LETTERS TO THE EDITOR

I. Dr. R. CHAUSSINAND of Institut Pasteur, Paris, writes about the article "Is Leprosy Transmitted by Arthropods?" (by Prof. NIELS DUNGAL of Reykjavik, Iceland, in *Lep. Rev.* 32, 1, pp.28–35). CHAUSSINAND says, "In this article Prof. DUNGAL declares concerning the routes of penetration of the Hansen bacillus that 'CHAUSSINAND and many others with him have incriminated the inhalation of nasal droplets of mucus from infective patients, as in tuberculosis' " (p.29). However, I have always affirmed the contrary, both in my articles and in my books. So in the paragraph in the two editions of *de la Lèpre*, to which DUNGAL refers, is expressed in the following terms, "Most leprologists now consider at the present time that the penetration of the Hansen bacillus through the mucosae is exceptional. They base themselves on the fact that mucosal lesions are never observed at the beginning of the disease. Furthermore, leprosy patients with the benign type of leprosy only infrequently show changes in the pituitary and buccopharyngeal mucosae, and just as in leprosy patients with the malign type of leprosy, the appearance of these lesions always occurs after that of skin and nerve lesions. On the other hand, there is no hint that the Hansen bacillus may enter the body through the pituitary buccopharyngeal and laryngeal mucosae or through the mucosa of the stomach, intestine, and lungs".

As for the various arguments presented in this article, I do not agree with NIELS DUNGAL when he states in connection with my theory on the antagonism between tuberculosis and leprosy: "this theory would explain much, but is difficult to prove".

The phenomenon of crossed premunition between 2 infections relatively akin in nature is determined by the pathogenic agent which infected the body in the first place. This contamination thus renders the body ready to defend itself, in certain measure, against a later attack by the second pathogenic germ. To obtain clinical observations which are conclusive, it is then indispensable in each case to know the primary contaminating agent. There is no room for doubt in this matter, if one is presented with a leprosy patient in whom the tuberculin reactions are negative. On the other hand, the problem will be practically insoluble when the leprosy patient reacts to tuberculin. It is then generally impossible to be certain of the nature of the initial bacillary infection. It is however evident that this crossed premunition is relative and its intensity differs from one subject to the other. The degree of para-immunity of the body against the second infection depends on the degree of acquired immunity against the first infection. A bacillary impregnation which has not provoked any phenomenon of specific immunity cannot produce a para-immunity. So the organism of a lepromatous case of leprosy,

anergic to lepromin, which presents no immunity to the Hansen bacillus, will never achieve premunition by means of its leprosy against a later infection due to the Koch bacillus. The dgreee and the very existence of the specific antileprosy immunity or especially the antituberculous immunity, which can benefit the body at the moment of its contamination by the second germ, are very often impossible to determine retrospectively. Doubtless this antagonism between tuberculosis and leprosy is not the sole cause for the progressive evolution of the leprosy. Other factors, varying from one country to another, enter in to play a role more or less important. I think we can obtain a valuable clinical hint on the problem of relative para-immunity between leprosy and tuberculosis when one studies the different countries where the two infections are endemic, and the percentage of patients attacked by advancing pulmonary tuberculosis, on the one hand in tuberculoid leprosy patients strongly allergic to lepromin and on the other hand in anergic lepromatous leprosy patients who are anergic to lepromin, The causes of error are considerably equalised in the two groups, if the second group is numerically important and well matched, and if the percentage of advancing pulmonary tuberculosis is significantly high in the group of lepromatous cases. It is especially clear that leprosy cases attacked with active pulmonary tuberculosis should be taken into account. Leprosy patients which do not show any tuberculinic allergy or benign or regressive lesions of tuberculosis should be excluded from these statistics, since this para-immunity can only be relative. Also there should be excluded such patients who have had an antileprosy therapy of the nature of streptomycin, INH, or other drugs very active against tuberculosis.

As for the para-immunity between tuberculosis and leprosy, it is very difficult to obtain a useful indication unless these researches deal with subjects reacting to tuberculin or having been vaccinated or re-vaccinated with BCG, at least 2 years before the appearance of clinical lesions of leprosy. Subjects negative to tuberculin and not vaccinated with BCG should then furnish a higher percentage of leprosy cases and especially of indeterminate or lepromatous leprosy. Whereas among subjects reacting to tuberculin or vaccinated by BCG, after at least 3 years, the cases of leprosy should be rarer and mostly tuberculoid in type.

It is certain that it is difficult to prove the existence of an antagonism between tuberculosis and leprosy but the search for this proof is indeed worth trying, for it will bring, as NIELS DUNGAL justly says, valuable clarification of leprosy epidemiology.

2. Prof. NIELS DUNGAL has seen this letter and replies as follows:

I am sorry to have misunderstood or misquoted Dr. CHAUSSINAND's teaching on the possible part of entrance of the *M.leprae*.

I accept with great pleasure and full satisfaction Dr. CHAUSSINAND's quotation from his book on Leprosy, that he with the majority of leprologists thinks that *M.leprae* "does only exceptionally penetrate the mucous membranes".

This is in full agreement with my views as expressed in my paper in question, for if *M.leprae* does not pass through the mucous membranes it must pass through the skin or a lesion in the skin to enter the body. The all important question is how that happens, and that is what all of us should like to know. I have just tried to bring forth some arguments how that transport might be brought about, as none of us seems to accredit the *M.leprae* with a skin penetrating power by itself. Scratches might do it, but insect pricks fit, in my opinion, better in with many observed cases of transmission.

The cross-immunity, between tuberculosis and leprosy is a big chapter which is difficult to discuss fruitfully. In this country I have come to the conclusion that the majority of population has been free from tuberculosis in this century, just at the time that leprosy was being eradicated. We are therefore unable to maintain that tuberculosis has had anything to do with the termination of leprosy here, But, of course, that does not disprove Dr. CHAUSSINAND's theory for other countries.

3. *Correction.* Dr. R. CHAUSSINAND writes pointing out that in his article "Classification of Leprosy", pp.74–81, Vol. 32, No. 2, April 1961 of *Leprosy Review*, in Section 2 p.78 the title "binary classification" used in the text should be replaced by "secondary classification". The word "binary" therefore should be replaced by "secondary" throughout the text of Section 2 of Dr. Chaussinand's article. This error is regretted.

We reproduce here in the original the letter of Dr. Chaussinand.

"Cher Dr. Ross Innes,

"Dans le deuxième chapitre de mon article sur la Classification de la lèpre, vous avez traduit le mot français 'secondaire' par le mot 'binary'. Or, en français, ces adjectifs ont une signification totalement différente et je suppose qu'il en est de même en anglais:

" 'secondaire' signifie en français 'qui vient en seconde ligne ou qui ne vient qu'en second lieu'.

" 'binaire' signifie en français, "qui est composé de deux unités'.

"Donc une classification binaire est une classification composée de deux unités (lèpre maligne et lèpre bénigne, par exemple).

"Au contraire, une classification secondaire est une sous-classification, qui ne vient qu'en second lieu, après la classification primaire, et qui peut être composée d'un nombre variable d'unités.

"Les deux termes ne sont donc pas interchangeables.

"En conséquence, je prie les lecteurs de mon article de vouloir bien rectifier eux-mêmes, le mot 'binary' devant être remplacé par le

mot 'secondary' partout où il figure dans le deuxième chapitre de mon article, titre compris.

"Toutefois, à part ce léger désaccord linguistique, je me plais à reconnaître que votre traduction est parfaite et je vous présente mes compliments et mes tres vifs remercîments.

R. CHAUSSINAND".