nosis of the disease the results did not justify the procedure, only nerve degeneration being found histologically; we are inclined to believe that the specimen was not taken from the lesion focus.

Dr. Xavier Vilanova, Barcelona, Spain: It has been our practice to biopsy nerve trunks for diagnostic purposes, not as a routine procedure, nor on the other hand only in exceptional cases. It seems to us that there is an intermediate position between those two extremes which is more correct. We have usually biopsied the cubital nerve, less often the posterior tibial, in subjects which clinically we have suspected of having lepra fibrosa. (For our concept of this condition, see my contribution to the symposium on classification, The Journal 20 (1952) 532).

Approximately 40 patients have been biopsied, including those in which only cutaneous nerves were examined. Biopsy of mixed nerves is done surgically, exposing the nerve and removing only a small peripheral portion of shallow depth but of much greater length. No bad after-effects have been seen. The patients were already suffering from a considerable deficiency of innervation—claw hand, perforating plantar ulcer, etc.—and the extirpation of the few altered nerve fibers which are removed did not cause any later harm. On the contrary, some patients have improved after the operation, perhaps because the incision of the fibrous casing which contained what remained of the undamaged nerve fibers saved them from destruction. The results have justified the procedure, and the findings have permitted the characterization of a new form of leprosy, lepra fibrosa.

A part of our material, as said, has been obtained from thickened cutaneous nerves, when the macular skin lesions have shown an indeterminate structure but the clinical findings indicated lepra reactiva (tuberculoïd). Such nerves have been on the dorsum of the hand, the foot, the cervical region, etc. Complete section of these sensory nerve branches has not been followed by disagreeable effects.

To THE EDITOR:
I was interested in reading “The Mechanism of Action of the Sulfone Derivatives in Lepromatous Leprosy,” by Drs. Paulo Rath de Souza and Moacir de Souza Lima, reprinted in the July-September issue of The Journal last year. They state that the action is probably on some mechanism which they call the “Virchow cell-Hansen bacillus complex,” and that “the sulfones . . . act principally on the Virchow cell component, altering in some way its metabolism and rendering its cytoplasm unsuitable for multiplication and survival of the bacillus,” although they do not deny a bacteriolytic effect of sulfones.

I believe these observations are important, particularly since Hanks has been able to show that the bacillus of human leprosy and Stefansky’s bacillus thrive and multiply inside the histiocytes (macrophages) in tissue culture as long as the cells are not destroyed. When the bacilli multiply and subsequently
destroy the cells, they are liberated into the extracellular sub-
stance where they are inhibited or destroyed and the infection
diminishes. Cochrane reports that the leprosy bacilli appear
more frequently in the extracellular spaces after sulfonization,
so that the observation of the authors referred to above, that
the histiocyte is necessary for the intracellular growth and
multiplication of leprosy bacilli, gains importance.

A similar observation has been made in work on the vac-
cinia virus at the Yale Medical School. In tissue culture the
virus multiplies well when inside the cells, but when the growth
is such that the cells are destroyed and the organisms are set
free in the extracellular fluid, they are destroyed and are un-
able to penetrate new cells. Further work has shown that a
mucoprotein, hyaluronic acid, causes this inhibition; when the
mucoprotein is removed from the substrate of the tissue culture,
the vaccinia virus is able to break out of the cells and thus
continue to multiply.

The findings of Hanks that certain sera of animals have a
similar inhibitory effect on rat leprosy bacilli may fit into the
concept of the Virchow cell-Hansen bacillus complex. To sum-
marize, we might hypothesize that the sulfones disturb the Vir-
chow cell in some way, causing the bacilli to break out into the
extracellular substance, where they are inhibited by the muco-
or lipoproteins.

There is another interesting observation to the effect that,
by some factor of heredity, the colloids (mucoproteins) may
not be produced in equal amounts in all persons. A group
studying urine colloids in patients with persistent renal calculi
have found that in over 90 per cent of the cases the colloids
are lower than normal, with a resulting lowering of urinary
surface tension. Renal stones are thus easily developed because
the micella of the stones can easily form concretions of phos-
phates and oxalates.

If this be the case, a similar hereditary deficiency in pro-
duction of colloids might be considered in leprosy cases. The
bacilli, entering the body through the skin, are able to get into
the histiocytes where they can multiply, instead of being in-
hibited or destroyed by the colloids in the extracellular ground
substance. (See Hanks, J. H., Metabolic inhibition of Myco-
bacterium leprae murium by serum components which modify
the hemagglutination or infectiousness of certain viruses. Bact.

Persons with habitual renal calculi have abnormally low
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urinary colloids. When given hyaluronidase subcutaneously, the production of urine colloids is elevated sufficiently to prevent the formation of new renal stones. If it should be established that persons with leprosy are deficient in extracellular colloidal substances, it would be interesting to see if our present treatment with sulfones could be further improved by increasing this colloid level. The sulfones are supposedly instrumental in bringing the leprosy bacilli out of the cells into the extracellular ground substance, where a high lipomucoprotein content would cause greater inhibition or destruction of them.

Much of the foregoing is based on theory, and there is assumed a close similarity between rat and human leprosy which may not exist; but, as Rath de Souza and de Souza Lima have quoted from Selye, “even incorrect theories are often of great help in unveiling the secrets of nature, as long as we regard them merely as concrete formulations of possibilities, which, by virtue of their concreteness, lend themselves to be proven or disproven by subsequent observation.”

c/o Leonard Wood Memorial  JACK W. MILLAR, LT. MC, USN
Washington 6, D.C.

To THE EDITOR:

I have gone through the interesting article “The Mechanism of Action of the Sulfone Derivatives in Lepromatous Leprosy” by Paulo Rath de Souza and Moacir de Souza Lima. In it the following statements have been made:

“The biology of the Hansen bacillus indicates that it depends strictly on the Virchow cell in order to live and multiply successfully.”

“The sulfones act principally on the Virchow cell component [of what they call the Virchow cell-Hansen bacillus complex], in some way altering its metabolism and making its cytoplasm unsuitable for the life of the Hansen bacillus.”

In a lepromatous case bacilli are found in Virchow cells and also outside them. In such a case if Hansen’s bacillus depends strictly on the Virchow cells in order to live and multiply successfully, and if sulfones act principally on the Virchow cell component making its cytoplasm unsuitable for the life of the Hansen’s bacilli, we fail to explain how in the same case bacilli live and multiply outside Virchow cells and how they disintegrate under sulfone treatment.

Bacilli are also found in some tuberculoid and other neural cases where there are no Virchow cells. Therefore, if we scrutinize the above statements and apply them in a larger con-
text we fail to explain how, in the absence of Virchow cells, a bacteriologically negative neural case becomes positive or positivity in the same case increases and how these bacilli disintegrate under sulfone treatment.

It seems, therefore, that bacilli are nourished by the tissue fluid in general of a leprous lesion and not by Virchow cells alone, and that alteration of metabolism in the tissues due to sulfone treatment is more general and not limited to the Virchow cells, thus making the tissues unsuitable for the growth and multiplication of bacilli anywhere in the lesion.

I agree with the statement that, "An identical mechanism is also operative, although not so regularly or effectively, either when other ways of treatment are applied or in natural condition when regression of the lesions occur without treatment."

The Name Leprosy

In the last issue of THE JOURNAL (pp. 86-89) there appeared five communications on the subject of the agitation to replace the word "leprosy" by "Hansen's disease," four from Associate Editors to whom had been submitted a proposal to reprint a certain article on the subject, and one from another interested contributor. Another voluntary contribution has now been received, this one from Dr. Reidar Melsom, of Bergen, the successor of Lie in the leprosy work in Norway.

From Dr. R. Melsom, Bergen:

I have recently been led to ponder over the proposal that the name "leprosy" be changed to "Hansen's disease," and I offer my opinion on the subject.

Leprosy was endemic in Norway from ancient times to the end of the last century, and this endemic was more severe and more prolonged than in any other part of Western Europe. Norwegians are therefore more familiar with this disease than any other nation with West European culture. I was born on the coast of Norway not far from Oslo, in an area where there has never been any leprosy, which was therefore practically unknown to the local inhabitants. As a child and in school I heard, like everybody else, about leprosy during scripture lessons, which then had a prominent place in the primary schools. The biblical history of miraculous cures of leprosy did not provoke in the schoolchildren any great fear or horror of this disease. My personal experiences do not confirm the claim that the odious association connected with the word leprosy are due to the stories in the Bible.

While I was a medical student and after I had qualified as a doctor, the diagnosis of hopeless diseases such as cancer, leukemia, mycosis fungoides, etc., always made me feel heavy at heart. Dr. H. P. Lie was of the