatment of patients in Ethiopia had not been defined, while, due to incomplete records, it did not appear to be possible to apply the guidelines given by the World Health Organization (5). In this area the number of patients under chemotherapy has decreased from 3,509 in January 1983 to 596 in January 1986, a reduction of 83% during a period of 3 years.

In the Addis Ababa area 1,952 patients were released from treatment prior to introduction of MDT. After March 1984, 2,744 patients were put under MDT. By January 1986 the number of patients under treatment in the area was 2,268, compared

with 5,186 patients in July 1983; a reduction of 56% in a period of 2 1/2 years.

In the Southern Shoa area 2,104 patients were released from treatment prior to the introduction of MDT. By January 1986, one month after the start of implementation of MDT, 1,190 patients had started their course of MDT and 1,157 patients were still under dapsone monotherapy.

Prospects of Leprosy Control in the ALERT Leprosy Control Programme

During the period July 1982 to July 1985 the number of patients under chemotherapy, MDT and dapsone monotherapy, in the Shoa region has decreased from 20,908 to 10,507; a reduction of 50% in a period of 3 years. This decrease is due to the application of instructions for release from treatment of patients after dapsone monotherapy (2) and the introduction of MDT.

By 1993, 3 years after the last district of Shoa region will have been covered by MDT, all but a few patients under chemotherapy will be newly diagnosed patients and patients who have developed a relapse of the disease, who, one hopes, will be few.

Assuming that there will be no major changes in the number of newly diagnosed patients in the region, the number of patients under chemotherapy will be in the order of 2,000 - 3,000 at any time from 1993 onwards. This is a reduction of 85-90% in the number of patients under anti-leprosy treatment within a period of 10 years. With 292 leprosy diagnostic and treatment centres in the region the average number of patients per clinic will then be 7 to 10, compared with 70 in 1983.

As has been pointed out earlier, follow-up of patients after release from treatment and the provision of care for patients with disabilities will continue to demand attention. The first group of patients will gradually decrease and with a follow-up of 5 years after release from treatment, from 1998 onwards mainly concern newly diagnosed and relapsed patients.

If the trend towards a steady, though slow decrease in the proportion of new patients who already have severe disabilities at the time of diagnosis of leprosy continues, as it has during recent years, and if reactions are diagnosed early, and properly treated and continuous care can be given to prevent

an increase of disability, the second group of patients will gradually decrease as well. However, this decrease is not expected to take place very fast. Without being pessimistic, the number of patients who will be in need of care will by far outreach the number of patients under chemotherapy for quite a number of years.

The figure for 1985 of 18% of new patients who had already a disability grade 2 or 3 at the time of diagnosis of leprosy is still high. Our method of detection of patients has been almost exclusively passive over the years. A more active detection of patients, which is one of our priorities, whenever this is feasible, could reveal a sharper decline in the proportion of new patients with severe disabilities.

Another matter for our serious concern is the integration of leprosy and tuberculosis control activities (3,6). The leprosy control infrastructure could provide a sound basis for the extension of tuberculosis control in rural areas.

The need for proper and careful evaluation of the effectiveness of MDT requires that the leprosy control infrastructure remains unchanged during the next few years.

Implications of MDT for training at ALERT

During the international training courses, training in leprosy control is provided through:

- Sessions in the classroom:
  Since 1983 the number of hours assigned to leprosy control has increased from 4 to about 20. During the sessions general principles of leprosy control, planning, organization and implementation of MDT and evaluation of the leprosy control services are discussed. It is very stimulating to discuss the problems trainees experience in general, and with implementation of MDT in particular. It is sad to hear that it is not exceptional that MDT is implemented with little or no planning beforehand and without preparation of guidelines. The diversity of the trainees' experience in the field of leprosy control, and of their future responsibilities, especially the trainees attending the doctors' courses, makes it a challenging task to come up to their expectations of the course.

- Training in the field:

  During the supervisors' courses the trainees are taken into the field twice, for a period of 1 week. This gives us the opportunity to show them areas in different phases of preparation for and implementation of MDT. The trainees who attend the doctors courses are also taken into the field for 1 week. An increasing number of them stay for an additional 1 to 2 weeks' leprosy control in-service training, after the formal training course, a policy we strongly support.

  At present and during the next few years trainees can be shown the different phases of implementation of MDT. However, within a period of 6 to 7 years, all districts of Shoa Region will have reached the final phase of implementation of MDT.
  An increasing number of trainees will get their field training in clinics with a few patients under chemotherapy. This situation is very illustrative of the results that can be expected in case MDT is properly planned and executed. Furthermore, much of the process of implementation of MDT can be learnt from available records. However, trainees have already expressed their disappointment with attending clinics which have only a few patients under chemotherapy. Especially those on doctors' courses used to obtaining much of their experience through the examination and classification of patients, the taking of skin smears, and the filling in of patients cards and registers in the field.

  In areas which are in the final phase of implementation of MDT the majority of the clinics have too few patients to give trainees sufficient experience as regards these matters.

The final phase of implementation of MDT in the Debre Berhan area has brought us into the following situation:
By January 1986 the average number of patients per clinic was 9, compared with 55 in January 1983. About 30 out of the 64 clinics in the area are at present suitable for training

purposes. Soon these will not number more than 24 clinics. These are clinics which are accessible by car and which have five or more patients under chemotherapy. As clinics for supervised treatment are conducted at 4-weekly intervals, an average of 6 clinics in this area can be included in a 1-week field training course. This number is quite sufficient, however, since the days the clinics are conducted and the travelling distances between clinics have to be taken into consideration. The travelling distances especially are a matter of concern; it would be unrealistic and very expensive to travel hundreds of kilometres per day.

We shall soon face a comparable situation in the Addis Ababa area, while gradually the other areas will follow. A leprosy control programme has, however more areas of responsibility than the provision of chemotherapy, and these also need to be given due attention during field training courses:

- care for patients with disabilities, under field conditions.
- follow-up of patients after release from MDT, with its many operational aspects.
- practical problems of diagnosis of relapses, and reactions after release from treatment.
- case-detection activities.

When the implementation of MDT has reached its final phase, these responsibilities become relatively more important, not only for the field work, but also in the training programmes.

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Basic clinicians: on the marriage between clinicians and basic scientists at AHRI/ALERT

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In "The Two Cultures", C.P. Snow speculated that the arts and sciences or if you wish, the humanistic versus the scientific approach could never meet. Does this apply also to clinical approaches versus the strictly scientific ones in the biomedical world? The answer is no. The ALERT/AHRI setup is a living example to the contrary. Unlike other speakers at this symposium I shall not base my reasoning to this point on historical aspects but rather focus on the present and even dare to look into the future.

The value of basic science to clinicians

What benefit do clinicians derive from involvement in basic research like that at AHRI? None. The only but paramount point is that they are involved in research activities at all. Such activity, when appropriately performed, will make the clinician a better doctor for his/her patients. It will provide him with a critical mind, it will help him to get oriented in the vast medical literature, to distinguish the false from the real, to arm him against the propaganda - often draped in a seducing scientific outfit - that the drug and medico-technical industry is constantly bombarding him with. Don't get me wrong. It does not make him a good doctor, but it is a crucial component of a good doctor. Thus, in my view it is not the achievements of his research activities that are important but the mere fact that he is involved in any research activity at all. This of course need not be basic research. It may involve merely quality control measurements of regular clinical procedures or simply compiling and evaluating information from published work. Here it is pertinent to mention the vastly underrated impact of pure clinical research based on patient records and collection of clinical data. Such research is time consuming and is constantly exposed to numerous difficulties never faced by

experimental and basic scientists. It results in few publications and rarely renders the executor famous overnight. We may only remember the non-existance of Nobel prizes awarded for pure clinical research achievements. This unjust balancing of clinical research versus the more basic one must be stopped when it comes to ranking applicants for academic clinical positions, or else we will soon not have any more of it.

The value of clinicians for basic scientists

What, then, is the value which basic biomedical scientists derive from working with clinicians? None really, in many instances. Their work should consist of disclosing biological processes underlying health and disease and for this they are not directly dependent on clinicians. Most of the important biomedical achievements in the basic sciences have been done in isolation from clinical influences. Monoclonal antibodies and gene cloning are recent examples of this. But clinicians and the biomedical industry, with awareness of the impact of these discoveries, have quickly explored them for clinical purposes.

There is, however, a tendency nowadays to bring together scientists of different disciplines to focus on one defined biomedical problem following the example of the space flight. Rather than having anatomists working in one place and physiologists in another, they are combined with clinicians in one entity to resolve a problem like diabetes. This approach is also introduced in medical education, which is slowly becoming organ-oriented. Students are taught everything about one organ or organ system from basic function to intricate disease symptoms rather than splitting man up into his anatomical, histological and biochemical parts, which is a way he never presents in real medical life.

Thus, there is an as yet unproven hypothesis that by bringing basic scientists of different extractions together with clinicians on a given problem we shall see more rapid and relevant results. The AHRI/ALERT set-up is a very early example indeed of this approach, which is just now beginning to develop on a large scale in the so called developed world. Has it been a meaningful construction, i.e. has it provided results in the interests of the patients that would not

have been obtained otherwise, and has it had mutually beneficial effects on clinicians and basic scientists working in this setting? I am inclined to answer a quiet and modest "yes" to this question.

The AHRI/ALERT construction

The spectrum of biomedical activities concerning mainly leprosy within the AHRI/ALERT set-up is broad. It comprises the following: epidemiological work done by the Leprosy Control Unit; medical and surgical interventions in the clinical wards, with adjacent service activities like X-ray, clinical chemistry and bacteriology; a vast outpatient service for dermatological disorders, in general, and leprosy and cutaneous leishmaniasis, in particular (ALERT); a clinical pathology service for tissue specimens, and a basic research unit (AHRI), equipped to do experimental laboratory research, utilizing the latest molecular and cellular immunology techniques, including experiments on laboratory bred animals. What, then, has emanated from this, at the time, futuristic contruction?

In the early seventies the lymphocyte transformation test (LTT) was established at AHRI, and it has been a valuable adjunct to the clinical scoring of leprosy patients in particular when they are moving along the scale. The treatment of reversal reaction (RR) with high doses of steroids in fact derives its rationale from experiments utilizing lymphocytes from RR patients in the LTT assay. The recent but still disputed finding from AHRI scientists that the lymphocyte growth hormone IL-2 may indeed restore the responsiveness of lepromatous leprosy patients to *M. leprae* opens up a new avenue for treating these patients. Thus, there are achievements that have been of direct benefit in the diagnosis and treatment of leprosy patients. But, admittedly, it is meagre considering the amount of money and personnel, the hectolitres of spilled blood and killed mice that it has required. We really have to request more of it before we can call this set-up a success that can be transferred to other health sectors.

Prospects for increased contacts between clinicians and basic scientists

In order for an arrangement like AHRI/ALERT to function optimally, there has to be intimate and daily contact between epidemiologists, clinicians and basic scientists, and this has certainly not been the case up to now. The fault lies mainly with the basic scientists. Their language is unnecessarily complex, often used to hide fairly trivial information, but still enough to keep a somewhat shy and tired clinician away. Indeed we also see this phenomenon of the Emperor's new clothes among us basic scientists. The new armada of molecular biologists and geneticists that has now - luckily - also invaded AHRI speaks a pompous scientific language that we conventional and seemingly outdated cellular immunologists do not dare to disrobe. Thus, there is room for a simplified scientific language that can be understood by all disciplines and through our regular joint (AHRI/ALERT) seminar activities, I believe we are beginning to get there.

I also think that we must be careful to balance researchers with clinical experience to those with a more purely natural science background. At present there is fifty percent of each. This seems to be a working proportion. It would also be important in the recruitment of medical personnel to ALERT to choose those with expressed and possibly documented scientific interest.

In order to create contacts there have to be meeting points and there has to be a mutual feeling of mutual benefit from such contacts. When I say benefit, I mean it in the crude sense as well, i.e. that the clinicians can smell publications and the basic scientists' material and information that may lead to the compilation such publications.

Epidemiology

Clearly the weakest point of cooperation at AHRI/ALERT has been the epidemiological aspect of leprosy which has mainly been pursued so far by the Leprosy Control Unit. This can be explained on AHRI's part by the lack of personnel with epidemiological experience or interest. Further, the Leprosy Control people are mostly out in the field and thus cannot take part in whatever intellectual conversation is going on

at the AHRI/ALERT campus. This is clearly a disadvantage for both parties.

For example, the MDT programme for the multidrug treatment of leprosy has been introduced on a worldwide scale through the initiative of WHO without the slightest insurance of a scientific evaluation of this major endeavour. One of the best stratified areas for the MDT programme is the Shoa region covered by the Leprosy Control Unit at ALERT. However, the option to have a controlled trial between monotherapy and MDT is rapidly fading with the overall introduction of the MDT approach. Also, we have no elaborate plans (on the AHRI's side) for investigating patients released from MDT treatment but relapsing. Are they genetically distinct from the non-relapsing population or do they harbour bacilli less sensitive to the drugs or less prone to activate a protective immune process?

We believe that our initial successes at AHRI in detecting, with methods applicable in the field, an antigen in the urine of patients with a high bacillary load will offer such a mutually beneficial tool that will boost the contacts between the epidemiologists and the basic scientists. There is also a need for a less unidirectional recruitment policy at AHRI, which would allow the hiring of epidemiologists in parallel with more conventional basic scientists.

Histopathology

A fruitful meeting point over the last year, for clinicians and surgeons as well as internists and basic scientists has been over the last year the clinical histopatology unit at AHRI. There, clinicians have been able to look at samples together with the pathologist and jointly discuss the morphological picture in relation to the clinical findings. I believe this has been the most important single contribution to the markedly increased contacts and interactions between clincians and basic scientists that have taken place at AHRI/ALERT. Although the histopathologist is in many ways clinically oriented, his links with the basic sciences are strong and he can introduce the clinicians at AHRI to them. The accessibility to the clinicians of the pathologist in a scientific setting is certainly worth recommending as it is

a transition area where the clinicians are at ease and can use as a starting point on their way to the experimental sciences.

Parasitology

Another area where clinicians are beginning to show an increased interest is in the culturing of leishmania promastigotes from lesions that are difficult to classify clinically or histopathologically. To see the actual pathogen apparently not only helps the diagnosis but also increases the interest on the part of the clinicians for the immunopathology of the disease and for the option of drug testing on the parasites. We believe the same will be true in leprosy when we can grow individual bacterial isolates in nude mice and then test these isolates functionally in various in vitro assays. The correlation between clinical appearance and individual bacterial characteristics is something that should attract the interest of clinicians.

Molecular immunology

Over the last year molecular biology techniques have been introduced at AHRI and so far the clinicians have been rather cool in their attitude to these approaches to the diagnosis, characterization and control of leprosy and leishmaniasis. But this state of affairs can not continue, because molecular biological approaches require a cooperation between the molecular biologist and the cellular immunologist to test whatever products that are obtained by the western blot or gene cloning techniques. In this cooperative atmosphere it is much easier to take the next step of going to the clinician to discuss the prospect of testing the material in vivo. At AHRI too, we have taken a short cut by recruiting two Ethiopian M.D.'s with previous experience as health officers, for post-doctoral training. These have been immediately introduced into the world of the molecular biology of leprosy and leishmaniasis, and we hope that they will ensure the necessary links with clinical medicine.

Sense of moral commitment

Thus, even if there are no proven major effects to the benefit of patients with leprosy or any other disease, of cooperation between clinicians and basic scientists, we certainly hold the

view that they exist. In addition, the many new channels of communication that have been opened over the last year have certainly created a more relaxed but yet intellectual atmosphere on the campus.

When involving more and more people in the basic sciences though, we must never forget that what we are doing is biological history. All the small bits and pieces that we are disclosing have already been in operation for millions of years. We do not make any new discoveries. We just explore ground that has already been traversed.

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Prospects for ALERT in the African context

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This is an important issue, and I have chosen to comment on certain aspects of it before dealing with it. These aspects are:-

- The reason behind the founding of ALERT
- The financial support for ALERT and
- The current leprosy situation in Africa.

Leprosy is a chronic, non-killing, but physically and socially crippling disease that man has lived with for centuries. Based on the experience of the World Health Organization (WHO) Leprosy Advisory Team in 1962-1966, and available data from reports on many individual countries, a conservative estimate of leprosy patients in Africa was 3,500,000 out of a population of 305,157,000 (1). To make the situation worse, only 1,398,220 were registered (1).

Thus, leprosy was one of the major public health problems that demanded a lot of concerted efforts. One of the approaches in the fight against this disease was the training of manpower. This could have been done anywhere and at one or several centres. If the latter had been chosen, we could have had many ALERTs, but this would have been an expensive venture. Therefore, the ideal thing was, and still is, to have a main international training centre in one of the countries in Africa where leprosy is endemic.

It was according to this line of thought that the All Africa Leprosy and Rehabilitation Training Centre (ALERT) was conceived and decided to be established in Addis Ababa, Ethiopia. Thus, ALERT was founded on 11 December, 1965 and registered with the Imperial Ethiopian Government on 1 January 1966 (2). The founding members were:

1. International Society for Rehabilitation of the Disabled; represented by Mr. Paul W. Brand.
2. American Leprosy Mission; represented by Mr. Orie Miller;

3. The Leprosy Mission, London; represented by Mr. A.D.Askew
4. The Ministry of Public Health of the Imperial Ethiopian Government; represented by the Minister of Health, Ato Abebe Retta.
5. Haile Selassie 1st University, Addis Ababa; represented by Lij Kassa Wolde Mariam, President of the University.

The purpose of ALERT, as stated in the charter (2), was as follows:

> "The purpose of the cooperation shall be to train men and women in all aspects of leprosy with special emphasis on control, treatment and rehabilitation for work in African countries".
>
> "In accordance with the terms of this Agreement ALERT under the auspices of the Ministry shall continue the medical and administrative management in order to keep up to the standard necessary for continuation of activities as an International Training Centre where men and women shall be trained in all aspects of leprsoy with special emphasis on the medical and surgical treatment, and physical and social rehabilitation of sufferers from Leprosy particularly as it applies to the African continent" (3).

Accordingly, ALERT over the last twenty years has been conducting training programmes for international and national trainees. These include doctors, rural area supervisors, physiotherapists, and different categories of medical and para-medical trainees for in-service training. The national courses took medical, nursing, laboratory technician and health assistant students.

Table 1 shows the number of national and expatriate trainees at ALERT between 1968 and 1985 who served in African countries (4).

Table 1. Number of participants in courses run by ALERT 1968 - 1985

Trainees	To serve in African countries	Country of service unknown
Doctors	406	62
Rural area supervisors	295	89
Physiotherapists	65	32

How was ALERT financed? ALERT was financed by contributions from members and non-member sponsoring organizations. See Tables 2 and 3.

Table 2. Members of ALERT

American Leprosy Missions, Founder member
Ministry of Health, Ethiopia, Founder member
Addis Ababa University, Ethiopia, Founder member
Rehabilitation International, Founder member
The Leprosy Mission, London, Founder member
Associazione Nazionale Amici dei Lebbrosi, Italy
Christoffel Blinden Mission, Germany
Dutch Government Technical Aid, Ministry of Foreign Affairss Emmaus Suisse
German Leprosy Relief Association
Les Amis du pere Damien, Belgium
Mennonite Mission, USA
Netherlands Leprosy Relief Association
Norwegian Save the Children Federation
Belgian Ministry of Foreign Affairs and Development Cooperation
Swedish Red Cross
Swedish Save the Children Federation
World Council of Churches/All Africa Conference of Churches and its member organizations

Table 3. Non-member sponsoring organizations

Agence Canadienne de Development Internationale (ACDI)
Danish Save the Children Fund
Danish International Development Agency (DANIDA)
Fame Pereo, Canada
International Coordination Committee for Development Projects (ICCO), Netherlands
LEPRA, Colchester, UK
Raoul Follereau Foundation, France
Raoul Follereau Foundation, Luxembourg
World Council of Churches, Swedish National Committee.

For the financial contributions to ALERT, see the article by H. Kober, "The sponsors and ALERT: Expectations and obligations".

One could note that Ethiopia is the only African State that has been contributing financially towards ALERT. The Ministry contributed nearly half of the annual running cost the first two years of its existence. If one takes ILEP members separately, one notes that the Ministry has been one of the highest contributing members. In spite of the prevailing economic situation in Ethiopia, the Ministry has made a 50% increase in its lump sum contribution towards ALERT (5). What are the other obligations that the Ministry has met over the years? These are listed amongst the seven obligations of the Ministry (3).

1. To continue granting ALERT the privilege of utilizing free of charge all buildings and equipment of the Addis Ababa Leprosy Hospital and the premises around it.
2. To grant ALERT full exemption from customs duties and excise taxes in Ethiopia regarding items to be utilized by the project in order to facilitate the aims and obligations of the project, including medicines, supplies, medical and other equipment and vehicles in accordance with regulations of Ministry of Finance of the Ethiopian Government.

3. To grant ALERT expatriate personnel with contract exemptions from the payment of income tax or any other taxes on the remuneration in accordance with the regulations of the Ministry of Finance of the Ethiopian Government, and to grant expatriate staff on contract the right to import free of duty personal household belongings within six months after the date of their assignment in accordance with the government regulations.

Having briefly said this much on the past activities of ALERT, I would like to come back to the question of the prospects for ALERT in the African context. This being a very important question, I would like to put forward some of the issues as follows:

1. What is the situation of leprosy in Africa today?
2. What is the prospect of Leprosy Control in Africa?
3. Have we trained enough of all categories of leaders and teachers in the field of leprosy?

In 1981, out of a population of 333,779,125 from 38 African countries, there were an estimated 3,500,000 leprosy patients of whom only 2,197,540 were registered (6). To make the situation worse, twenty countries had reported a 42% regularity in treatment (6).

The recent introduction of the multiple-drug therapy (MDT) programme, recommended by WHO, by several African countries, though not on a country-wide scale, seems to have reduced the number of leprosy patients drastically. But still there remains a large group that is not registered. Furthermore, as there was no previous clinical trial with MDT, we do not know the input of this approach in leprosy control programme. Thus, those treated patients need proper following up so as to learn from this experience.

Leprosy control programmes in Africa will have to continue to depend on dapsone monotherapy and a stepwise introduction of the MDT approach as far as the current knowledge of leprosy control and available resources permit.

We still have a long way to go before we can say we have trained enough manpower. From this we can clearly conclude that:

1. Until such a time comes when African countries have trained enough manpower to be able to handle the leprosy

problem in their respective countries, ALERT must continue as an International Training Centre for Leprosy.

2. It is high time that other African states realize the great benefits they are getting from ALERT and make financial and/or material contributions to the cause of ALERT.

It is my sincere hope that this brief introduction of the activities and achievements of ALERT to all African countries in the fight against leprosy in the past twenty years would stimulate the interest of other African governments to seriously consider the benefits that ALERT has provided and continue to provide, and to discharge their duties and responsibilities.

Finally I would like to add that the assistance from outside the African continent is very important in solving our problems, but unless it is supplemented with our own concerted efforts it will not have a lasting effect.

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