Dr. Heyroth
Mr. Cholak
Dr. Treon
Mr. Witherup
Dr. Horton
Dr. Cleveland

I have just completed (or nearly completed) the editing of a large series of reports to various sponsors of the Laboratory. Since these had been prepared for some time and since the later reports could not be modified before coming to me in accordance with criticisms of those of this series that had been edited previously, I held my peace, aside from certain comments, which at times were highly critical and perhaps, at times, not altogether impersonal.

It seems desirable now, before a new crop appears, to comment on certain of the shortcomings of these reports. I do so in writing in order to save everyone's time but my own, and as a basis for any further discussion, which after consideration of my comments, may be thought desirable.

First, the toxicological reports, in particular, and others to a lesser extent,tend to become too much stereotyped as to phraseology, too much steeped in the jargon of this and other toxicological laboratories, and too far outside the comprehension and practical interpretation of intelligent technical people whose knowledge of toxicologic language is limited, but whose understanding of industrial hygiene is considerable and susceptible of improvement. We need urgently, all of us, to strive to express our results and interpretations in simple,straightforward language, and to vary our terms and statements so as not to build up jargon and a pseudo-scientific and specialized language.

Two points, in particular, require simplicity of speech and clarity of thought. The one relates to statistical considerations. To the extent that

these have critical validity, they can be expressed simply, and in common language. There is no point in going to great lengths to deal with statistical procedures and techniques in the critical examination of data which at best have dubious clinical or biological significance. Our concern is with biological phenomena in their simplest meaning for our purposes. We are in some danger, in keeping with modern experimental trends, of employing statistics to elevate the significance of data, which in themselves are somewhat less than convincing.

The other respect in which our work, and our reports, in particular, are lacking in maximum usefulness and clarity, is that of our handling of the information which derives from the examination of the tissues of animals. The first defect is the lack of adequate reporting of the gross findings. It is often true that the gross examination of an animal or group of animals is more rewarding than the microscopic, particularly in relation to the direct toxic effects and the interpretation of incidental disease. After all, a section is but a small piece of an organ, and a series of sections of the viscera comprise only a minute bit of the total organism. The significance of the over-all examination and anatomical diagnosis is often much greater, in a very practical sense, than is the minute examination of sometimes unrelated bits and pieces of organs. I suspect that this is not being overlooked in the performance to the extent that it is in the reports, but the fact is that our reports, increasingly, lack gross pathologic information, and give the impression that such information is not available.

The second serious defect in the reporting of the pathology associated with toxic effects, on the background of incidental disease and illness among

the animals, presents itself in two aspects:

1. We are providing histologic descriptions, which are entirely unintelligible to our lay sponsors, and which yet are not sufficiently grouped and classified to satisfy critical pathologists. These descriptions often have the further fault that they do not attempt to answer the questions they raise. When one is studying a new material the important contribution of the pathologist is that of depicting the pathologic process as a whole, in terms of the nature and the distribution of the morbid changes, as a means of better understanding the toxic process. When, however, one is using the pathologic approach to differentiate between incidental abnormalities in animals and specific toxic effects induced by the absorption of a material, the minute histologic description, except in unusual instances, is relatively unimportant. The primary questions are - did this animal die, or was this animal ill, because of the material absorbed or because of extraneous causes? It often happens that our reports, while sounding erudite and "scientific," not only fail to answer these primary questions, but make no attempt to do so. This, I suspect, results from the fact that the pathologist does not work in such relationship to the toxicologist as to provide him with the proper information or to see that such information is written into the report at the proper place and in the proper manner. The toxicologist cannot, and should not be expected to, take the histological reports and incorporate them into the manuscript. This is the job of the pathologist. This touches upon, and largely covers the second type of defect, which, however, I underscore by a separate reference.

2. We are not writing up the pathology in our reports in an expert manner. As indicated previously, this, I believe, is due, in part, to the

experiments. However, it seems likely that the pathological work is being performed better than it is being used in the interpretation of the results and in the preparation of our reports. We are spending much time, effort and money in the study of pathology in relation to toxicology, and we are not getting a just return for these expenditures in our reports. These, I must say in all honesty, are wordy, inept and inconclusive in matters in which they must be reasonably conclusive if the work is to be justified. The difficulty here, in large part, arises from the fact that the pathologic work is not properly and thoughtfully written into the reports.

These remarks are not written in irritation but out of pride for what we have achieved together and respect for what we can do, despite the fact that my editing of our reports has come to be an unnecessarily lengthy and troublesome task. In the future, reports of investigations should come to me in such state that I do not have to rewrite them to make their language intelligible and passable, and that I do not have to question the validity of their substance. I shall continue to do both of these, to the extent that they are required, but I should not have to revise the headings of tables when these appear with errors and obfuscations that I have pointed out previously, and I should not have to take frequent exception to the manner of presenting and interpreting evidence. These things can be done satisfactorily by those who have the primary responsibility for the preparation of reports. They should not be left to me, because it is known that I will, eventually, take the time and trouble to attend to them. I make direct point of this, which is not kind of me, perhaps, because I am forced to recognize that the growing

responsibilities involved in the administration of the affairs of this Department and Laboratory, cannot be expected to leave either the time or the energy required of me if I am to keep up with the present editorial load.

Robert K. Kelso

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