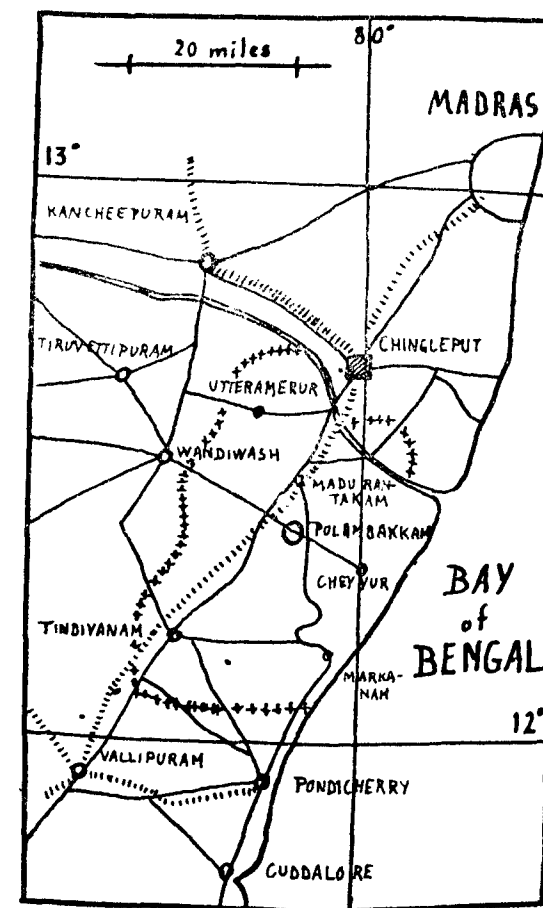


Report on the activities 1955-1958
of the Belgian Leprosy Centre
Polambakkam



**REPORT ON THE ACTIVITIES 1955 / 1958
OF THE BELGIAN LEPROSY CENTRE POLAMBAKKAM**

INTRODUCTION : HISTORY :

The Belgian Leprosy Centre at Polambakkam started working on 9/7/1955, on the initiative of the « Fondation Belge pour la Lutte contre la Lèpre » founded at Brussels under the highly honoured protection and encouragement of His Majesty King Leopold of Belgium to provide medical aid in countries with a high leprosy endemicity and in kind agreement with the Government of India.

It has been agreed with the Indian government to hand over to them the whole Centre after 5 years of work.

The funds are collected from private donations, big and small, and all the expenses are met with by this Belgian foundation.

The Centre is located at the ancient Night Segregation Centre of Polambakkam founded by Dr. R. G. Cochrane (1) in 1939 in the highly endemic areas of Chingleput, South and North Arcot districts, about 58 miles south of Madras.

It was kindly put at our disposal by the government of Madras State.

As far as the approach to the leprosy control has been essentially that of « ambulatory treatment », « mass-treatment » on a relatively large scale, as this method is extensively and intensively applied all over central Africa (2) and with increasing extension in India, in Near-East and south Far-East Asia.

Our choice of mass-treatment was based on the following considerations :

BASIC PRINCIPLES IN LEPROSY CONTROL :

1. — Leprosy is mostly a rural disease, so the problem should be tackled at the village level, especially in India where 80 % of the population is living in the villages.

2. — The fundamental method in such rural areas is to bring the treatment to the villages, as close as possible to the patients, almost domiciliary treatment, to avoid long distance walks and loss of workhours.

3. — This can only be achieved by the help of paramedical workers living in the clinic-areas and medical teams as mobile units. To promote regularity and confidence clinics and mobile units must be run with an absolute regularity and schedule of time.

4. — Early treatment is essential, so also is early case-detection. In its beginning stage the disease is most rapidly and most successfully curable. Therapeutic action must overtake the evolution of leprosy before the patient is « damaged » and prevent the turn-over to newly infective types.

5. — Treatment of all leprosy patients is what is most urgently needed :
— to prevent new deformities and trophic lesions or further worsening by

drug-therapy on one side, and by preventive education and physiotherapy on the other side.

— to decrease gradually and ultimately to stop infectivity as soon as possible, anywhere, where institutional or segregational treatment cannot reach them.

This view was sanctioned at the recent International Leprosy Congress at Tokyo 1958... « from the epidemiological point of view it is more advantageous to reduce infectiousness in many patients than to eliminate infectiousness in a few » ⁽³⁾.

6. — During this inevitable transition period, by means of regular periodic contact and general survey (extensive case-finding programme), detect, treat and cure at once all new and early cases. An early case of leprosy is no more a tragedy... what is a tragedy in leprosy is « no treatment in early leprosy ».

Leprosy is first of all a medical and public health problem; its vast social and medico-social burden to society is chiefly the outcome of neglect or lack of early treatment. This will stigmatize both leprosy and the medical profession.

This also was emphasized in Tokyo... « the first development is the recognition of out-patient treatment as the principal center for the attack on leprosy; another is the trend towards integration of antileprosy activities with general public health services » ⁽³⁾.

7. — Ten years ago such a programme was impossible; actually modern therapy has brought a hopeful revolution in the history of leprosy. Sulphones are now cheap and effective drugs perfectly adapted to out-patients and mass-treatment. Tokyo again... « The importance of sulphone-therapy as a means of control of leprosy is emphasized; it is recognised however, that it will fail unless supported by an effective campaign of case-detection and education » ⁽³⁾.

8. — All this can be achieved with the slightest trouble to the public and to the patients, in all its social, moral, familial and economical aspects, without the after-problem of social rehabilitation; the patients remaining in their families, in their communities, in their jobs.

9. — We believe in the possibility of eradication of leprosy within this generation; in a first period (actually called: operational and consolidation phase) bringing the problem down from 100 to 10 or even less, followed by a continued control in a maintenance or integration period (in public health and general medical services) during many years.

No doubt, the eradication of leprosy is the responsibility of the actual medical generation.

METHODS IN MASS TREATMENT :

The aim is to provide treatment to all cases, as early as possible, combined with early case-finding programme, covering an area as extensive as possible according to possibilities in personnel, money and local circumstances.

In different countries, different methods have been developed to this achievement.

BELGIAN CONGO : 3 factors have greatly facilitated mass-treatment since the avenue of sulphones.

1. — The existence of a regular periodic (mostly annual) medical polyvalent (rather omnivalent for all endemic diseases) survey of the entire population; this was started some 35 years ago when sleeping sickness was the main problem and danger.

2. — The 122 existing small and big leprosy colonies (mostly run by missionaries) have nearly 25,000 inpatients; as the lepromatous rate is about 6.69 % out of 349,700 estimated cases, there is plenty of room for all infective cases for institutional treatment. This facilitates out-patient treatment and the possibilities of using paramedical workers with a rather remote medical control and supervision. (Reactions and complications occur mostly in lepromatous patients).

3. — The Belgian Congo has no separate medical and public health services, so any campaign against any disease, including leprosy is completely integrated in all medical services from the beginning; except a few specialists in big leproseries and the provincial and state leprologists, there are not exactly what you could call « leprosy-workers », nor leprosy-teams. Treatment is given as for all other diseases, by all doctors, nurses, sisters and medical assistants in all hospitals and dispensaries, private and governmental.

This made it possible in a short time to put practically about 80 to 85 % of all registered cases under treatment with the simple addition of a few hundreds cyclists-paramedical workers doing one or several days circuits to remote places. Their « centre d'attache » being a central hospital or a dispensary or a leprosy colony ⁽⁴⁾.

FRENCH AFRICA : In general lines the scheme evolved is about the same, but they have created a special leprosy service which is only partially integrated in general medical services. There are :

- 78 fixed centres, hospitals or leproseries ;
- about 120 automobile circuits, long distances treatment teams with doctors, nurses, etc. ;
- many hundreds of paramedical workers on cycles, even canoes or horse-back to go to remote villages.

Results :

- in A.E.F. : 2168 patients in treatment in 1951 ;
now in 1958, 121,765 are treated out of 144,848 cases detected (84 %) ;
- in A.O.F. : 4000 patients in 1946 ; now in 1958, 183,968 out of 432,676 detected (53 %).

This was greatly achieved with the help of W.H.O. ⁽⁵⁾.

NIGERIA : This is rather a different scheme based on :

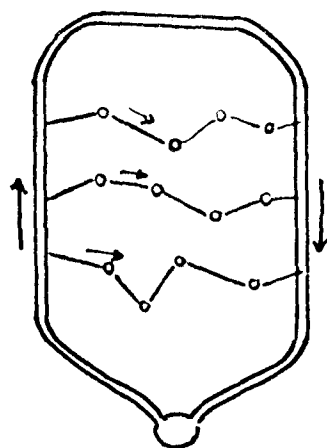
1. — The creation of leprosy villages built by local people for the surrounding villages for the infective and trophic cases, run by a residential leprosy inspector (paramedical) and where treatment is given to all leprosy patients; this fixed centre is also the centre for extensive and intensive survey.

2. — Controlled and supervised by medical leprosy officers, centred most at leprosy institutes.

3. — This means a complete special leprosy service.

We know the magnificent results of this anti leprosy campaign (6). There is something particular to all african schemes : the full cooperation of government services and private institutions, but above all the comprehensive cooperation of the local authorities, village chiefs, village people and patients ; prejudice against leprosy is rather low and in many places even non-existent ; this has many advantages but also disadvantages (no fear — free contact).

THAILAND : Khon-Kaen : WHO Leprosy Control Scheme. Essentially based on mobile units, for treatment and survey teams with 2 doctors and a large paramedical staff and a few fixed centres.



There is one special feature : while the van is making a 2 days circuit (loop-circuit) paramedical workers are dropped along the road, go by cycle through the area, giving treatment at different places and are picked up again the next day at the other side of the circuit. (see Fig. 1).

The general policy followed can be clearly seen from the tableau given below (7) :

Years	ATTACK		<i>Integration phase and Maintenance phase</i>
	<i>Operational phase</i>	<i>Consolidation phase</i>	
1956 1957	PILOT PROJECT area n° 1		
EXPANSION			
1958 1959	area n° 2	PILOT PROJECT	
1960 1961	area n° 3	area n° 2	PILOT AREA
1962 1963	area n° 4	area n° 3	area n° 2
etc.	etc.	etc.	area n° 3

INDIA : pilot schemes, treatment and study centres, subsidiary centres : are well known here (8).

Polambakkam scheme : is rather a combination of several methods and had to be worked out in view of local conditions and personnel (composed of ladies).

- Mobile units : medical and paramedical teams.
- Paramedical workers residing in the clinics (rural leprosy workers) ; these are to some extent fixed centres, but there are no buildings.
- Mobile paramedical teams desserving the clinics near to Polambakkam.
- The Centre (Polambakkam) with residential staffquarters and facilities for hospitalisation and treatment of acute and other complications, also intercurrent disease in leprosy cases from all over the area.

Detailed fonctionning of this scheme is given below.

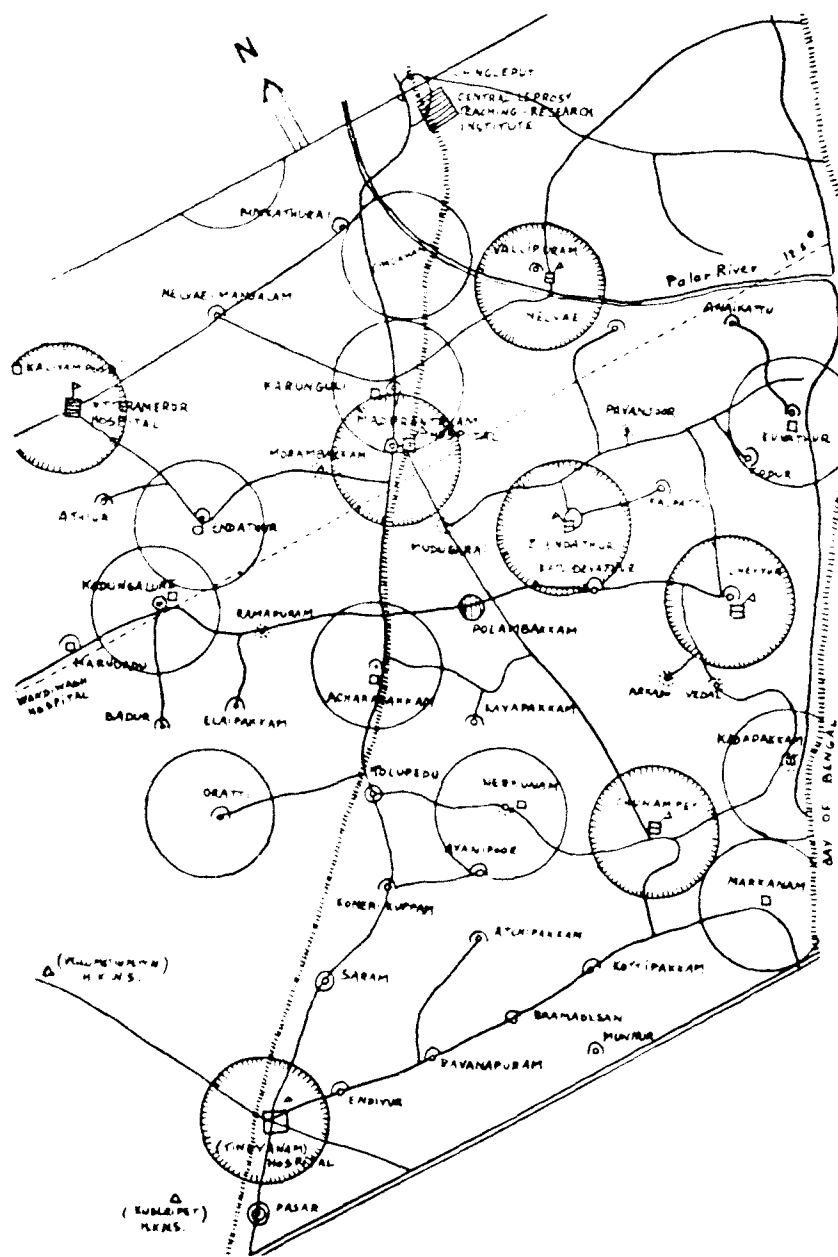


Fig. 2. - Map of clinic areas.

CHAPTER ONE

THE FUNCTIONING OF THE CENTRE

§ 1. Area covered by the scheme

Melavay	25 miles north of Chingleput
Chingleput	25 miles north of Chingleput
Karungu	15 miles north of Chingleput
Wardah	15 miles north of Chingleput
Tirumala	15 miles north of Chingleput
Chingleput	15 miles north of Chingleput

The scheme covers the villages of the following taluqs:

§ 2. Other medical activities within the area:

1. The Government Hospital at Chingleput, which is the only hospital in the area, is situated in the town of Chingleput. It is a large hospital with many beds and a staff of doctors and nurses. It is the main medical institution in the area.

2. Government Taluqs: Melavay, Tirumala, Wardah, Chingleput.

3. Government doctors: Chingleput, Tirumala, Wardah.

4. Government doctors: Chingleput, Tirumala, Wardah.

Rural, district, private, and societies:

Salavakkam	Padalam	K. J. Endathur
Karungu	Kuvattur	Narayanam
Acharapakkam	Kodungalore	Markanam
Oratti		
Kaliyampet	Kadavallam	Manchala

The medical Officers of the Taluqs are: Chingleput, Tirumala, Wardah.

2. Hind. Kush. Nivaran Sangh hospitals: Chingleput, Velmattupettai.

The Central Leprosy Research and Teaching Institute at Tirumala Chingleput is about 25 miles north of Chingleput.

§ 3. — Visitors :

We had the honour and the very big pleasure of welcoming very distinguished visitors as well as many friends. Only to mention some of them:

Shri Sri Prakasa, former Governor of Madras State, opened the Centre officially in September 1955

Raj Kumari Amrit Kaur, former Minister of Health

Shri Bismuram Medhi, Governor of Madras State

Shri M. A. Manickavelu Naicker, Minister of Health, Madras.

From the Directorate General of Health Services, Government of India :

Lt. Col. K. Lakshmanan

K. Mitra

Dr. Y. Subramanian.

Eminent leprologists :

Dr. Dharmendra, Director C.L.R.T.I. Chingleput

Dr. R. C. Cochrane

Dr. R. V. Wardkar

Dr. V. Ekambaram

Dr. J. Cap and Dr. M. Leebat, from Belgian Congo

and so many other doctors interested and engaged in leprosy.

Sardar Balwant Singh Puri, Shri S. Ramaswamy Padayatchi, Shri N.

Ramakrishnan Iyer, Shri M. R. Kothandaraman, Shri D. V. Alegesan.

Most Rev. N. Ambrose, Most Rev. L. Mathias, Most Rev. J. Mark Gopu.

From W.H.O. :

Dr. R. H. Bland

Thailand : Dr. Chaisiri Kettamurah, Dr. M. L. Smith

Egypt : Dr. Latif Kamel Hanna

Nigeria : Dr. D. Hilton

Ceylon : Dr. N. Peris, Dr. J. S. Arudpragasam, R. Wejasundaram.

From Abroad :

Her Majesty Queen Mary-José

Mr. Pierre Rijckmans

Mr. and Mrs. Raoul Follereau

Mgr. Jos. Cardijn

Mr. Raymond Scheyven

The doctors who represented Belgium at the Intern. Tuberculosis Conference at New Delhi 1957.

Members of the Belgian Embassy and Consular Staff :

Mr. and Mrs. L. Standaert, Mr. and Mrs. Nevens, Mr. and Mrs. J. Sommerhausen, Mr. and Mrs. L. Van der Gracht.

We have not included our friends, who from the beginning have been too closely connected with the Centre, to be considered as guests :

Shri T. N. Jagadisan

Shri Muttu Malla Reddiar

Dr. H. Paul

Dr. K. Ramannjam.

§ 4. — Training of the staff :

Except for a laboratory technician and a social worker no trained paramedical personnel was available. So we had to train all our staff from the beginning.

Sufficient knowledge of english, ability to go on cycle and some maturity tests about social knowledge have made the choice of our trainees in 5 successive batches ; not all of them have passed SSLC. Theoretical and practical lessons were given during about 4 months while the treatment campaign was under development. The danger of a highly developed training is that soon the paramedical worker is tempted to act as a doctor in the villages for private leprosy treatment and general practice, for which, this being out of our control, we cannot take the responsibility. For this reason, unfortunately we had to dismiss quite a few of them.

Our paramedical staff (we call them : Rural leprosy workers) is trained in such a way that they can render service in most types of work : (leprosy treatment, dressings, injections), and now will be trained gradually in deformity-preventive and physiotherapeutic work, in surveys and case-finding programmes, to lend a helping hand in officework, to know microscopic technique for bacterioscopy.

(This is also done in Africa, where all our paramedical staff is trained in simple microscopic examinations : stools, pus, gland puncture for sleeping sickness, smears for leprosy, sputum for TB., and blood examination for malaria).

Too often, when qualifications are narrowed to specific work, there is trouble with leaves, sickness, etc., which might upset the whole programme.

§ 5. — The staff is composed of :

4 doctors : 2 belgian (one lady Dr.)

2 indian (one lady Dr.) since januari 1958. One is in a 6 month training in reconstructive surgery at Vellore.

2 nurses : both belgian ladies

1 social worker trained in Wardha (Gandhi Memorial Leprosy Foundation)

1 laboratory technician

2 paramedical trained in physiotherapy at Vellore ; one has 3 years training in Occupational Therapy in Bombay

20 rural leprosy workers fixed in clinic villages

4 mobile for the surrounding clinics and to fill eventual gaps

2 residential for the clinic tours in cars

2 residential ladies, one trained for hospital work, the other for dressings and as injector

3 old type-injectors, now rather trained as rural leprosy workers

4 trainees under training

2 paramedical under training at Chillakalapalli (Andhra)

1 laboratory assistant

1 mechanic

5 on domestic posts : 1 cook, 3 sweepers-gardeners, 1 scavenger.

A total of 54 people on the staff : 48 males, 6 females ; 12 are ex-patients.

§ 6. — **Working budget** : Expenses since the beginning and preliminaries :

A. — *Non-recurring expenses* :

a. Representation : travelling expenses to Europe, Japan, functions, parties, small expenses : This is practically a dead capital :	25.593,06
b. Buildings, repair of existing quarters, furniture, electricity, water, sanitary installations, new buildings (hospital, operation theatre, laboratory, residential quarters) 4 cars and a cycle for all fixed and mobile rural leprosy workers, one motorcycle ; medical, surgical, physiotherapie, laboratory equipment :	276.391,16
	299.984,22

This does not include a few articles as medico-surgical or laboratory equipment brought or send from Belgium, worth about 3.000,00 rs., nor medical books.

B. — *Recurring expenses* :

a. Belgian staff : small expenses in transport, hotels, etc., excluding salaries paid in Belgium :	2.483,08
b. Indian staff, salaries, training, provident Fund :	126.161,19
c. Maintenance, repair of residential and medical quarters, gardens :	2.097,18
d. Stationery, printing of records, forms and propaganda pamphlets :	9.358,02
e. P.T.T., customs, bank, etc. :	2.363,91
f. Library, books, periodics, subscriptions :	1.617,51
g. Electricity, kerosene, etc.; all quarters have free light up to 9 p.m. :	3.096,23
h. Routine dispensary equipment, instruments, etc. :	2.128,18
i. Transport : running expenses : petrol, oil, repair and maintenance of cars, cycles and motorcycle ; taxes and insurance :	65.951,15
j. Maintenance of in-patients, kitchen, equipment, dhobi, etc.; (the food was provided till recently by private and patient's donations) :	1.750,85
k. Drugs : specific anti-leprosy drugs : (this does not include 2.000.000 tablets DDS received free from Belgium).	24.310,58
Non specific drugs, general medicine, dressings, etc. :	58.023,33
l. Rural activities : busfares, house rent, food allowances, road equipment, etc. :	5.660,42
m. Propaganda : (pamphlets included in d — above) :	944,96
	305.946,59

Comments : adding rs. 22.000,00 for 20 lakhs of DDS tablets we have that :

the salaries :	126.161,19	account for : 38,4 % of running expenses
the transport :	65.951,15	20,1 %
the specific drugs :	46.310,58	14,1 %) 31,7 %
the non specific :	58.023,33	17,6 %)
all other expenses :	31.499,74	9,8 %
	327.946,59	

This means a global expense of less than rs. 100.000,00 per annum. The funds are neither fabulous, nor the expenses extravagant.

Can those expenses be cut ?

I do not think so : one point is to be considered, when analyzing the costs for transport we find that more than half of the expenses go for repair of cars. This can surely be cut by renewing the cars before they are completely worn-out and by creating a repairshop at the Centre with a good mechanic. (Actually all repairs have to be done at Madras — 57 miles away).

Average cost par year par patient :

This is not absolutely correct, as the number of patients in the beginning was lower in some aspects (remaining on lists) and higher in other aspects (those eliminated), etc.

This includes not only treatment (about 1/3 of cost) but also the examination of over 300.000 people, survey and case-finding :

A. — Running expenses :	31½ years	per year
24.064 all patients enlisted	rs. 13,62	rs. 4,08
15.823 patients remaining	20,72	6,21
9.442 patients treated	35,78	10,73
7.889 regular patients (+ discharged)	41,56	12,46
B. — Taking into account running + non recurring expenses :		327.946,59
		299.984,22

We must approximately double the cost par patient : 627.930,81

Comparing with other leprosy campaigns :

It was disclosed at the WHO conference Tokyo (9) that the cost is

in low endemic areas : in U.S.A. dollars :	21,48
in high endemic areas :	4,13

The whole program in Indonesia spread over 3 years = 30 dollars or 10 dollars per year per patient.

But it is dangerous to compare because there are too many factors to consider :
geographical conditions : hills or plains, roads, etc. ;
demographic conditions : dense or scattered population ;
incidence of leprosy ;
extension of control area : one big is less expensive than 4 small ones ;
local and voluntary help ;

response of population : to bring the reluctant patient under regular treatment will cost more in money, effort and time than the easy patients ;
the incidence of lepromatous : reactions, etc. ;
the physical rehabilitation ;
the polyvalent factor : combined with other campaign, yaws, TB, malaria, filaria.

§ 7. Beginning and gradual development of the control scheme :

Guided to the principle that the most urgent task in leprosy work is treatment, a number of clinics were established in a very short time, to give to every patient an immediate benefit of modern therapy and to give to the scheme in a minimum of time a maximum of extension.

All other considerations about survey, propaganda, segregation methods can be develop later, but treatment must be first.

The area was surveyed for roads, the village munsiffs and principals in villages were contacted and called on for cooperation. The patients who where eliminated later on and 72.5 % of the actual patients came spontaneously forward for treatment. The cooperation gained from most village munsiffs was more nominal than effectual, although quite a few cooperated heartily.

Everything did not go as easy as that ; I remember how we started one clinic with a discouraging number of patients : 5, 8, 15. But 4 months later the same clinic had 700 patients.

In the beginning we were rather handicapped : we did not know the language, we had no trained staff, we had to experience the way and the life of the villagers and to adapt ourselves to those conditions, as well to the summer heat and the rural conditions of the Centre and the quarters. We had one advantage : to be able to install rapidly for our confort, electricity, running water, steel furniture and refrigerator. I know by experience that if you expect a maximum efficiency of the staff, relaxation has to be organised as the workprogramme.

The fast growing expansion :

From the start, there were already a few clinics (Polambakkam, Kayapakkam, Ramapuram, Cheyyur and Madurantakam) with a few hundreds of patients mostly under hydnocarpus injections and run by a doctor working under the auspices of the Hind Kusht Nivaran Sangh.

When we took over for the first time Polambakkam clinic, with 176 patients we immediately grouped them as per villages and as per clinics ; this made it possible to open 5 new clinics the next week, one clinic per day. After 3 à 4 weeks, when the first ones were good under way we were able to open 5 more clinics : 2 clinics per day.

Midwhile we had a batch of trainees, who acted more as interpreters than otherwise, and when after 8 à 10 weeks the belgian team had learned from own experience how to run the clinics, both doctors went separately in 2 cars with separate teams which made it possible to double again the number of clinics : each team, 10 clinics per week, 2 per day = 20 clinics.

When the first batch was trained, some of the rural leprosy workers were appointed permanently in clinic areas, while the medical teams continued for a

time to visit those clinics weekly. After they had gained experience enough, this rural leprosy worker could conduct the clinic one week and the medical team visited the clinic the other week ; so this again made it possible to double work and to expand more.

§ 8. — The working of the actual scheme — 1958 :

The rural leprosy workers have by this time their experience and run their clinics for 3 weeks consecutively ; some of them are in charge of 2 clinics, in one big clinic they are 2 in number ; the clinics surrounding the Centre are conducted by mobile rural leprosy workers.

Since we have a ward for hospitalisation of acute cases and severe reactions, immediate supervision may be less.

The 4th week, the clinic is conducted by one and when possibly by 2 medical officers, on a rotation programme prefixed every month, in such a way that every patients is seen by a doctor every 4 weeks. On this occasion patients are discharged, suspects examined and new cases entered for treatment ; when needed special treatment is prescribed which is given by the rural leprosy worker in the following weeks.

Previously, due to the number of new patients and of clinics to be visited on the same day, the work had to be rushed ; now we have the necessary time to check every case and to enter them with a complete medical observation.

The clinics are located in such a way that, except one, we can reach all of them by car and at a distance so that practically no patient has to walk more than 3 miles, the whole area covering about 20 à 25 miles radius. Except where there is a dispensary, the clinics are held under a tree ; everything needed for the work is in the cars, folding tables and chairs, drugs and material for dressings, even water to wash hands... not to forget also a big rope to pull the car out of the mud or out of the rivers.

Clinics kenerally begin at 7 a.m., a very few at 6,30 a.m. Those early hours have the advantage to avoid the heat as well for the staff as for the patients, who can reach home after clinic before the big heat. Most of them have already done some urgent morning work, as the clinics go on for 2 à 3 hours ; one should expect the nearest to be the earliest ; it is to the contrary, the more the distance, the earlier the patients are present.

Returning from clinics we have to pass other clinic sites, where often special cases are awaiting with the rural leprosy worker for fresh instructions for treatment.

When a team has not turned up at 2 p.m., we presume that there might be some breakdown ; automatically another car will go to the rescue.

Clinic tours are arranged as far as possible so that both teams go in the same direction, so that when a car refuses to start in the morning the other car can do some taxying ; always we have managed one way or another, by bus, by cycle, by bullock cart, even by taxi from Madras to run the clinics at scheduled time. If we want patients to be regular, we have to be regular first of all.

§ 9. — The pivot of the leprosy control scheme : The paramedical worker :

From many sides the great importance of the paramedical workers has been emphasized recently :

Dr. Wardekar,

The International Leprosy Congress, Tokyo,

The WHO leprosy conference, Tokyo,

The State Leprosy Officers Conference Delhi, march 1959.

The role of our rural leprosy workers :

- To conduct the clinic on 3 consecutive weeks ; most of the regular patients who are expected to have no reactions receive tablets for 2 or for 4 weeks, so that those intermediate clinics are never « heavy ». The cases who need any special medical attention have a special individual treatment card with necessary specifications for treatment, this card also accompanies the patient to the hospital, if advised.
- To help running the clinic by one of the doctors and to give prescribed treatment in the following weeks, as for reactions, TB, infections, etc.
- To take care of the dressings ; from now on they will be gradually trained in a sort of chain-training for deformity-preventive and physiotherapeutic treatment.
- To look for the absentees and try to bring them to regular treatment. Special attention should be given to absentees after the sixth or seventh week of treatment because of the danger of exfoliative dermatitis.
- To check those who left for other areas, to inform other clinics, or to be eliminated. All casual cases are actually checked to avoid « loose » addresses before entering in treatment cards.
- To keep records of attendance and send a weekly postcard to the centre, and prepare for monthly statistics. All files, treatment cards, etc. are remaining in the clinics with the rural leprosy worker.
- To do the surveys, first of all contact survey of the families of all patients, later on general survey of the whole population, one village after another ; for big villages mostly they work 2 or 3 rural leprosy workers together, at some time we had a special survey team to help them.
- To keep the list of suspects where all new cases are temporarily entered or detected by surveys of casual cases ; the rural leprosy worker if he really thinks it is leprosy can start treatment, but patients are only admitted on the treatment files after examination by the doctor or kept under observation, or given some test-treatment (fungus).

The case-finding is entirely left to the rural leprosy workers, the diagnosis entirely to the doctors.

This with the rural leprosy workers living in the clinic areas, as so many semi-fixed centres, are the very important points of the control scheme.

Another particularity is the *monthly meeting of the whole staff* : records are completed, made up-to-date, corrected ; the work of everybody is checked, and

the work programme fixed for the coming month ; activities and methods are discussed, remedies sought for difficulties, requirements supplied, etc. etc. But above all these meetings maintain and develop the high spirit necessary for the work and the best understanding amongst the whole staff from high to low ; something as a true familial feeling backed periodically by some party or excursion.

§ 10. — Forms and files :

We do not keep registers, as all our lists, etc. are established per villages.

However I wish to draw the attention to a few points gained out of a long experience in mass-work.

- Every routine thing must be evident and apparent at a first glance, no useless turnover of pages and pages.
- For statistics a few columns are useful, to many are confusing, counting must be easy, accurate and quick ; 1/10 of a second lost 2-300.000 times means a loss of days and days work.
- Treatment, remarks must be clear and not only a (X) the space left for every week allows a lot of observations to be noted, as f° — Reaction — etc.

$$\begin{array}{r} 600 \ 600 \ 600 \ 600 = 600 \text{ mgr. DDS given for 4 weeks.} \\ \hline 600 \ 600 = 600 \text{ mgr. DDS given to a relative given in patients absence, etc.} \\ \hline A \quad A \end{array}$$
- Numeration is all right when there is a definite purpose for it, and when the same numeration is repeated on other cards, otherwise numbers make an inextricable confusion.
- Leprosy treatment and observation is for many years, so the forms must be permanent, this is easily done by extension sheets. If for any reason a new list is to be made, names and numeration must always follow in the same order as previously to facilitate checking and rechecking.
- Reduce forms and statistics to a minimum : the work expected is medical work and not administrative work.

§ 11. — A short description of the Centre :

The Centre at Polambakkam consists of the quarters of the staff, halls for out-patients clinic, laboratory, operation theatre, hospital ward with sanitary and kitchen equipment.

All building are as far as possible of the very simple rural type.

As the climate is very mild here the hospital ward has simple « tattis » instead of walls ; everything is open, no hedges, no fences, so that patients get complete freedom to move in and out.

The ward can accomodate 30 beds, or more if necessary, it is meant only for leprosy patients suffering from reactions or any disease calling for hospitalisation. Once relieved of their acute conditions, patients return to their villages and resume ambulatory treatment. They are requested to contribute something if they can for their food (12 annas or at least some rice). When left alone reactions may last for many days; in hospital relief is more rapide, and very soon they can go back to their own work.

Before admission patients are requested to get in touch with the rural leprosy worker in charge of their clinic to get their special card or full details of their treatment, so that no time is lost.

Physiotherapy has been started, treatment of ulcers; there is a small X-ray unit for hands and feet.

§ 12. — Advantages, disadvantages, difficulties, failures :

Advantages :

- One of us had a long experience in leprosy mass treatment.
- No red tape, nor administrative delay, we can take advantage of every opportunity immediately; no waiting for buildings as our principle is to work first and make bricks later.
- Immediate disponibilities for finance and materials.
- Immediate moral and material help locally.
- Population is very kind, if not always directly very helpful, at least not reluctant at all; and as for the patients we found them from the beginning tremendously leprosy-conscious, I should say, waiting for treatment.

Disadvantages :

- The language we did not know.
- We had to begin with untrained staff and to train them all was a heavy work to start with.
- Only from januari 1958 we were able to be helped by 2 indian doctors.
- The explosive and rapide extension of the scheme was not so intended, but was due to the « rush » of patients in search and in need of treatment.

Difficulties :

- Some of the rural leprosy workers are too young, have not reached maturity to secure for themselves enough authority and prestige for propaganda, education, advice, to claim for regular treatment, to bring in action some measures as relative segregation, to impose upon people when surveying and to call for and organize local cooperation.

Can the scheme be extended ? : I do not think so, the extension has reached the maximum physical possibilities; unless with the help of more medical officers one or 2 subsidiary centres could be opened.

Can the scheme be improved ? Surely and we are aware that a lot is to be improved:

- Better regularity.
- Reexamination of the thousands of suspects and absentees.
- Prepare a long educative campaign as well in the public as in the patients.
- Secure local effective cooperation from inside the villages.

- Secure better cooperation with similar agencies, public health activities, etc.
 - The organisation of polyvalent medical teams, as in Africa, not only for leprosy but also other diseases.
- Improvement is only possible by increasing the number of medical officers... and this is the real difficulty.

Failures :

We will comment those 2 points in further chapters :

- Failure to have a fairly high regularity in attendance.
- Failure to interest actively most of the medical officers of the area to take an active part in the leprosy control.

NON CONTROL AREA :

Nerkunam	MT	14	33	8	161	202
Markanam	TT	27	77	38	190	305
Chunampet	MT	26	63	34	324	421
UTTERAMERUR	KT	29	75	35	183	293
Kaliyampoondi	KT	28	44	21	182	247
		124	292	136	1040	1468

OUT OF AREA PATIENTS :

89	235	92	634	961
MT = Madurantakab Taluk ;	TT = Tindivanam Taluk ;			
KT = Kancheepuram Taluk ;	CT = Chingleput Taluk ;			
WT = Wandiwash Taluk.				

The incidence is calculated in % of population.

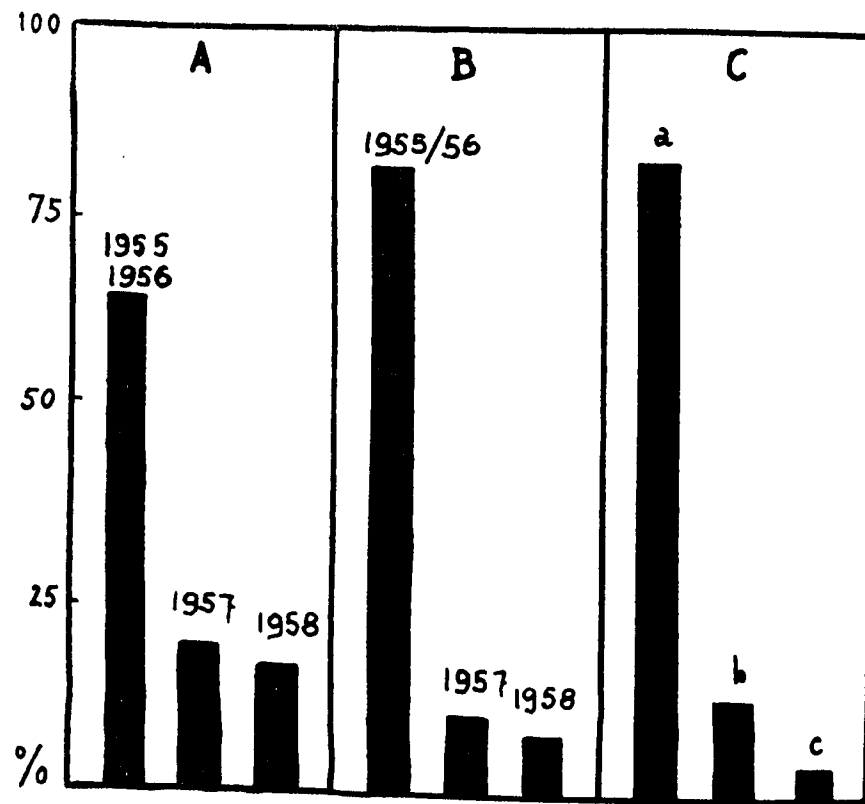


Fig. 3.

- A. Distribution per year of all diagnosed cases.
 B. Distribution per year of lepromatous cases.
 C. Diagnosis of new cases :
 a) casually ; b) general survey, c) contact survey.

§ 2. — Patients are leprosy-conscious :

A gigantic effort was made for early and urgent treatment ; the response of the patients was wonderful.

63,82 % of them started treatment in 1955 (6 months) and 1956 : 9.391	
19,49 %	1957 2.929
16,49 %	1958 2.507
	15.027

For the lepromatous patients, their response was much better ; half of them were under treatment in the first 6 months.

1955	978	50,05 %) = 81,01 %
1956	605	30,96 %)
1957	206	10,54 %
1958	165	8,44 %

During these 3½ years, all cases were found through :

contact survey :	684	4,5 %
general survey :	1937	13,8 %
came casually :	12406	82,5 %

This amply justifies our policy of « treatment first » followed by contact and general surveys for case-finding.

§ 3. — Gross incidence of leprosy :

- A. — In the population examined : 309.789.
 a) patients remaining for treatment : 13.394 = 4,32 %
 b) all patients, including deaths, residual cases, discharged, etc. : 15.017 = 4,84 %
 B. — In total population (examined + not examined) : 393.425.
 a) patients remaining for treatment : 13.394 = 3,40 %
 b) all patients : 15.017 = 3,81 %
 C. — In population according to 1951 - Census : 388.935 giving a similar incidence.
 D. — It is not yet possible to give the incidences according to age and sex ; this probably will be possible next year.
 According to our *scheme surveys* (11) the composition of the population is as follows :

Males :	27.480 = 49,6 %	
boys :	10.402 = 18,8 %	
men :	17.078 = 30,9 %	
Females :	27.674 = 50,4 %	
girls :	10.069 = 18,2 %	
women :	17.605 = 31,9 %	
Adults :	34.683 = 62,9 %	
Children :	20.471 = 37,1 %	

According to other incomplete figures, we know that :

65 % (187.117) of the population are living in the villages
 35 % (100.375) are living in the cherries.

§ 4. — Influences of surrounding :

A. — *Overcrowding* : incidence related to the average of people living in one house — according to census 1951.

a) Calculated for 6 clinics :

	Population	Houses	House-rate	Incidence
average :	64.723	11.863	5,4	4,1 %
crowded (more than 1 per house) :	6.153	873	7,0	4,0 %
low (less than 4 p.h.) :	647	225	2,3	6,1 %

b) Calculated on extremes only for 25 clinics :

crowded :	28.973	4.524	6,4	4,4 %
low :	921	288	3,1	4,0 %

Comment : no relation can be seen for the incidence/overcrowding ; in overcrowded as well as in low house-rate areas very high or very low incidences are found :

In some overcrowded villages : incidences of 0,8 — 1,4 — 2,5 — 3,9 — 4,4 — 5,4 — 6,0 — 7,6 — 9,0 %.

In some low house-rate villages : incidences of 0,0 — 2,3 — 5,8 — 7,9 % and as high as 10,8 %.

B. — LITERACY : (only for male population)

a) Calculated for 6 clinics :

	Males	Literates	%	Incidence of leprosy	Regularity in treatment
average	32.254	7.057	21,8	4,2 %	
high (+1/3)	3.903	1.813	46,4	4,1 %	60 %
fair (1/)	10.043	2.650	26,3	4,2 %	45 %
low (15 %)	13.590	2.214	16,2	3,9 %	49 %
very low	6.850	402	5,8	4,1 %	49 %

b) Calculated in 32 clinics for very low literacy only :

	14.982	1.168	7,7	3,0 %	37 %
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Comments : no noticeable differences in gross incidences can be found between villages with high or low literacy — if any it would be rather in favour of the lower (!).

In all groups we find high as well as low incidences : so for instance for the very low-literacy group : incidences of : 1,2 — 2,9 — 3,2 — 4,0 — 4,4 — 5,4 — 6,6 and 7,7 %.

But there is manifestly a better attendance and more regular treatment in the higher literacy group.

C. — *Weaverscommunities* :

Is there any relationship between high leprosy incidence and weaverscommunities ? This opinion has been supported by several leprologists.

No proof can be drawn from our figures, this high leprosy incidence is not consistent.

Our figures below are related only to the villages as a whole where the census 1951 gives a % of weavers superior to 3 % of the population, and not related to the weavers families themselves ; such a study will be possible later on.

	Population	Weavers	%	Leprosy cases	Incidence	Average incidence in area
Madhur	2737	104	3,7	30	1,1	5,5
Vembakkam	249	11	4,4	5	2,0	2,3
Modhayur	263	12	4,5	2	0,7	2,3
Kandracherry	887	41	4,6	37	4,1	5,1
Valagam	737	39	5,2	24	3,2	2,3
Padiri	1104	60	5,4	55	4,9	3,0
Agaramduli	708	40	5,6	33	4,6	3,4
Polambakkam	1321	74	5,6	95	7,1	4,5
Koochikoolam	568	58	10,2	33	5,8	7,2
Kodungalore	3460	385	11,1	264	7,6	6,3
Kayapakam	1470	165	11,2	88	5,9	6,0

§ 5. — Age and sex : as for the total of all patients : 13.336 patients.

Children :	3.914 = 29,3 %	
boys :		2.402 = 18,0 %
girls :		1.512 = 11,3 %
Adults :	9.422 = 70,7 %	
male :		6.320 = 47,3 %
female :		3.102 = 23,2 %
		13.336

Males :	8.722 = 66,2 %
Females :	4.614 = 33,8 %
Boys :	2.402 = 61,3 %
Girls :	1.512 = 38,6 %
Male adults :	6.320 = 67,0 %
Fem. adults :	3.102 = 33,0 %

Boys :	2.402 = 27,5 %	Girls :	1.512 = 32,7 %
Male adults :	6.320 = 72,5 %	Female adults :	3.102 = 67,3 %

§ 6. — Types of leprosy :

Lepromatous :	1.941 = 14,55 %
Borderline/indeterminate :	1.036 = 7,76 %
Non-lepromatous :	10.359 = 77,67 %
	13.336

a) *The lepromatous rate* :

It is generally accepted in India that the lepromatous rate is fairly high, at least 20 % and many workers find 23, 25 and even 30 %.

Ours is rather low, 14,55 %, and needs some comment. When making in october 1957 our lepromatous rate for the report at the Golakhpur Conference, this was 17,2 % and now this rate has even come down. Why ?

1. — When starting mass treatment, the first cases coming forth spontaneously are those with trophic lesions and the lepromatous. (50 % of our lepromatous cases were enlisted in the first 6 months).

2. — A very big number of the lepromatous enlisted at that time, disappeared ; after repeated enquiries in the villages they could not be traced any more (out of area, beggars, etc.).

3. — The death rate in lepromatous is about three times higher (8,94 % after $3\frac{1}{2}$ years) than in non-lepromatous (3,13 %); so 192 lepromatous died against 453 non-lepromatous.

4. — After mass treatment has been established for some time, most of the cases found through surveys are non-lepromatous : early cases, tuberculoid ; many of them are children. This we can see also from the increasing children rate, which is now 29,3 % of all cases as against 26,3 % at the end of 1957.

5. — During this period of intensive treatment and survey, very few non-infective cases — if any — turn over to lepromatous type.

We can expect this lepromatous rate of about 14/15 % to be relatively constant for a few years, while the improvement and completion of surveys will bring forward a lot of new cases counterbalancing the number of discharged cases ; later on the lepromatous rate will raise again when most of the simple tuberculoid cases will be discharged. Whatever might have been the scepticism in gone days, one day we must have the courage to declare that they « have no more leprosy ».

b) Incidence of types in population :

The following figures are for the general population, examined or not examined in surveys. It may be assumed that about 80 to 85 % of all cases have been detected so far.

Total population :	393.425
Lepromatous :	1.941 = 0,49 %
Borderline/indeterminate :	1.036 = 0,26 %
Non-lepromatous :	10.359 = 2,63 %

c) Types according to age and sex :

1. — In lepromatous only :

	Males		Females	
	cases	%	cases	%
0 to 5 years old :	2	0,12	2	0,56
6 10	24	1,51	13	3,65
11 15	82	5,11	28	7,8
16 20	109	6,9	48	13,4
21 30	429	27,1	83	23,3
31 40	499	30,8	97	27,2
41 50	302	19,0	62	17,4
over 50	138	9,7	23	6,4
	1585		356	

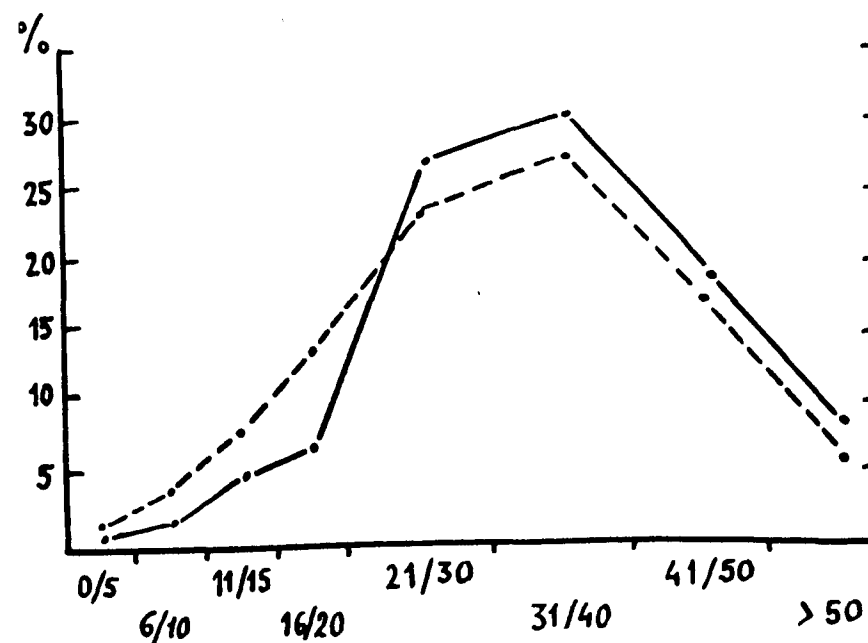


Fig. 4.

Distribution of cases following age and sex (— : male ; --- female)

2. — In all leprosy cases :

	Lepromatous		Borderline/indeterminate		Non-lepromatous	
Total males :	1585	81,66 %	686	66,21 %	6451	62,26 %
Total females :	356	18,34 %	350	33,79 %	3908	37,73 %
	1941		1036		10359	
Boys :	108	71,52 %	151	58,3 %	2143	61,1 %
Girls :	43	28,48 %	108	41,7 %	1361	38,9 %
	151		259		3504	
Boys :	108	6,86 %	151	22,01 %	2143	33,2 %
Male adults :	1477	93,14 %	535	78,99 %	4308	66,8 %
	1585		686		6451	
Girls :	43	12,08 %	108	30,85 %	1361	34,8 %
Female adults :	313	87,92 %	242	69,15 %	2547	65,2 %
	356		350		3908	
Children :	151	7,77 %	259	25,— %	3504	33,82 %
Adults :	1790	92,22 %	777	75,— %	7855	66,18 %
	1941		1036		10359	

Male adults :	1477	82,51 %	535	70,11 %	4308	62,87 %
Female adults :	313	17,49 %	242	29,86 %	2517	37,13 %
	1790		777		6855	

Comments :

1) Whereas the rate Females/Males in all patients is 33,8/66,2 we see that in lepromatous type this rate is much lower 18,34/81,66 and this rate is increasing gradually with the resistance of the type :

lepromatous :	18,34/81,66
borderline/indeterminate :	33,79/66,21
non-lepromatous :	37,74/62,26

We may definitely conclude that in this area, females are less frequently affected with leprosy than males ; and once they are affected their leprosy is of a more benign and more resistant type.

Many theories have been expressed to explain this lower female leprosy incidence ; it is not the place to discuss them.

In India it is possible that for some particular reasons females are more reluctant for examination and subsequently for treatment than males. Although we cannot absolutely exclude this factor, it has been reduced to a minimum as there are 6 ladies in the staff, who have examined many of the suspects and assisted often in the surveys in muslim communities.

2) When I compare with Central Africa, according to my own experience, I find this female incidence here very low. We cannot imagine difference in physiological conditions accounting for a higher resistance. All I can think off, is a difference in mechanical protection against contamination and contact with persons, with infected material, as mats, beds, poles, but more especially the soil, as a potential reservoir of germs. Indian females are always covered, even at night, while males are often or mostly unprotected by clothes ; in other countries both sexes are either covered or naked (as in Africa).

An exception has to be made for small children, where boys and girls go mostly uncovered ; but there also we see the pattern changes : the rate of girls to females adults is much higher than the rate of boys to male adults, due either to a larger exposure to contamination or to a higher vulnerability. This is true in all types of leprosy.

3) Another point is that, when compared to adults, girls are much more affected than boys ; this is most striking in lepromatous type :

	<i>Girls/females adults</i>		<i>Boys/male adults</i>	
in lepromatous type :	12,08	87,90	6,86	93,14
in borderline/indeterminate :	30,85	69,15	22,06	78,99
in non-lepromatous :	34,8	65,2	33,2	66,8

4) The high rate of children (29,3 % of patients) is due to the intensive contact and general surveys and more especially to the increasing leprosy consciousness of the public, who brings the children at a very early stage of the disease.

§ 7. — Age and sex in leprosy in relation to age and sex in population :

We cannot give the figures for the whole area as for the composition of the population. The following figures are calculated on the assumption that the population has the same composition as that of the scheme areas : (see page 23).

	<i>All patients/incidence</i>		<i>Lepromatous/incidence</i>	
Boys :	2402	3,24 %	108	0,14 %
Girls :	1512	2,11 %	43	0,06 %
Male adults :	6320	5,19 %	1477	1,21 %
Female adults :	3102	2,47 %	313	0,25 %

§ 8. — Eliminations and corrections : (see global statistics, page 20).

a) *Details of corrections :*

No leprosy : 493 cases = 2,7 % of all enlisted cases. In the beginning, with a newly trained staff, and the rush of new patients, there has been some errors in diagnosis ; they had to be crossed after reexamination. As for the last 2 years all new cases are carefully examined by doctors, this cannot happen any more.

Double entry : 202 cases = 1,1 % ; they came twice as new cases.

Transferred : 1027 cases = 5,7 % from one clinic to another or from one village to another, because of incorrect addresses.

b) *Details of eliminations in control area :* (40 clinics)

Out of 16159 patients in treatment :

Remaining in treatment by the end of 1958 :	13394
Died :	453
Discharged :	561
Left the control area :	609
Could not be traced :	1142
	16159

— Died : 453 cases = 3,14 % (in 3½ years).

This death rate is probably not higher than the general mortality for the rest of the population. The mortality rate amongst the lepromatous cases is more than double : 192 out of 2146 = 8,94 %.

Death in leprosy occurs very rarely because of leprosy, but is mostly due to other intercurrent diseases. Because the information received is not reliable, no attempt has been made to keep records about the causes of death.

In lepromatous cases, the mortality rate is definitely higher in irregular patients.

— Discharged : 561 cases = 3,7 % ; this will be discussed further on in the results of treatment.

— Left permanently the control area : 609 cases = 3,7 % half of them (334 cases) went to live in Madras.

— Could not be traced : 1142 cases = 7 % : after repeated enquiries in the villages they remain « unknown ». These are probably patients from outside the control area ; some took a temporary residence in the area, some were simply visitors, giving as residence the village of their relatives, some were beggars or gypsies. Those cases mean a lot of trouble in administrative and fieldwork.

§ 9. — Trophic lesions :

A careful study has been done for eight clinics having a total of 2479

patients : 2020 had no trophic lesions

459 had trophic lesions = 18,3 %.

Many of these 459 patients show several trophic lesions in the same patient.

<i>Hands</i> : irreversible deformities :	both hands :	71	
	right hand :	6	
	left hand :	10	
		87	
reducible lesions :	both hands :	111	
	right hand :	77	
	left hand :	92	
		280	

Note that 83 = 44,9 % of hand lesions are on the right hand and 102 = 55,1 % on the left hand.

All hand deformities count for 10,8 % of patients.

<i>Feet</i> :	mutilations :	both feet :	25	} = 2,3 % of patients
		one foot :	32	
	ulcers :	both feet :	50	} = 9,3 % of patients
		one foot :	181	
	dropfeet :	both feet :	3	} = 2,5 % of patients
		one foot :	59	
<i>Eyes</i> :	orbicular paralysis :	both eyes :	3	} = 1,0 %
		one eye :	12	
		iritis :	8	
		blindness :	3	

Inesthetic lesions : deformity of the nose : 30 = 1,2 %.

gynecomastia or hypertrophy of nipples :

bilateral :	37	} = 48 = 1,9 %
unilateral right :	2	
unilateral left :	9	

In another study, on 488 lepromatous patients only : we noted :

iritis : 9 = 1,8 %
blindness : 3 = 0,6 %
nose-deform. : 47 = 9,6 %

gynecomastia : 58 = 11,8 % 41 bilateral
17 unilateral 6 right
11 left

hypertrophy of nipples : 29 = 5,9 % 26 bilateral
3 unilateral left.

I want to draw attention to the fact that out of 87 breast lesions in lepromatous, 23 % are unilateral lesions, and out of them 70 % are on the left side.

Comments : very little is known about the incidence of trophic lesions except in leprosarria, where usually most advanced cases are residing ; our above figures are related to the situation of leprosy as it is in the villages and in the general population in all types of leprosy as well early cases as more advanced cases :

Those figures show that in areas with a relative high incidence of leprosy, there is a lot of :

- physical suffering : 18,3 % of all leprosy patients are physically handicapped ; at a rate of 3,4 % in the population there are 622 handicapped by leprosy in one lakh population. We must add to that the frequent reactions, neuritis, fever, etc.
- moral suffering of so many kinds ; one of the the inesthetic lesions counting for 3,1 % or 105 out of one lakh population.
- loss of production : except the very badly mutilated (on both hands or feet) most of the handicapped continue working as well as they can. But it is a fact that the trophic ulcers are causing much more disabilities to work ; they count for 9,3 % or 316 in one lakh population. It would be of interest to study if there is any other disease or accident causing as much disability.
- medical, orthopedic, physiotherapeutic or surgical work needed : if we assume that there is the same rate of trophic lesions in the 15.823 patients as in the 2.479 patients under study, it will show that we are facing :

1793 ulcers for dressing, scraping, removing of bones, etc.
1008 hands for physiotherapy only (irreducible, hopeless)
2595 hands for reconstructive surgery
410 dropfeet
165 eyelids to correct
191 noses to reshape
466 gynecomastia to operate

This represents 3727 surgical cases in the area covered or 799 surgical cases per one lakh population.

§ 10. — Regularity / Irregularity in attendance :

It was agreed by the WHO-Conference Tokyo ⁽¹²⁾ « that a patient conforming to at least 75 % of the recommended number of attendances should be considered to be attending regularly ».

Unfortunately our figures were already made up for a large part on another standard which now seems to be :

too strict for what we call « strict regular » with an absolute regularity (above 90 %)

too lax for what we call « regular » with a regularity above 50 % ;

« irregulars » = below 50 % regularity,

« absentees » = who practically have no treatment at all.

a) *Overall attendance for all patients* : (13.394 patients) :

strict regular :	4237	31,6 %)	45,0 %)
regular :	1803	13,4 %)	57,7 %)
irregular :	1701	12,7 %)	
absentees :	5653	42,2 %	

b) *Attendance of lepromatous :*

strict regular :	1072	55,3 %)	72,1 %
regular :	326	16,8 %)	
irregular :	194	10,0 %	
absentees :	344	17,7 %	

c) *Attendance in relation to duration of treatment :*

	1955/56/57 patients group		1958 patients group	
strict regular :	3305	30,2 %)	44,1 %	555 26,4 %)
regular :	1518	13,9 %)		285 13,5 %)
irregular :	1383	12,6 %		319 15,1 %
absentees :	4715	43,1 %		938 44,7 %

d) *Attendance in relation to age and sex :*

	strict regular + regular		irregular + absentees
male adults :	53,2 %		46,8 %
female adults :	39,4 %		60,6 %
children :	38,5 %		61,5 %

e) *Comments :* Compared with the non-lepromatous, the attendance of lepromatous patients is rather good.

The regularity of women and children is very low.

At the end of 1957 (Gorakhpur report) the regularity accounted for 54,3 % ; it has dropped now to 45,0 % ; the reason for that must be sought in the long duration of treatment, the patients deciding for their own to stop treatment when symptoms have disappeared before reaching the standard period of normal discharge, and as much in the new cases (1957-1958), found by survey, being not interested in the treatment whereas the older group came spontaneously.

The medical aspect of regularity/irregularity :

1. — The lepromatous patients are most regular : (72,1 %), not because they are conscious of their infectivity, but because there is a palpable, unmistakable often rapid clinical improvement (I tell them to look in a mirror).

Irregularity in lepromatous is mostly due to some real physical difficulties to attend the clinic (old age, trophic lesions), but above all they want to stop the treatment because of reactions, saying — and believing — that the drug (DDS) is not suitable for them. The solution for many of them is a temporary admission in an institute.

The most beautiful dam built only to the 3/4 of the river cannot stop the water.

2. — Although most of them have seen their conditions « stabilized », patients with ulcers and deformities do not see any more improvement by DDS-chemo therapy ; and in fact one cannot expect much more improvement. Ulcers and deformities need physiotherapeutic and surgical treatment. Since we have started (begin 1959) systematically in all our clinics, massages and exercises a lot of

patients have returned for treatment ; they are interested in learning how to protect themselves and how to prevent worsening.

Explaining that the wiring is cut, and there are no spare parts for the body, the patients accept easily the bothering fact of persisting anesthesia.

The solution is obvious, but the realisation is a tremendously extensive problem (see page 31).

3. — Many patients do not realize the necessity to continue treatment after the symptoms (patches) have disappeared.

a) — The opinion of the WHO-Conference Tokyo (13) « With reference to indeterminate and tuberculoid cases, including maculo-anesthetic and neuritic, it is recommended that treatment should not cease unless the patient had had two years treatment, or all signs of activity have ceased for 18 months, whichever is longer ».

« In lepromatous and borderline (dimorphous) cases, it is recommended that treatment should continue for at least two years after all signs of activity have ceased ».

The criteria of arrest are also given.

b) — Our standard of discharge, and criteria of arrest were surely too high (3 years treatment — lesions without any change in plus or in minus since at least one year or more).

c) — In fact very early symptoms, of short duration, especially in children disappear very rapidly ; even after a short or irregular treatment. We know by the studies of the Bankura Centre and of Dr. Ramanujan (Saidapet) that early symptoms in children disappear spontaneously, without treatment in about 50 % of the cases.

The question arises : must we really be worried about irregularity in attendance of early cases when the symptoms disappear ?

There is as far no criterium to assess definite cure or not, but we think that as long as the patients remain under periodic observation (survey, contact survey), we have not to worry about their regularity or the required standard treatment. It would not be the same if the patients were completely lost out of sight.

Nevertheless this triade : early symptoms/early treatment/early disappearing of symptoms needs more study and observation. Maybe it will be possible to throw more light on this problem in a next year.

d) — Reexamination of old absentees (557 cases), absent for more than one year, most of them more than two years, so after very short treatment :

1. probable error : no leprosy :	10	1,8 %
2. no need for more treatment :		
symptoms disappeared :	159	28,5 %)
residual/arrested, no neural :	122	21,9 %)
kept under observation :	6	1,1 %)
	297	

3. for re-treatment :

no or unsatisfactory improvement, active lesions, neutral :	202	36,3 %
new patches :	8)	
in dimorphous reaction :	2)	
became SM + (1,56 % of total) :	9)	10,4 %
definitely worse :	40)	
had to be hospitalised at once :	7)	
became T.B. :	1)	
	269 =	46,7 %

This is only a preliminary report ; a more elaborate one will be prepared for next year taking into account : the types, age and sex, and the duration of treatment.

e) — Personal contact is the main solution for regularity in attendance. This is not only true for the social aspect of surveys, etc. by the paramedical workers but this is also true for the doctors on direct medical aspect and the simple human touch in the clinics. (We, ourselves, are somewhat handicapped by the language).

1. The physiotherapeutic unit as substantial part of the mobile treatment unit.
2. More and better care for secondary ailments and complaints, related or not with leprosy (scabies, pruritis, burning sensation).
3. Show the patients their improvement, show it to others, to visitors ; patients are proud of their improvement as well as we do. Show also the difference, the absence of improvement, the worsening of symptoms in absentees, irregulars.
In new cases, basentees, have them feel with their own fingers the thickened nerves and explain that the wiring is affected. Tell lepromatous patient in advance about the probability of reactions.
Always examine patients, not only by sight, at a distance, but by palpation of the nerves, etc.
4. Create some « familial » atmosphere in the clinics ; there are so many ways : after delivery, enquire about the baby, about the mother ; after marriage ; didn't you bring any sweet for me ? And all those things...

The causes of irregularity and absenteeism :

This is an attempt to find out. The following list is an analysis of the notes of the Rural Leprosy Workers about 7362 absentees and irregulars. All the figures cannot be taken at their « face-value » (laziness, carelessness are vague concepts) but surely there is something in those figures. In fact we do not know much about the real social, economical, educative and psychological factors ; this needs the cooperation of a specialized team for social investigation.

— No reason given :	2567	34,8 %	% of the reasons given
— Economical and social :	2051	27,8 %	42,7 %
work :	1021	coolies :	274
fieldwork :	413	poor :	7
housework :	17	beggars :	6
shepherds :	20	business :	15
landlord refuses :			10
children not accompanied :	268		
— Indifference :	1115	15,1 %	23,2 %
indifference :	12		
not interested :	105		
carelessness :	82		
laziness :	622		
refuses treatment :	294		
— Left temporarily :	607	8,2 %	12,6 %
— Physical disabilities :	374	5,2 %	7,8 %
sick :	77		
cannot walk :	159		
too old :	119		
blind :	19		
— Objection to the type of treatment :	265	3,6 %	5,5 %
indigenous treatment :	11		
no faith in treatment :	60		
not liking :	66		
not suitable :	121		
want injections :	7		
— Physiological reasons :	94	1,2 %	1,9 %
pregnancy :	40		
delivery :	54		
— Schoolgoing children :	84	1,1 %	1,7 %
— Patches disappeared :	79	1,0 %	1,7 %
— Private treatment :	67	0,9 %	1,4 %
— Psychological reasons :	50	0,6 %	1,0 %
maturity (puberty) :	19		
shame, shyness :	31		
— Divers :	12	0,1 %	0,2 %

Comments :

A) — No reason at all is the main reason for irregularity, that means : indifference, carelessness, etc.

They have all been visited by the rural leprosy workers, repeatedly, specially, during surveys, many of them also by the doctors, as far that they feel tired and bored by it on both sides.

You tell them :

but that is leprosy... they agree
but you see what becomes of it, later... they know
but look at the others... they see
but to you like to the mutilated... they do not care
(it is not rare to have this answer : then I beg).

Very few disagree that their symptoms are leprosy. They know that in many instances everything will cure spontaneously, many of them have their patches disappeared. Why bother over it, why loose wages, workhours for nothing ? They will take the risk, « wait and see ».

One cannot say that it is ignorance, lack of education, lack of propaganda... it is rather fatalism, indifference. We find this attitude of mind reflected in 50 % of the notes : no reason given :

2567	34,8 %
indifference, etc. :	1115 15,1 %
3683	= 50,0 %

B) — Economical factors : this is a clear and clean, honorable, easy excuse. It may be true in a few cases, it may be true in some seasons, harvest time, etc. It is difficult to believe it for the whole year around.

Surely for a lot of people it must be hard to loose one day of wages, one workday ; some landowners pay them the treatment days, others don't.

In one clinic we made an enquiry to find out any difference in attendance between coolies and people working for their own : there was no difference.

Well-to-do people are as irregular as poor people, and we can say that poor and rich, beggars and businessmen meet on the same level for irregularity in leprosy treatment. It is not possible that they cannot spare « one day » for examination or reexamination, or half a day every month for four-weekly treatment.

C) — Temporary absence is a great cause of irregularity : marriages, festivals, death ceremonies, seasonal or temporary work somewhere, often in Madras ; all this accounts for absences for a few weeks to several months. But what is more harmful, this absence has broken the routine of the regular attendance and it needs a new effort to start again, as well from the point of view of the patient as from the Rural Leprosy Worker in charge.

D) — Physical disabilities : this is a very serious reason ; only two solutions are possible : home treatment or institutional treatment.

Old non-infective patients can be left « quiet ».

E) — Symptoms (patches) have disappeared or are residual, arrested patches.

Although this does not reflect so much out of the notes, we know (see above page 33) that about half of the old absentee-cases do not show any more symptoms or that the patches have become residual.

Why should they come for treatment ? No trouble, nothing to see. And from the medical point of view, nothing is sure also, if more treatment is needed or not.

We feel that we safely can make a compromise.

Since then the doctors have been able to reexamine nearly 1500 old absentees.

The trouble in early leprosy is that there is no trouble at all which would stimulate patients for treatment and for regular treatment.

Attempts made to solve the problem of irregularity :

— *With negative results :*

a) — Distance : splitting a clinic in smaller ones, nearer to the patients villages, for their convenience did not at all improve the attendance, rather to the contrary.

It is our experience that those living in the clinic-village are the most irregular, and those walking the longest way the most regular.

Maybe there is a psychological stimulus in the effort.

b) — Hours and days : every change of an established clinic is followed by a drop in attendance during several months, even if it is on their own request (e.g. changing the clinic hour from 9 or 10 a.m. to 7 a.m. because early hours are more convenient for the patients).

c) — Propaganda and education of cause are recommended and should give good results ; we have seen that communities with a high literacy have a better attendance (page 24). A filmshow conducted by Prof. T. N. Jagadisan gave a good result in one clinic, and had no effect in 3 other clinics.

d) — Cooperation in the village itself : we tried to raise interest and cooperation of the prominent people of the village : munsiffs, landlords, teachers, midwives, etc. The village was worked in and out for a long time, personal contact, meetings, sort of a committee, they would take the responsibility of their own street, etc.... Formally things were all right ; practically the attendance was worse than before.

— *With some positive results :*

Rather by means of a lot of small measures to improve and foster :

a) — personal contact as mentioned above ;

b) — more quick discharge after disappearing of symptoms, the patients remaining under survey ;

c) — some laxity in the beginning of treatment, where we prescribe a weekly regular treatment during the first 3 months for the danger of dermatitis ; with children or relatives of already regular patients we can be sure that they will call for help if dermatitis happens ;

d) — in non-lepromatous regulars when asked for (work, walk, etc.) to give tablets for 2 or 3 months ;

e) — allow patients to attend an other clinic than their own. Many are ashamed. This is the case for prominent people of the village, or for those having some official position as teachers, police constables, etc.

CONCLUSIONS :

One may have some feeling of disappointment and pessimism considering this problem of irregularity in attendance ; it is really an headache, costing money and effort.

But there is also an optimistic and realistic approach, and it will be the ultimate results which counts :

- a) — even with an irregular treatment, most of the patients improve definitely ;
- b) — the lepromatous patients, whose treatment is of the utmost importance for the control of the disease and its spreading have a fairly good attendance ;
- c) — the area being surveyed regularly and periodically, the irregular attendance, will affect very little the endresult of mass-treatment ; it can only prolong the control period.

§ 11. — The leprosy surveys :

Contrarily to the usual procedure we did not do preliminary survey nor what is known as case-finding survey ; we considered them as a loss of time or at least as an unnecessary delay to treatment. In fact 82,5 % of all patients came forward spontaneously (see page 23), moved by their own interest.

Surveys started begin 1957 and are still under completion ; it will take a couple of years more ; it is too early to give complete figures and a detailed analytical report.

Our surveys are of 3 types :

- 1. — contact survey : Examination of all the members of the family or of the house (contact-house) of all the patients, whether lepromatous or non-lepromatous, even if the patient died. Contact survey is performed at least once a year ;
- 2. — general survey : Examination of the rest of the population ; this will be performed every 3, 4 or 5 years as possible, priority to be given to villages with a higher incidence ;
- 3. — scheme survey : In each clinic 2 or 3 villages are chosen, with a population (together) of about 1500 à 2000, as far as possible accessible by car.

In those villages more intensive and extensive survey is to be done preparing the way for epidemiological investigations. Not much has been done yet in that line, due to pressure of other work.

Our technic of surveys :

Who is doing surveys ? the rural leprosy workers (paramedical) alone in small villages or 2 together and in big villages very often a special team.

Preparation : the Village Munsiff and important people are approached explaining them what, why and how of the survey, to know particulars of the village, etc. Figures have been copied previously from the 1951-census.

A schematic map is drawn for the general outlay of village and cherry, streets

and the location of the houses numbered ; the same numbers will appear on the survey files per house.

Examination is done house per house, each house having a separate sheet with all the members, the head of the family in top, in separate columns for male adults, female adults, boys and girls, in such an order that the family units (husband, wife, children) are separated.

The notes about examination are on one line with the name. Several columns for consecutive surveys (6 years) ; with additional sheets these survey files become permanent. Standard symbols are used for the notes.

Monthly reports are established about the surveys, and once the survey of a village terminated, all the data are written on a special form per clinic.

The suspects :

All suspects found by survey or otherwise are put down on a special « suspect-card » ; if the rural leprosy worker is sure of his diagnosis he can start treatment, but no case is admitted on the treatment files unless examined and confirmed by the doctor ; the doctor himself enters the names and clinical notes on the treatment cards. (This was unfortunately not so in the first months).

Our suspects are divided into 3 categories :

- 1. — contact suspects found through contact survey ;
- 2. — general suspects found through general survey ;
- 3. — casual suspects : these generally come straight to the clinic for admission ; treatment is started after examination by a doctor, but no casual case is entered any more before checking in the village and the survey sheets. Outsiders will be entered on special cards for treatment if advisable.

Difficulties :

Apart from a very few insignificant incidents, no difficulties are encountered and there is rather some cooperation from official instances. A few people evidently will object to be examined, and there is also the complicated problem of incomplete examination of females.

The real difficulties are of a different nature :

- 1. — An examination of 70 % of the population is rather easy, but to reach an efficiency of 90 or 95 % is extremely difficult, because people are not in the village, in the fields, etc. It needs visits and re-visits many, many times.
- 2. — To bring the suspects to the clinics for examination by the doctors is another great difficulty. At the end of 1958 4929 suspects had not been examined by doctors.

We tried to turn the difficulty, the doctor going to the villages with a fairly high number of suspects ; even then only half of them or 60 % could be examined.

The only solution is a larger medical team ; there are 700 villages to visit repeatedly ; one doctor to tour every clinic area successively for 2 à 3 weeks.

A. — *Contact surveys :*

93,7 % of all patients have been surveyed for contact survey.

Population : examined : 32.878 = 73,7 %
not examined : 8.323

44,555

Suspects : 2919 suspects or a rate of 8,8 % (for examined people)
6,5 % (on total population).

N.B. — In this figure are included the casual cases who later on showed
belong to contact houses.

Examination of suspects :

Examined : active leprosy : 842 = 61,05 %
residual/arrested : 40 = 2,9 %
under observation : 112 = 8,12 %
no leprosy : 385 = 27,9 %

suspects examined : 1379 or 48,5 % of suspects examin-

Not examined : died or left : 36
to be examined : 1428

1564 or 51,5 % of suspects examin-

Contact-houses :

7264 houses with 1 patient = 7264 patients = 59,2 %
1619 houses with 2 patients = 3238 patients = 26,3 %
388 houses with 3 patients = 1164 patients = 9,5 %) 14,5 % cases
95 houses with 4 patients = 380 patients = 3,1 %) houses with
24 houses with 5 patients = 120 patients = 0,9 %) more than 2
14 houses with 6 patients = 84 patients = 0,6 %) patients.

9404 houses 12250 patients.

Lepromatous cases in contact houses :

1769 houses with 1 lepromatous = 1760 LL. = 88,7 %
92 houses with 2 lepromatous = 184 LL. = 9,2 %
9 houses with 3 lepromatous = 27 LL.)
2 houses with 4 lepromatous = 8 LL.) 2,0 % with more tha
1 house with 5 lepromatous = 5 LL.) 2 LL.

1864 houses 1984 lepromatous.

Children living in houses with lepromatous cases :

affected with leprosy : 570 = 16 % of children
suspects : 210 = 5,9 %
healthy : 2303
not examined : 467

3550 children

We may assume that about 20 % of the children living in contact with lepro-
matous patients will be affected with leprosy one day or another.

A wide open field for study and research :

521 families with more than 2, 133 with more than 3 patients
104 families with 2 or more lepromatous
3550 children living in contact with lepromatous.

B. — *General survey :*

Population : examined : 163.646 = 65,7 %
not examined : 85.313
248.959

Suspects : 9618 suspects or 5,8 % of population examined
3,8 % of total population.

Examination of suspects :

examined : with leprosy : 2245 = 37,0 %
residual/arrested : 108 = 1,7 %
under observation : 239 = 3,9 %
no leprosy : 3463 = 57,1 %

62,9 % of suspects : 6055

not examined : died or left : 62
to be examined : 3501

37,1 % of suspects : 3563

N.B. — Out of those 9618 suspects 2592 cases came as casual suspects.

C. — *Scheme survey :*

Figures are not available separately and are included in general survey
figures and contact survey.

TOTALISATION: people examined : in contact survey : 32.878
general survey : 163.646
196.524

not examined : in contact survey : 8.323
general survey : 85.313
93.636

Total under control : 289.160 population.

CONCEPT OF NEW CASES :

All new cases detected are not exactly new cases from the medical and epidemiological point of view.

True new cases are those who were examined the previous year with no signs of the disease, or we can make out clinically as recent cases.

Old cases newly detected are new only « administratively ».

This distinction will be possible after a few years of surveys. So we are actually not referring to new cases, only to cases detected or admitted for treatment in the successive years. (See page 20 and 23).

CHAPTER THREE

THE TREATMENT

§ 1. — Basic treatment : Oral D.D.S. :

A. — *Most suitable drug* : with only a few exceptions, all patients are treated with DDS tablets, which treatment is most suitable in mass-treatment.

DDS is without danger, without toxicity at usual dosage ;
is actively efficient ;
is simple, can be administered by paramedical personnel ;
is cheap.

The report of the WHO-conference Tokyo formulates ⁽¹⁴⁾ :

« In mass leprosy control campaigns it is essential to use an inexpensive form of therapy which can be administered safely by auxiliary personnel. At present the only available drug which fulfills these requirements is DDS administered either by mouth or by repository injections. Both forms of administration are equally effective and each has its advantages and disadvantages. The choice of one or another form of therapy must be dictated by local circumstances ».

B. — *Oral or parenteral ?* In Africa, in most leprosy campaigns, treatment is given by injections : why ?

— The paramedical staff has a long experience of injections in polyvalent mass campaigns, even of intravenous injections.

— Population is scattered over extended areas, so repository injections given fortnightly means less trouble to the patients and less personnel.

— The population is used to those methods of treatment (trypanosomiasis, VD, yaws, etc.) and generally they don't mind a little pain, even repeatedly.

— But the method needs more care, more instruments, and is much more expensive.

— It was felt also that one can be sure the patients get their DDS whereas one is never sure the pills are swallowed.

Our choice was oral treatment :

— we had to start on a large scale with inexperienced staff ;

— we could not get by time the « DDS-retard » for fortnightly treatment.

Objections to oral treatment of DDS :

a) — Medically there are no objections, although some workers are of the opinion (French) that injections induce less reactions than oral treatment ; there may be something in that. Even this can give a lead to research-workers as to causes of reactions. Oral DDS is more massive and passes through the liver before reaching the general system ; by injection the resorption is slow and the drug passes first through the general system. We know that in many lepromatous patients the liver functions are disturbed (Fontilles).

b) — Do they swallow their pills ? I think so. But we can only be deductive in our opinion (we did not do chemical tests).

— By the results of treatment and even accidents.

— It is not likely that patients should come regularly, lose their wages and working hours, walk for miles, just for the fun to throw the pills away. But we know it happens (children). One patient gives us back all the pills he received since months. (Remind the experience of the TB. chemotherapeutic unit in Madras).

— One incident was an eye-opener : a young lady swallowed 18 pills at once, the dosage of 3 weeks ; this was not a suicidal attempt ; she was so much upset with this « obsession » of taking one pill every day, that she wanted to change it. This shows how patients are « concerned », psychologically « bound » to their daily pills.

e) — Patients prefer injections : I am not so sure of that ; very few patients ask for. I show them how injections are prepared and that we will be too glad to inject ; they never insist, « oh, no, they say, then we prefer to swallow them ».

There is also some psychological factor, some myth, behind it :

— private practitioners for some reason or another recur mostly to injections for leprosy, and patients are « sure » that private paid treatment by injections « must » be better than free treatment by pills ;

— many unqualified persons (ex-patients, ex-paramedicals) make a livelihood out of injections.

C. — *Gradual increasing dosage* : We follow the method of Dr. Chaussinand preconising progressive increasing dosage, so as to reach the routine dosage for non-lepromatous after 3 à 4 months and for lepromatous only after 12 à 18 months to avoid reactions, or at least to avoid severe reactions : safety is the first requisite in the mass-treatment.

(The following scheme gives the dosages per week in milligrams to divide as much as possible into daily or three weekly doses).

For non-lepromatous :

150 150 150	The first 3 months : observation period, also some sort of education for regular treatment (danger zone, see further).
200 200 200	
300 300 300	
400 400 400	
500 500 500 500	From this period on patients can safely receive treatment for 2 or even 4 weeks. Except for a few tuberculoid or borderline reactions, no much trouble can be expected.
600 600 600 600	
600 600 600 600	
etc. etc. etc. etc.	

For lepromatous :

100 100 150 150 150 150	In many instances even start lower with 50 mgr. per week and increase more slowly. = <i>Danger zone</i> (6th to 10th week).
200 200 200 200 200 200	
250 250 250 250 250 250	Most often reaction recur at those dosages of 300/350; often dosage is to be lowered and kept at 300/350 for a much longer period.
300 300 300 300 300 300	

400 400 400 400 400 400
400 400 400 400 400 400
400 400 400 400 400 400
400 400 400 400 400 400
400 400 400 400 400 400
450 450 450 450
450 450 450 450
500 500 500 500
500 500 500 500
550 550 550 550
550 550 550 550
600 600 600 600
600 600 600 600
600 600 600 600
600 600 600 600
etc. etc. etc. etc.

We keep patients very long at this 400.

This seems to be, after they have passed through one or more reactions, a safe period ; we start then giving for 2 or 4 weeks treatment.

In most of the cases results are as good as with higher dosages, as well clinical as bacteriological improvement — but not all of them.

Lepromatous treatment is individual ; dosages are increased only by the medical staff ; when reactions occur, the paramedical workers may decrease or even stop the treatment.

Severe cases are sent to the hospital.

D. — *Routine dosage of 600 mgr. DDS per week :*

In Africa we used to give 800 per week, but « it appears that there is a considerable variation of tolerance exhibited by different racial groups » ⁽¹⁵⁾.

E. — *Rhythm of attendance every 4 weeks :*

After a period of 3 à 4 months, when normally no complications are expected and no immediate medical supervision is indispensable, we give the necessary pills for 2 or 4 weeks treatment. This is safe and saves a lot of trouble to the patients ; lepromatous cases need more medical attention.

What about intervals, restperiods ? Our experience here and in Africa, shows that one can safely give continuous treatment ; automatically there are restperiods for rains, marriages, death ceremonies, headaches, etc.

F. — *Incidents and accidents in DDS treatment :*

a) — Reactions : we will give them a more detailed consideration.
b) — Toxic and allergic reactions : on a 600 mgr. routine dosage there are very few toxic reactions.

1. Psychosis : we have seen no case attributable to DDS.
2. Hepatitis : there have been a few cases of jaundice, but there were also cases in the rest of the population. We can not say it is due to DDS. In lepromatous cases dysfunction of the liver is more due to leprosy than to DDS. For safety we stopped the drug for a while.
3. Anemia : when some years ago 200/300 mgr. DDS per day was given anemia was the big trouble ; unfortunately the fear of it has remained still ; there is no danger for anemia at 600 a week, and systematic hemoglobine tests are not necessary, nor systematic additional iron-therapy. Surely there is anemia in leprosy patients, but this is usually due to other factors : ankylostomiasis, nutritional deficiencies, etc. and also lepromatous L. by itself. The most severe case of anemia in need of urgent bloodtransfusion was a lepromatous who never received any antileprosy drug.

4. Overdosage : there have been a few cases of children having swallowed their parents pills, also patients swallowing too many pills at once ; the symptoms are : stomach pain, nausea, vomiting, excitement, restlessness, even some stupor. Everything was all right after one or 2 days.
5. Minor complaints : patients have a tendency to put all their troubles on the fault of « the pills », even scabies ; most of them, if not all are cases of general medicine ; in a few cases a placebo made it clear, it was not DDS.
6. *Dermatitis exfoliativa* : this is a very serious allergic reaction due to DDS directly. It is often overlooked because no attention is given to a patient staying away from the clinic in the first weeks of treatment. Spectacular treatment is cortisone; if not treated it is very often fatal. Exfoliative dermatitis develops generally at the 6th or 7th week of treatment (= *Danger zone*), very rarely later, after the 10th week, irrespective of the dosage. Only in repeated dermatitis reaction can follow immediately (the next day) any administration of DDS, also sulphamides (we had one case with sulphaguanidine given for diarrhea). It is therefore an absolute necessity to follow up absentees of the first weeks, and to desensitize them. About 1 % of the patient get dermatitis ; what is rather peculiar they mostly come from one or 2 corners of the area ; in Africa dermatitis was about 1 %, but there also most of the cases were localized in the same area. (tribe-wise). I have no explanation.

Method of desensitisation : after a period of 2 months rest, start giving very slowly increasing doses of a solution of sulphetrone, beginning with 1/100th of a milligram then 2/100th, 3/100th, 5/100th, increasing daily ; it will take nearly 3 months to reach the usual dosage of DDS. From 5 or 10 mgr. switch over to DDS properly taking into account that 600 mgr. sulphetrone compares with 100 mgr. DDS.

There may be a relapse, usually more mild, and generally when about 15 mgr. DDS per day is reached.

We try actually to desensitize in combination with deltacortone. So far we cannot draw a conclusion.

Especially lepromatous patients are suffering from a lot of other dermatitis, eczematoid, ichthyosiform, hyperkeratotic, etc., allergic, infectious, mycosic, nutritional. It has nothing to do with DDS. But why more lepromatous than other patients ?

There is surely a scope for research in that line.

Painting with gentian violet, or zinc cream, or both combined with vitamins A, C and PP, gives good results.

Maybe lepromatous patients « consume » more vitamins than others. I had the opportunity to prove that for vitamin C in Africa ; it is also well known that active TB cases need more vitamin C.

C. — Mass-treatment is not merely a distribution of pills :

It is not medical work... just distributing pills... is a critic so often uttered.

If it was only that, we could better send the pills by post, that would be more regular, less expensive and much less effort...

— Patients must not only be seen, but looked at, examined and not only with eyes, but as any medical examination ; there is the palpation of the nerves, the feeling of the surface of the patches, the search for anesthesia.

— Although a routine treatment, it is not a mechanical nor a stereotyped one ; dosage has to be adapted to each case « individually ».

— Thousands of people suffer from a lot of diseases, and thousands of leprosy patients as well, the latter too often being denied treatment in dispensaries. Their general health may be conditioned by leprosy itself or by their nutritional status, secondary infections or any major or minor disease : typhoid, pneumonia, filaria, malaria, TB eye troubles, nephritis, etc. etc. So tonics, vitamins, analgesics, febrifuges, topies and antibiotics, etc... are of daily medical application. Their expenses are in fact much higher than the DDS.

— There is also the psychological side of the patients : more than desirable, they are shunned and rejected anywhere ; at least doctors and the medical services should treat them kindly, actively, efficiently. There is no medical, ethical or scientific justification for an adverse attitude.

There is also the psychological and professional aspect for the doctor himself : to a visitor of a leprosy clinic it takes only 5 minutes to know if the doctor is interested or not ; you look at the faces of the patients which may be open and bright as a lotus, or shut, inexpressive, harsh. A doctor who is just a distributor of pills cannot or will not stay in leprosy work.

Supervising the paramedical workers is not merely controlling and « counting » their work, but guiding their work, and doing all the medical activity by oneself.

Leprosy work is passionating ; this reminds me of a famous word of Dr. MacDonaldo : « We know that leprosy is curable and not hereditary, but leprology is hereditary and incurable ».

§ 2. — Reactions : Lepromatous reactions :

This is a summary of the paper read by Dr. miss Cl. Vellut at the International Leprosy Conference, Tokyo, nov. 1958.

All the lepromatous cases, unselected, out of 17 clinics were studied : 1170 cases :

80,3 % males (73,8 % adults ; 6,5 % boys)

19,7 % females (17,7 % adults ; 2,0 % girls).

280 cases were discarded as too irregular, too recent, or left or died.

So this study is related to 890 unselected lepromatous cases, all in ambulatory (out-patient's) oral DDS treatment.

1. — Number of reactions :

Had no reactions :	61,46 %	
Had reactions :	38,54 %	20,55 % had only one reaction
		8,53 % had 2 reactions
		3,59 % had 3 reactions
		5,87 % had 4 or more reactions.

Practically, about 6 % of the lepromatous treated during more than 2 years (most of them 3 years) pose a « problem » in mass-treatment.

Comparing sex and age : there is a striking similarity in sex in reacting patients :

40,21 % of LL. male adults ; 40,26 % of LL. female adults ;
20,96 % of LL. boys ; 20,0 % of LL. girls.

Whereas we find much less females in the lepromatous group, once lepromatous they seem to be subjected to reactions without difference with the males.

Children however are half as much subjected to reactions.

2. — Seasonal periodicity :

There was a definite peak of higher number of reactions in the 3 months of January, February and March (cold season).

In 1958 this was less typical, there were also much less reactions (patients already in long treatment, with a lot of improvement, and reactions are less and less frequent, and less severe).

More climatic and other observations are needed to reach any definite conclusion.

3. — Period of first reaction :

On an average the lapse of time from the beginning of treatment and the first reaction is 7 months and 6 days (a minimum average of 4 months and 20 days in one clinic and 9 months and 3 days in another clinic.)

But 25,65 % of the first reactions appear during the 2 first months of treatment. (Late first reactions, after $1\frac{1}{2}$ à 2 years treatment are not exceptional, nevertheless infrequent).

4. — Dosage of DDS at apparition of first reaction : (only 340 adults) :

2 % before any treatment (as new cases in reaction)
24 % with less or equal to 150 mgr. DDS per week
32 % with less or equal to 300 mgr. DDS per week
37,2 % with less or equal to 550 mgr. DDS per week
4 % with 600 mgr. per week.

5. — Reactions and bacilloscopic negatvation :

Became negative : 19,41 % of those who had never reactions ;
18,80 % of those who had only one reaction ;
6,93 % of those who had repeated reactions.

One reaction does not seem to have any harmful influence on the negatvation.

6. — Types of reactions :

Study of only 142 of those patients hospitalized for reactions :

6,2 % of the acute infiltration type ;
32,8 % of the pure erythema nodosum type ;
52,7 % classified as general lepromatous reaction, with general and local symptoms ;
4,7 % pure neuritis reactions ;
4,1 % pure iritis reactions.

7. — Treatment : in our own experience :

a) P.A.T. (potassium antimony tartrate) 2 cc. of a 2 % solution diluted in 100 cc. calcium gluconate solution, given intravenously on alternate days. Usually satisfactory results obtained after 4 injections (6 can be given). This means, one week hospitalisation.

It is cheap, no complications or side effects, and in our experience this classical treatment is far off the best treatment for reactions.

(On the road-side we use intramuscular anthiomaline ; it is slightly less effective).

b) Cortisone : can be spectacular, but can be a failure (failed in 15 of our cases).

A prolonged stay in hospital is necessary to watch the evolution, because immediate relapses are frequent.

Cortisone should be reserved for special or very severe cases.

Comparing P.A.T. and cortisone :

— No difference in subsequent bacteriological findings ;
— Failure to restart DDS : 16,7 % after P.A.T.,
29,2 % after cortisone ;
— Relapse : 41,75 % after P.A.T.,
60,— % after cortisone.

No high doses of cortisone should be used in reaction treatment (maximum : a total of 400 mgr., or 40 mgr. prednisone). When low dosage was ineffective, higher dosage never gave better results.

N.B. — This without reference to another method of cortisone treatment by prolonged low dosage in combination with DDS to prevent reactions.

Our experience with Chlorpromazine (largactyl) in 18 cases and phenylbutazone in 8 cases was not a success.

8. — Conclusion :

In our opinion, it is perfectly possible to treat lepromatous cases as outpatients without too much difficulty, provided there is a strict medical control and the proximity of a centre for hospitalisation.

Other reactions :

1) — *Iritis* : this is the only « emergency » in leprosy, in lepromatous leprosy. Total or partial loss of vision will depend on the urgent and careful treatment with cortisone drops and atropine.

2) — *Acute neuritis* : this is the most troublesome reaction : very painful for the patient, a challenge to his future and a headache to the doctor.

So many different treatments are preconised, we have tried so many : they are all good and they are all not good. We cannot recommend the one above the other : Vitamins B₁, B-complex, etc. : few results, if any.

Perineural infiltrations of procaine.

Intraneural injections of procaine alone or combined with cortisone, hyaluronidase.

Intravenous injection or drip of procaine.

Surgical desheathing of the nerve.

3) — *Tuberculoid and borderline reactions* : here is a very broad field for clinical research.

— Patients enlisten for treatment only because they are under reaction : some had no treatment before, some had indigenous treatment, some stopped some treatment years ago.

— Others start reaction in the first weeks or months of treatment, even with low DDS dosage ; one patient had a very severe borderline reaction after 3 weeks 100 mgr. DDS per week.

— Others start reaction after a long regular treatment, others after a long absence.

— Others start reaction when treatment is stopped or even after discharge.

— Some patients in reaction do well with lower dosage or DDS stopped, others with P.A.T. or cortisone, others just continuing treatment with same or even increased dosage.

— In many cases there are a lot of nerves involved, in others there are none at all.

— Patches and nerves may disappear rapidly with treatment (some of them without treatment), so that clinically you have a doubt about your previous diagnosis.

But in other cases patches never disappear, even with treatment, and some trunknerves remain thickened. It is not rare to have during reaction suddenly developed a dropfoot or an orbicular paralysis.

§ 3. — Hospitalisation :

The ward for temporary hospitalisation of acute cases in leprosy patients was opened in March 1957.

Since then there have been :	in 1957 :	320
	in 1958 :	335
		655 admissions.

268 lepromatous reactions
160 ulcers (secondary infections, etc.)
21 neuritis
28 iritis

477 cases connected directly to leprosy

28 anemia
16 nephritis
22 TB.
9 dermatitis exfoliativa
15 other dermatitis
7 enteric fevers
61 divers reasons, from scabies to meningitis

158 cases of intercurrent diseases in leprosy patients.

There are 32 beds, but the number can be increased if necessary.
The average stay of patients was : $17\frac{1}{2}$ days.

Follow-up after discharge of hospital :

475 are under regular treatment in their respective clinics as out-patients.

106 had to be re-admitted. (often for repeated reactions).

56 have been lost from sight (left the area, absentees).

18 died.

Need of an hospitalisation ward in every leprosy unit :

— 15.823 patients ; 335 admissions per year = 2,11 % of all patients were admitted. Or if we exclude the absentees : 4,0 % of patients.

— The latter 4 % seems to be a safe calculation ; at an average of stay of 3 weeks, this means that = 3 beds are a minimum needed per 1000 patients.

— Because of separation of males and females there must be at least one bed more per 1000.

— In the beginning most of admissions will be acute reactions, later on free beds will be available for ulcers.

— Interecurrent diseases, acute and chronic should be admitted in the general hospitals.

— According to the possibilities for special treatment : physiotherapie and surgical, more beds must be provided. But this also should be taken by general hospitals and institutes as any other orthopedic work.

§ 4. — Results of treatment :

It is too early to assess the result of treatment on the control of leprosy, but we can already find out the individual result.

A) — The criteria of arrest :

They have been defined by the WHO conference in Tokyo (16) as follows : Inactive cases are those in which :

1. — By routine methods of examination no bacilli have been found in smears from the skin and nasal mucosa for at least six months, skin examinations having been performed periodically from several sites ;

2. — There is no visible infiltration of the lesions, that is, all lesions have become flat and are not raised either in the centre or marginally for at least six months ;

3. — There has been no alteration in texture or colour of the lesions and there has been no erythema for at least six months ;

4. — No fresh lesions or extension of existing lesions has taken place for a similar period ;

5. — Anesthesia has remained stationary, that is, no increase or decrease of cutaneous sensibility during the same period ;

6. — There has been no nerve tenderness or pain for a similar period.

The reference about the duration of treatment in tuberculoid, indeterminate, borderline and lepromatous, are already given (page 33).

Our standards for criteria were more severe (more than 6 months) and the duration of treatment longer (more than 2 years); on the other side, the evolution of sensibility was not followed.

B) — *Analytical statistics of results of treatment :*

The following figures are the complete review of the patients and the files of 4 clinics done recently, end of may, begin of june 1959.

The cases enlisted in 1958/1959 are not reviewed.

1191 patients were enlisted in 1955/1956/1957.

First elimination : 25 patients were outsiders, and did not turn up anymore
78 patients could never be traced any more, nobody
— knows anything about them.

103 eliminated : (left : 1091 patients).

Second elimination : out of 1091 : 72 = 6,5 %
died : 48 = 4,4 %
absentees not seen : 157 = 14,3 %
277 = 25,2 %

Left for reviewing : 814 patients.

Patients enlisted in :	1955	1956	1957	Total
<i>Under review :</i>	501	153	150	814
<i>Symptom free :</i> patches disappeared, no nerve nor permanent lesions :				
old absentees re-examined :	53	28	20	101
discharged, had regular treatment :	84	22	8	114
still in treatment, awaiting for discharge (too recent, or irregular) :	15	12	27	54
				269
<i>Arrested :</i> inactive, residual patches ; only 2 or 3 with arrested trophic lesions are included :				
old absentees re-examined :	22	14	10	46
under observation :	—	5	3	8
still under regular treatment :				
borderline cases :	22			
because of nerves :	2			
patches fading :	35			
patches residual :	30			
	89	39	17	33
				89
				143
<i>Improvement :</i> still under treatment, all lepromatous :				
old negatives, maintenance dose :	8	—	—	8
became negative :	54	5	2	61
bacteriologic index improved much :	57	5	5	67
				136

Permanent lesions : it is difficult to assess the improvement in such cases ; since physiotherapy was started recently on large scale there is much improvement.

This will be for next-year-report.

old absentees : re-treatment :				5
for deformities :				13
for nerves :				
under regular treatment :				
for ulcers, deformities :	98	18	19	135
for nerves :	23	6	8	37
				190

(4 dropfeet subsided, 11 ulcers healed, 11 nerves subsided).

No improvement :

old absentees, re-treatment :				
still active lesions :	11			
borderline :	4			
arrested ? suspect :	9			
still same + LL. :	1			
	25			25
in regular treatment :				
still highly + + + LL. :	10	1	2	13
no SM. recently :	1	—	1	2
N.L. still active B : 3, T. : 4	2	5	—	7
				47

Became worse :

old absentees, re-treatment :				
L. became highly + + + :	5			5
hospitalized at once :	4			4
new patches :	8			8
in regular treatment :				
new patches :	3	1	2	6
discharged, re-treatment (relapses) :	6	—	—	6
				29

The old absentees re-examined, retreated were as follows :	36	14	10	60
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Recapitulation and % :

Out of 971 patients still enlisted :		
were absentees :	372	= 37,2 %
under regular treatment :	599	= 62,8 %

Out of 372 old absentees :

were re-examined :	215	57,8 %
not yet re-examined :	157	42,2 %

Out of 215 re-examined old absentees :

are symptom free :	101	46,9 %
are arrested :	54	25,1 %
re-treatment, no improvement :	60	27,9 %

Out of 599 patients under treatment :

discharged :	114	= 28,0 %
symptom free, in treatment :	54	=)
arrested, in treatment :	89	= 14,8 %
improved :	136	= 22,7 %
permanent lesions :	172	= 28,7 %
no improvement :	22	= 3,6 %
worse :	12	= 2,0 %

Lepromatous under treatment :

8 old negative cases excluded,		
became negative :	61	= 42,6 %
improved, still positive :	67	= 46,8 %
no improvement :	15	= 10,4 %

143

+ 8 old absentees: re-treatment: 8

out of 814 pat. : 18,5 % leprom. : 151

Out of 814 patients :

symptom free + arrested :	412	
improved :	136	
are likely to be cured by DDS :	548	= 67,4 %
no improvement :	5,7 %	46
worse :	3,5 %	29

need more treatment : prolonged,

combined, other drugs, long

hospitalization or institutional

treatment :

23 = 2,8 % being infective

cases.

In addition to chemotherapy,

trophic lesions in need of additional

physiotherapy or surgery:

190 = 23,3 %

Out of 114 discharged (regular treatment) :

40,5 % re-examined once or often :

47

4,3 % re-treatment: relapses :

6 = 0,7 %

— It will also be necessary in a next report to make out the relation of « symptom free », « arrested », « improvement », etc. to the type of leprosy, beginning cases, children, duration of regular of irregular treatment, etc.

— The fact must not be misleading when comparing the results in absentees and regular treatment :

symptom free :	46,9 %	28,0 %
arrested :	25,1 %	14,8 %
improved :	—	22,7 %
	72,0 %	65,5 %

The absentees were mostly beginning cases, benign, children, (possibility of spontaneous healing), borderline only 4, trophics only 18, lepromatous only 8.

Whereas those in regular treatment are more advanced cases (beginning cases also), 22 borderline, 172 trophics, 141 lepromatous.

Comments :

— The above figures are speaking by themselves.

— I am sorry that due to pressure of work it was not possible to review more than 4 clinics : this will be for next year report.

CHAPTER FOUR

SOCIAL AND MEDICO-SOCIAL

§ 1. — Rehabilitation :

A) — *Rehabilitation of leprosy :*

We cannot discuss here the prejudicial attitude of the public against leprosy and leprosy patients ; nor the means and programmes of education, propaganda, cooperation, legislation, etc.

But we are happy to note that, in the last few years there is a tremendously increasing interest in leprosy on the side of the authorities, the press, the public... and the patients.

Our contribution may be very small, we have no systematical program for propaganda or education ; but we try to contribute to amend this social prejudice by the example of our own attitude towards leprosy and leprosy patients : mixing freely with patients, without fear, with kindness and a familial and devotionnal spirit, even accepting invitations by them for a sweet, a drink or a tiffin :

employing a number of ex-patients,
by continuous contact with patients and public, in the villages through the rural leprosy workers (surveys, absentees, etc.), in clinics and in the hospital,
by the results of treatment.

B) — *Social rehabilitation of patients :*

In mass-treatment there is not the after-problem of social rehabilitation, because patients not being removed out of their community there is no problem to have them re-admitted.

As long as patients are in their own surroundings, very few are really in need, and it is most recommendable not to interfere when things are going well.

Education of the patients : in the clinics and hospital by personal contact by the physiotherapeutic team and by distribution of pamphlets, leaflets, posters.

The problem of irregularity, absentees is still a headache.

C) — *Physical rehabilitation :*

We are following the methods of Dr. Brand. We are greatly indebted to Dr. Brand, Dr. Fritsch and the Christian Medical College, Vellore-team for training our staff and to the Hind Kusht Nivaran Sangh : and for their appreciable help and advice.

We have started a sort of « chain-training » for the rest of the staff.

1. Deformity-preventive education : talks and demonstrations by the physiotherapeutic team in the clinics on the roadside. As soon as « Prevention of deformities » by Dr. Brand is available in tamil this will be distributed on a large scale.

2. Simple physiotherapy along the roadside : massages, exercises. After 4 à 5 months, there is already much improvement in the angles of contractures.

Wax-baths at the Centre

3. Ulcer-treatment at the hospital ; we hope to extend much of it to roadside clinics.

4. Electro-therapy and reconstructive surgery will be started very soon. One of our doctors is achieving specialized training in Vellore and Karigiri.

As far as possible also a physical re-education unit.

§ 2. — Prevention of leprosy — Protection of children :

1. So far, we have not organized systemically « home-isolation » we feel that people are already more than enough frightened by the disease — may be not in the right way — ; we have seriously to weight out on the one side the benefit of home-isolation or at least of its recommendation and on the other side the loss in public attitude.

2. BCG-vaccination was not started : in many areas the anti-TB team vaccinated with BCG ; unfortunately we were not informed about. We could have cooperated plenty for the vaccination of the contacts ; we missed there a unique opportunity.

3. Prophylactic DDS has been given only in a few cases.

When the bulk of the work is over, there is something in those 3 lines which should be done.

The most urgent task is treatment to stop leprosy, to stop infectivity.

Not leprosy as such is so dangerous, nor its evolution, nor its contagiousity : the main danger in leprosy is « no treatment » or the neglect in treatment.

§ 3. — Integration :

With 2 or 3 exceptions we have failed to interest the medical practitioners or the doctors in charge of dispensaries.

On the other side we are grateful to the general hospitals of Chingleput and Madras who have admitted some of our difficult cases and looked very well for them.

§ 4. — Research :

Our Centre was and is not outlined for research in leprosy, but the subsequent critical analysis of the facts can be of the utmost importance to help to throw light on the epidemiological, clinical and therapeutic aspects.

CONCLUSIONS :

I wish to express my deepest gratitude :

- to His Majesty King Leopold of Belgium who initiated this work, and who still gives stimulus to our work ;
- to His Excellency the Minister of Colonies, who allowed this mission to me ;
- to the « Association Belge pour la Lutte contre la Lèpre », and all those who financially or otherwise contributed largely to the creation and the development of the Centre ;
- to the Government of the Union of India, to the Madras Government. We only met with great kindness, broad comprehension, and full cooperation from all officials on all levels ; this made our work possible, easy, successful and a pleasure ;
- to the whole staff of the Centre on all levels for their heartily cooperation, infatigable activities, their high spirit, their friendliness, their attachment and faith in the work ;
- to all our friends : Raj Kumari Amrit Kaur, Prof. T. N. Jagadisan, Dr. H. Paul, Dr. Ramanujam, for their advices, their help, their guidance, their encouragement, and above all, for their friendship ;
- to Mr. Muttu Malla Reddiar, who is a great friend and a great benefactor of the Centre ; our protector, our foster-father ;
- to the visitors of the Centre for their kindness and interest ;
- to all our patients, for their kindness, their willingness and their confidence.

Polambakkam 12 june 1959.

Dr. Frans HEMERIJCKX.

NOTES AND REFERENCES :

- (1) This is why the Centre is called « Cochrane Griham » Reference and photographs are found in Dr. Cochrane's textbooks :
Practical textbook on leprosy : 1947, Oxford University Press,
Leprosy in theory and practice : 1959, John Wright & Sons Ltd. Bristol.
- (2) In Central Africa, because of less population the absolute figures are not so high, but the incidence is much higher than in India. In Belgian Congo, for instance : the average for the whole country is between 2,11 and 2,69 % as registered and estimated cases.
- (3) Report of the Technical Committee on Epidemiology and Control of the VIIth International Leprosy Congress, Tokyo, 12-19 nov. 1958.
- (4) Figures from : Dr. J. Cap : Rapport annuel 1957, Section Père Damien.
- (5) Figures quoted from : Les Campagnes de Masse antihanséniennes en Afrique Française, par le Médecin Général Richet : Dakar, 20/10/58.
- (6) Results and methods to be found in several numbers of Leprosy Review and International Journal of Leprosy.
- (7) Planning of Leprosy Control Programmes : presented by Dr. Ramon Miquel y Suarez Inclan, WHO senior leprologist, Khon-Kaen, Thailand, at the WHO interregional Conference Leprosy, Tokyo, 20-24 nov. 1958.
- (8) Pilot schemes : Leprosy treatment and study centres.
Subsidiary leprosy centres.
Gandhi Memorial Fondation leprosy scheme.
- (9) Cost of Mass-leprosy-control campaign : Dr. M. Blanc, WHO Interregional Leprosy Conference, Tokyo, nov. 1958.
- (10) Scheme survey, see page
- (11) Scheme survey, see page ...
- (12) Page 5 — Report of the WHO Interregional Leprosy Conference, Tokyo, 20-24 nov. 1958.
- (13) Page 6 — Report of the WHO Interregional Leprosy Conference, Tokyo, 20-24 nov. 1958.
- (14) Page 5 — Report of the WHO Interregional Leprosy Conference, Tokyo, 20-24 nov. 1958.
- (15) Report of the Technical Committee on Therapy, International Leprosy Conference, Tokyo, 20-24 nov. 1958.
- (16) Page 5 — Report of the WHO Interregional Leprosy Conference, Tokyo, 20-24 nov. 1958.

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TO THE READER :

Critical comments, Sir, will be very much appreciated and will be received
with thanks.
Thank you.

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