

A LEPROSY CASE PROGRESS CHART

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The progressive change in type-classification that occurs in a case of leprosy during its protracted course introduces difficulties in record making, or at least in record reading. The recording of the status of cases *at any given time* has recently been simplified by the classification and symbols adopted by the Leonard Wood Memorial Conference; this suffices for many purposes such, for example, as classifying the cases encountered in a survey, or tabulating the status on a particular date of a group of cases under observation. But quite another problem is met when it is desired to show in summary the vicissitudes of an individual case observed *over a long period*. It should be very helpful, whether in dealing with patients under one's care or for other purposes, to have a chart which will present such changes graphically and simply, so that what has happened over a period of years can be comprehended at a glance. If at the same time it should also permit concise recording of such data as the bacteriological findings, the principal clinical features and perhaps other things, one could have on a single sheet of paper or card a fair summary of the case that would be a valuable addition to (though hardly a substitute for) the usual detailed case records.

This matter had interested both of the authors independently. In 1930 one of us (le Roux) suggested to the late Dr. J. Alexander Mitchell, then Secretary for Public Health of South Africa, that he might bring up the question for consideration at the Leonard Wood Memorial conference, and prepared for the purpose a draft of a tabular chart based on the method of classification then in use in South Africa, which in certain essentials was similar to that adopted by the Conference. Mitchell, unfortunately, was taken ill and could not go to Manila, and the conference did not go into such matters beyond endorsing

a plan of the leprosy commission of the League of Nations to attempt to standardize forms for use in recording and reporting leprosy work.

The other of us (Wade) became especially interested in the matter in 1931 at Ngomahuru, in Southern Rhodesia. In none of many leprosy institutions visited before then had anything of the nature of a progress chart been seen; in order to gain a concept of the progress of any given case one had to examine the history attentively or depend upon the demonstrator personally. At Ngomahuru, however, Dr. B. Moiser was making a sort of graphic record of the progress of his cases on Muir's well-known curve chart, but this, Moiser regretted, was not suited to the then newly adopted conference classification.

The chart here described, devised by us in Pretoria on the basis of the idea of a tabular chart rather than a curve-form, is designed for charting according to the conference classification. It is not intended to replace any of the usual detailed case records, but simply for use as an auxiliary to summarize the essential features of those records.

DESCRIPTION OF CHART

The essential part of the chart is the form for the progress graph; in the example which accompanies this article (see insert) that form, plus space for recording the bacteriological findings, occupies one-half of the total enclosed space, but this can, of course, be varied to suit particular needs or preferences. The other part, susceptible to much more variation, is provided for the periodical summarization of data such as weight, treatment, and clinical events, which presumably will include the occurrence of lepra reaction and important complicating conditions. Where tests such as the sedimentation index or the Wassermann reaction are made periodically, separate spaces for them would be provided.

The progress form itself has two parts, one for the C ("cutaneous") and one for the N ("neural") phase of the disease; and each of these type-areas is divided into three spaces in accordance with the sub-types of the Memorial Conference classification (C1, C2, and C3; N1, N2, and N3). Each of these spaces is further subdivided, the reason for this being that during the intervals between examinations there may be changes in the case sufficient to be indicated in the graph as a trend, but not sufficient to change the actual classification from, for example, C2 to C1. The first, least advanced of the sub-type spaces (i.e., C1 and N1) are both nearest a central blank space, which may be called the "negative" or "neutral"

zone, so that with increasing severity of the case the graph line goes farther from that zone, and in an advancing "mixed" case the two lines diverge. The negative zone is intended to indicate absence of—or, rather, disappearance of—evidence of the disease.

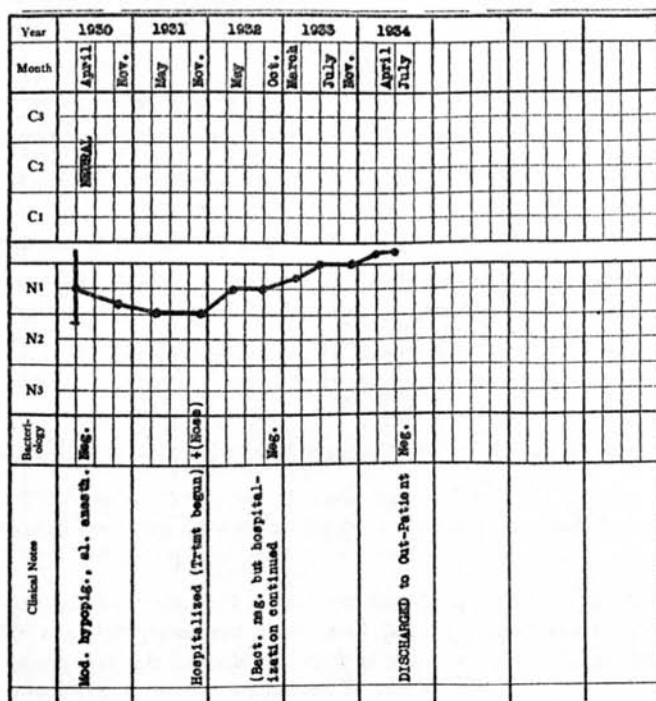
With respect to the vertical rulings, the chart may be divided for as many years as desired, but the narrower these divisions are made the fewer notes can be inserted in them. Each of the year-spaces is subdivided as if for quarterly recording, not because it is expected that many will attempt to reclassify their cases that frequently, but in order to permit rough correlation of records and dates, as shown in the illustrative cases.

The sample chart herewith is designed for a sheet form measuring 8 x 10.5 inches, the left-hand margin being the wider to provide for binding, but it can easily be modified for other sizes of records¹. A modification, based on suggestions received, is printed on an ordinary 8" x 5" filing card, one-half of the whole form on each side. Better in certain respects would be to use a double card of tough, durable stock, 8" x 10" when opened, folding transversely (along the line AB of the insert herewith) and then measuring 8" x 5", to be filed of course with the folded edge uppermost. The entire chart could be printed on the inside; the outside, back and front, would be available for other records, including personal data.

A variation of the doubled card could be arranged to hold much more of the case record—perhaps the entire record if this is not very detailed. The outside of the card would be printed as before, but the inside would be left

¹ To conform to the other official records at Pretoria the progress chart in actual use there has been expanded to a sheet measuring $8\frac{1}{2}$ x $13\frac{3}{4}$ inches; the width of the area for recording is 7 inches, divided for ten years' records. Spaces for the sedimentation index, Wassermann reaction, and lepra reaction are provided, but most of the extra length is given to clinical notes. There, incidentally, the vertical lines are continued, whereas in the chart herewith they have been eliminated for greater flexibility in writing notes. Each of the sub-type spaces is subdivided into three (instead of two as in the insert) but the recorder can show trends of change in the same way in either case. At the suggestion of Dr. C. B. Lara, of Culion, a "pre-neutral" space has been inserted between the "neutral" zone and the C1 area, and the graph is kept in this while the case is under special observation after it has become "quiescent"; when it is declared "arrested" the graph goes to the neutral or "negative" zone. The same end is attained in the form illustrated herein by keeping the graph line to the margin of the neutral zone during the observation period, as illustrated in Text-figure 3.

plain. A copy of the form on paper, trimmed to size, would be pasted in it, but only the upper half of the sheet would be so fastened; the lower half would be left free so that other record sheets, in the form of slips about 7.5" by 4.5" in size, could be pasted onto the card behind it. From time to time new slips would be attached (by one edge only), each to the last preceding one, so that in time the card would come to hold a great deal of data in compact form. This system of filing records has long been used with satisfaction for certain purposes at the Culion colony.



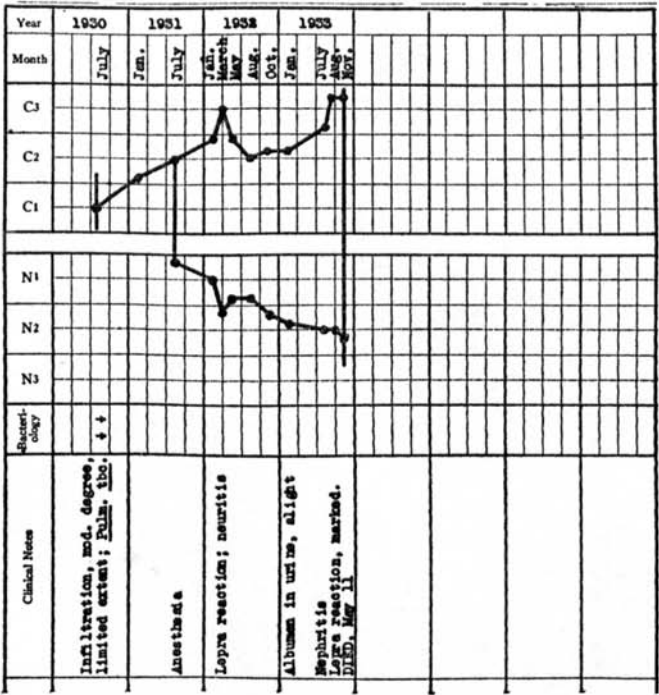
TEXT-FIG. 1.—Representing a pure neural case that became bacteriologically positive but was finally discharged without stigmata.

EXAMPLES OF USE OF CHART

To illustrate the manner of using the chart a few graphs of hypothetical cases are given. To economize on space the entire chart is not given. A few suggestive clinical notes are written in, the typewriter being used for legibility.

“CASE” No. 1 (*Text-fig. 1*)—Representing a neural case seen early, with only a few hypopigmented anesthetic spots. Being a casual out-patient he was untreated for some time, during which there was little change. The nasal mucosa was then found bacteriologically positive and treatment was started. The nasal lesion cleared up, the other manifestations slowly disappeared, and the patient was discharged as fully arrested without sequelae.

“CASE” No. 2 (*Text-fig. 2*).—Illustrating an early cutaneous case of rapid course, not treated because of complicating tuberculosis. Neural manifestations



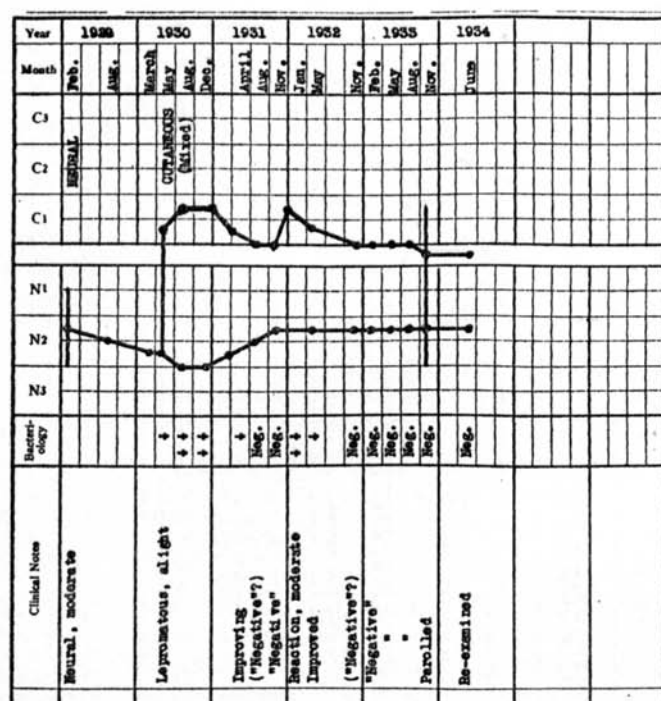
TEXT-FIG. 2.—Representing an untreatable cutaneous-type case of unfavorable course dying of protracted lepra reaction.

appeared, the case becoming “mixed.” Marked lepra reaction occurred with extension of the disease, followed by rapid and fairly marked improvement which, however, was only temporary; persistent lepra fever developed, with extreme lesions, and the patient died; nephritis developed toward the last. This “case” shows how irregularities and sudden events are charted.

“CASE” No. 3 (*Text-fig. 3*).—A neural case which developed lepromatous lesions of the skin. Under treatment these cleared up temporarily, relapsed

later, but ultimately disappeared. The patient was released with only moderate neural sequelae.

Index for the chart.—To establish a sort of index for the different grades of severity is conducive to relative uniformity in evaluating the advancement of cases for charting. Such an index, kept immediately available, is helpful to the single worker to minimize variations of practice from day to day, and is still more



TEXT-FIG. 3.—Representing a neural case that became "mixed" but recovered, though with permanent stigmata.

valuable where more than one person participates in this work. The following is a primary index, based solely on the Conference classification. We cannot attempt here to establish specifications for further subdivisions; this could be done properly only by a representative convention and would very likely be subject to variations in different regions. However, the workers in a given region will doubtless find it useful to set up such a sub-index for themselves.

INDEX TO PRIMARY DIVISIONS OF CASE PROGRESS CHART

<p>CUTANEOUS type (C): All cases showing "leprotic" lesions in the skin, <i>with or with- out neural symptoms.</i></p>	<p>C3 { <i>Advanced:</i> Numerous or very marked leprotic le- sions in various stages of development or retro- gression, usually with le- sions of the mucosa.</p> <p>C2 { <i>Moderate:</i> Numerous lep- rotic macules, or fairly numerous or marked areas of infiltration or nodules, frequently with lesions of the mucosa.</p> <p>C1 { <i>Slight:</i> One to a few lep- rotic macules, or a few small areas of infiltra- tion, or nodules.</p>	<p>Details of further division of each sub- type not specified by any convention; may vary more or less under different cir- cumstances.</p>
<p>(Negative or neutral zone.)</p>	<p>(a) <i>Preneutral:</i> For cases under special observation; i.e., quiescent cases previously with leprotic lesions.</p> <p>(b) <i>Neutral:</i> Symptom-free cases with neither active leprotic lesions nor neural sequelae.</p>	
<p>NEURAL type (N): All cases showing evidence of actual or previous nerve in- volvement (i.e., alter- ations of sensation, trophic disturbances or paralyses and their consequences), <i>with- out "leprotic skin changes."</i></p>	<p>N1 { <i>Slight:</i> One or a few small areas of disturbed sensation, with or with- out alterations of circ- ulation or pigmentation, or minor degrees of paralysis or trophic changes.</p> <p>N2 { <i>Moderate:</i> Extensive or numerous, disseminated, areas of disturbed sensa- tion, with paralyses or/ and visible trophic changes (marked depig- mentation, moderate atrophy, keratosis, bullae, etc.).</p> <p>N3 { <i>Advanced:</i> More or less extensive anesthesia and marked motor and trophic disturbances; marked paralyses, atrophies, con- tractures, trophic ulcers and mutilations.</p>	<p>(As above)</p>

DISCUSSION

In its earlier form we submitted this chart to a number of leprologists whose comments reflect certain of the problems of record making.² Only one of them discouraged the idea of the chart entirely:

... I would say that I have such difficulties in selecting and properly weighing criteria of slow clinical changes that I have been unable to apply any mathematical measures to such. Hence, I do not feel competent to appraise graphs or curves of the changes, nor to evaluate their usefulness in the hands of others, or for any comparative purposes.

On the other hand Moiser, who had begun to use both the conference classification and our chart, wrote:

At first it seemed to me to be splitting hairs to subdivide each stage into three parts, but I have already found that each subdivision is of quite decided value to me personally, though whether you yourself or another would chart any particular case in exactly the same way is very doubtful... The chart is and must be very elastic. Signs and symptoms can never be as definite as say the reading of a clinical thermometer, but upon whatever level one starts, from that point progress is definite enough to be charted with a good degree of accuracy so long as the patient remains under the care of the same doctor who does the charting himself.

Muir considered card records advantageous, and believed it desirable to have the complete record of a case on one card. Lowe, remarking that the problem of recording progress is not to be solved by any one chart or system, suggested for our form certain modifications which we have adopted. He stressed the value of a case summary on a single form—for which he, too, preferred a card.

A question that has arisen is how one should finally record a case that when discharged as fully arrested still shows inactive neural changes—atrophies, contractures, persistent hypopigmentation, etc. This question does not arise with respect to the cutaneous-type cases because in classifying them one employs only active lesions, which may clear up entirely thus and bring the graph down to the negative zone. How different is the case with neural lesions is seen from the specifications for the neural type in the Conference classification, as given in the index above. All of the neural changes observed in a patient are used in his classification, and in recording the neural

² To Dr. John Lowe, then of Dichpali, India, we are especially indebted for certain thoughtful suggestions which led us to modify the form somewhat. To the emphasis placed on card records by him and Dr. E. Muir, of Calcutta, is due the adaptation of the form to a card.

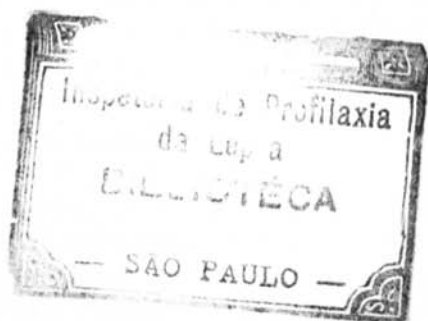
elements of a mixed case (obviously because of the impossibility of determining at any given moment whether or not they are active) and it is therefore not seen how any of them can be eliminated when, with the passage of time, it is concluded that they are inactive sequelae or residua. Consequently, even so simple a thing as a persistently hypopigmented macule must suffice to keep the graph at least within the first, slight part of the N1 zone. When it does go to the negative zone it will indicate that the changes have disappeared and the patient is without any of the stigmata which are socially and otherwise so important.

SUMMARY

The usefulness of a means for representing in a concise graphic form the progress of leprosy in individual cases over a long period of time is discussed, and a form for the purpose, based on the Conference classification, is presented. In it provision is also made for summarizing other outstanding facts, including the bacteriological findings, weight, concurrent clinical events, and treatment. Hypothetical cases are presented in outline to illustrate the use of the chart, and a question arising in connection with recording neural cases is discussed.

ADDENDUM

A limited supply of the form inserted herewith is available at Culion, and a sufficient number for trial will be sent on request to any institution interested.



DESCRIPTION OF CHART

The chart inserted here is a ~~trimmed~~ copy of the actual chart as prepared for use, except for the parenthetical note at the bottom and the side letters A and B. These letters indicate the line of folding when the chart is used in a double 8" x 5" card.

(NAME OF INSTITUTION HERE)
PROGRESS CHART

Name:

Age:

Date admitted:

Year								
Month								
C3								
C2								
C1								
N1								
N2								
N3								
Bacteriology								
Clinical Notes								
Treatment								
Weight								

(This insert is an actual copy of the chart, trimmed for the purpose)