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The Question of the Virulence Increase of the Tubercle Bacillus.

By Dr. N. JANCsó, Private Professor at the Internal Clinic, and
Dr. A. ELFER, First Assistant (Kolozsvár).

(From the Laboratory of the Internal Clinic, University of Kolozsvár.)

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Since by the human tuberculosis the question of the different ætiological factors is today an open one, it will not be uninteresting if we bring precisely before the members of the honourable Congress the most important results of our experiments concerning the virulence increase of the different tubercle bacilli.

It is undoubted that the cause by the human tuberculosis in most cases — as the ætiological factor — is the human tubercle bacillus. But we cannot argue about the fact that we have under our observations from the different human tuberculosis such cases, in which bacilli of such properties are gained, which are wholly the same as those of the bovin tubercle bacilli.

The members of the so-called «*typus humanus and typus bovinus*», these names are inaugurated by WEBER-KOSSEL and HEUSS — excepting from the quantitative measure — are the cause of the spreading in the human tuberculosis. The practical importance of it is quite superfluous to point out.

The important notes of KOCH in the International Congress of last year, will change nothing of this part of that question, even not then, if we should never find the bovin tubercle bacilli by the cases of exquisite tuberculosis of the lungs.

The question of the virulence enlargement of the tubercle bacilli — especially regarding the occurrence by the human tuberculosis — is connected narrowly with the experimental approachment of the above-mentioned question. We well know that the members of either the *typus humanus* or the *typus bovinus* differ sufficiently one from another in the essential qualities. The differences are between the members in such

degrees, which are gained from the pathological tissues, that those experimenters are also obliged to calculate with these circumstances, who want to collect the different tubercle bacilli in one great general group. It is quite natural that, they have used to the certification of our declaration all those biological experiments, with which they thought to change the properties of the different tubercle bacilli.

But it is a great question whether all these experiments are of such value, that we could believe, that the question is decided in positive direction.

We have explained with the proper details the causes in our monograph, which will shortly be published, which compelled us also not to accept as quite certain facts all those experiments touching the above — mentioned question.

We have a great number of experimental facts, which point strictly, that the changement of the essential characters of the different tubercle bacilli, how little is in the power of the experimenters. And still how much we should wish to tax in the positive direction those experiments, which result in the same manner. Be it far from us, that we should support so rigidly, our negative experiments, in every direction, which are certified from such a different side, and made with the different biological methods; but when we act in this way, we should like to see the same by the utilising of all those experimental facts, which would judge in the contrary sense.

We would chiefly mention in the question the virulence increase of the tubercle bacilli especially those of our experiments, when we took for our purpose the growth of the different tubercle bacilli for a long time in certain species of animals. Before we wished to make the last conclusion from these experimental facts, we want to mention, that we have regarded only those experiments for testification, which we have had under our observation by the different changing of the tubercle bacilli, at the commencement of the experimental series, in the form of direct pure culture. Also we have operated with such stems, whose outward and some of its essential biological characters are sufficiently well known before us.

Approaching that question if we could increase the pathological action of our human tubercle bacilli on rabbits, we have made altogether 16 different experimental series, always with direct original pure culture. Regarding, that all these are

biological experiments, we can say, that in the comprehension of today these are made with the greatest punctuality.

Our rabbits passage series have shown us, that we could never observe for a long time, that the virulence our human tubercle culture would increase for them. We have observed these facts if either we have left for a short, or long time our human tubercle culture in the rabbits bodies.

During the space of three years we have made this observation, and it appears so from our observation in other words, that we could not influence the virulence increase of our human tubercle bacilli in the rabbits bodies in such a manner, that they would show for a long time those different changes, what are caused generally by the bovin tubercle bacilli.

We will emphatically state this circumstance, which we have now rigidly touched — by the judgment the virulence increase for rabbits — that this quality shall be able to remain for a long time, because we consider our so — called transitive virulence increase facts abandoned by the judgment of this kind of experiments. At the present moment for want of time we cannot give full particulars of our data.

When we made the experiments in this direction, with sixteen different original human tubercle bacillus stems, and when we could observe either at the commencement of the experiment, or at the time of its conclusion some of the essential important biological properties nearly in the same circumstances, when we could compare our above — mentioned facts, with our experiments made strictly in another direction, then we could not diminish their certain strength, even regarding them with the most sceptical point of view.

When we confront these facts, with those of our experimental results, which we have made from such a design, if we could increase the virulence of the human tubercle bacilli for rabbits, which we inserted in the course of the experiments in greater mammalia; and when we made our experiments with such strict principle, which we remarked by the results of our rabbits passages, it is really surprising the conformity, which they have given us. We could remark again that our different human tubercle bacillus stems, — which are transferred in the bodies of goats and calves, — had not gained, regarding the rabbits, virulence increase action for a long time. This part of our experiments, which we have made in

a great number of the different animals, has lasted for the space of four years.

It will not be uninteresting to note from our work, those experimental facts, which we have completed for that design, if we are capable — on the ground of the former well known experiments of NOCARD — to put the human tubercle bacilli in the body of fowls — to transmit them with such properties, that they shall be pathological for the fowl — as the members of the *typus gallinaceus*.

In that question, we must share the opinion of STRAUSS one of the most eminent experimenters of the last century in the tuberculosis question, which he accented so emphatically. «*J'admets volontiers la réalité des faits, que vous invoquez, le lapin, le cheval, le boeuf, l'homme lui-même, peuvent prendre la tuberculose aviaire, comme la tuberculose humaine. Cela prouve-t-il, que ces tuberculoses soient identiques? Quand vous aurez transformé le bacille humain, en bacille aviaire, je m'avouerai convaincu.*»

Our experiments stand in full contrast, with the result of the old experiments of NOCARD, and with the newer experiments from RABINOWITSCH and BANG.

Our experiments show equally; that we are never capable of changing the properties of the nine different human tuberculosis stems in such a manner, that in those cases, they would have got for fowls virulence increase.

The direction of these experiments are made partly in the manner of the old NOCARD's experiments, partly through the fowl passages, on the same ground as those, which we have made in the rabbits.

Perhaps it will not be superfluous to point out, that even by the fowls, when we infect them with different tubercle bacillus stems, the certifying power of the negative results, are incomparably more valuable, than the positive, where as the control of these results fatal enough in the most cases does not stand in the experimenter's power.

If now we observe those of our experimental facts, which we have made for that design, that we shall increase the virulence of the human tubercle bacilli for cold blooded animals, we found that we were not capable in one single case to transfer with such qualities our human tubercle bacilli in the bodies of the cold blooded animals, that they could show

