

August 22, 1949-1360-WAS-NI

MEMORANDUM FOR RECORD

1. THE PROBLEM

A conference in October is being arranged by Mr. D. A. Quarles to review the present patent situation and in particular to review the current method of handling patentable ideas. In preparation for this conference, Mr. Bown has asked those reporting to him for certain information. To this end Mr. Patter has asked that a survey be made in his department to determine the reaction of engineers to the methods of handling patentable ideas now being used in the Bell Telephone Laboratories. The survey will, in general, be limited to those engineers who have had actual experience in handling patents. More specifically, the object of this survey is:

- 1.1 To secure an appraisal of the relative efficiencies of the methods now being used in the Bell Telephone Laboratories in handling patentable ideas.
- 1.2 To determine the engineer's attitude towards the experimental method now being used in Dept. 1300.
- 1.3 To determine whether or not the engineers prefer this experimental method to the current standard method now being used throughout the other departments of the Laboratories.
- 1.4 To determine what changes, if any, the engineers would suggest.

2. BACKGROUND INFORMATION ON THE HANDLING OF PATENTS

In a memorandum for record of August 8, 1949, Mr. R. C. Mathes gives a brief description of three systems of handling patents that have been used in the Laboratories. System A was the standard procedure used throughout the Laboratories until some time in November, 1947. System B is the current procedure used throughout the Research Department since November, 1947, except in Department 1300. System C is the experimental procedure used in Department 1300 at the present time. Each respondent in the survey is supposed to be familiar with the information provided in Mr. Mathes' memorandum describing these three systems.

3. FACTORS IN PATENT SITUATION TO BE CONSIDERED

3.1 Technical Effort - In the experimental procedure (System C) technical effort is expended by the inventor, his supervisor, a Mr. X, the department head, and a patent attorney.

In so far as it is feasible, it would be helpful to have an estimate of the amounts of effort expended by each of these as well as a rough estimate of the comparative effort expended by these four individuals under the current standard method, System B. It also should be kept in mind that even though the same total time may be spent on the part of each of the four types of individuals in System C as in System B, the value of this effort, not only in respect to the given patent but in more general terms, may not be the same. Some engineers with whom I have talked feel, for example, that the initial

conference held under the experimental system often uncovered information of broad general use to the patent attorney, on one hand, and to the engineers, on the other.

3.2 Quality of Patent Application - It is desirable to learn the engineer's appraisal of the quality of the patents taken out under the experimental procedure and, where possible, to find out whether or not the engineers feel that the quality of their patents would have been the same under current standard procedure.

In this connection, it is necessary to keep in mind that the nature of the answers will likely depend to a large extent upon the types of patents. For example, the reactions of engineers with experience only on a patent involving some comparatively simple gadget are likely to be considerably different from those of engineers with experience on a more fundamental type of patent in a new field such as selective voice control or transistors.

3.3 Speed of Filing - An actual record of the speed of filing is to be obtained from the Patent Department. However, it would be of considerable interest to know the engineer's appraisal of this speed.

Even though the speed of filing may be the same under System C as under the standard System B, nevertheless the engineer may have a feeling that one is faster than the other. This may arise from the fact that the total effort of the engineer may be distributed in time much differently under the two systems. It is likely that the engineer's reaction to a given system will depend more upon what he thinks the speed is than it does upon what the actual speed may be.

- 3.4 Coverage of Patentable Ideas - It would be interesting to know whether or not the engineers feel that of the two systems, B and C, one is likely to give greater coverage of ideas than the other.

For example, if the engineers like one system much better than the other it may be that this system will stimulate their interest in trying to cover all of their worthwhile ideas by patents.

4. SEVEN TYPES OF QUESTIONS

4.1 Opener - If possible, the interview should open with an easy and interesting question to enlist the cooperation of the respondent.

4.2 Filter - This type of question is designed to determine what type of pertinent experience the respondent may have had.

However, their experience may be as inventor, acting as his own Mr. X, as an inventor assisted by a Mr. X, or simply as a Mr. X. Likewise certain of the respondents will have had experience under Systems A, B and C. The numbers of patents assigned to each respondent under Systems A, B, and C should be determined.

4.3 Open End - By an open end question we mean one such as: "What is your personal reaction to the experimental procedure (System C)?"

In designing such a question an attempt is made to find out how the respondent feels at the start of the interview about the subject under survey; It is supposed to stimulate him to talk freely.

4. Probing - The object of such questions is to determine why the respondent feels as he does. This information is of value in determining the grounds for his feeling and hence helps to indicate what is customarily known as the depth of his reaction or attitude.

For example, a person who has had extensive experience and has made a very thorough study of the different methods of handling patentable ideas may have arrived at a very carefully reasoned basis for his opinions. Another person may have just as strong an opinion but not have as good a rational basis.

4.5 Intensity - From the viewpoint of interpretation it is desirable to learn as much as possible about the intensity of the respondent's opinion or attitude.

4.6 Trend - Such questions are designed to determine how the respondent's feeling has changed throughout the course of his experience in handling patents. Obviously knowledge of the respondent's opinion at a given time is of value only if we know something about the stability of that opinion and trend questions are supposed to help us evaluate this stability.

4.7 Background - The evaluation or interpretation of the respondent's answers depends a lot upon available background data that in one way or another helps to shape the opinion that he holds.

For example, an engineer's age, length of service, and kind of service in the company may at times be important. Likewise, his attitude on the handling of patents may depend a lot upon certain broader attitudes. For example, a man whose fundamental interest is in scientific knowledge rather than in the use of that knowledge is likely to react differently to a given method of handling patents than one who is interested not only in scientific knowledge but also in its application. A man who reacts unfavorably in general to the preparation of memoranda and drawings may feel very unhappy about the preparation of memoranda to be used by the Patent Department. Some men may also react unfavorably to anything having to do with patents

primarily because they are not fundamentally sympathetic with the American system of granting patents.

One important reason why many research engineers are not more interested in patents is that they do not have a broad enough knowledge of the telephone system and its problems to foresee many of the ways in which the results of their fundamental research might be applied. Such a man may be materially helped by conferences such as are held under System C or by more general conferences which were held in the Research Department during the past year in which applications of the transistor ideas were discussed by men from many different departments. An engineer's attitude (particularly a young engineer) may be partly attributed to the fact that he has never officially been made aware of the importance of patents in private industry. Moreover, until he actually tries to take out a patent he may be quite ignorant of the requirements of a good patent in the light of Bell System experience. For example, if an engineer has in some way or other come in contact with a good patent attorney or a good discussion on patents, he may have thus become influenced to take an interest in the technical aspects of the problem of describing the broad claims that can be made on his patent. Such an appreciation of the technical problems might well make his reactions to the handling of patents much different than it would be otherwise.

5. ERRORS TO BE GUARDED AGAINST

5.1 Interviewer Bias - Unless each interviewer uses the same list of questions and the questions are so phrased that the answers are unambiguous, the attitude of the interviewer toward the questions may bias his record of the answers of the respondents to the questions.

The attitude of an interviewer toward the questions will in any case modify the way in which he asks the questions and this produces some bias. All of us are aware of the importance of inflection and facial expression on the part of the interviewer. Likewise the attitude of the respondent toward the interviewer may introduce bias. Polling experience in many fields indicates that the magnitude of interviewer bias may amount to several percent.

5.2 Wording of the Question - There are many ways in which the wording of the question may introduce bias. These should be avoided in so far as possible. It is also essential that the questions be so phrased as to be unambiguous to the respondent. Likewise, it is essential that the questions be phrased so as to differentiate the respondent's attitude toward the end to be achieved and the method of attaining that end.

5.3 Influence of Group Opinion - Since a knowledge of the opinion of others in a group may bias a respondent's answers to a questionnaire, it is essential that the interviewers be instructed not to discuss the opinions of others until after the interview. It is quite possible, of course, that a secret ballot would even then show up differently from what will be obtained by the interviewers.

In addition to these three sources of bias it should be kept in mind that in technical interviews of this character some respondents may find it difficult to organize their thoughts and give a rational response during the short period of an

interview. In other words, the answers obtained by interviewers might be different if the respondents were asked to fill out the questionnaire after they had time to think about some of the more technical questions for a longer period of time.

7. PROPOSED METHOD OF SURVEY

At the time of writing this memorandum, it is my understanding that there are approximately thirty engineers who have had patent experience that we wish to survey. It would be an arduous task for one man to interview this whole group. In fact, it might not be possible to do it within the time limit set. Moreover, if there were only one interviewer we would have no method of getting a rough appraisal of interviewer bias. It has been agreed therefore that there will be a group of the following six interviewers: J. E. Karlin, R. R. Riess, H. L. Barney, A. E. Melhose, R. L. Hanson, and R. Biddulph. These six men have already been contacted through their supervisors and are to be called together for a conference, presumably by Mr. Mathes, on either Thursday or Friday of this week. At that time the objectives of the survey, along with other pertinent information will be discussed with the interviewers. In the meantime, Mr. Karlin is preparing a preliminary draft of a questionnaire which he will use in interviewing the other five interviewers. After Karlin has summarized the results of his interviews, the group of six interviewers will then get together to go over the results and to make any necessary modifications in the questionnaire. After this has been done, the others to be interviewed will be

divided at random among the five interviewers other than Mr. Karlin. Each of the six interviewers will in this way interview something like five or six men. The fact that the members of the department to be interviewed are divided at random among the five interviewers will give us a rough basis for checking any interviewer bias that is introduced.

All interviews are to be completed before a date to be agreed upon at the meeting of the six interviewers with Mr. Mathes, presumably not later than September 5th.

As soon as all of the interviews have been made, Mr. Karlin will summarize and analyze the interviews and prepare a report to be in the hands of Mr. Mathes by September 15th.

Depending upon the outcome of the interviews and the results of the analysis, it may be desirable to call all of the respondents together and to discuss the results with them. Presumably such a group discussion would reveal the magnitude of any group influence and it may be deemed desirable at that time to determine in what way, if any, answers of the respondents to the questions have been modified. If this is done, it will give a rough measure of the bias introduced into the original interview because of group influence.

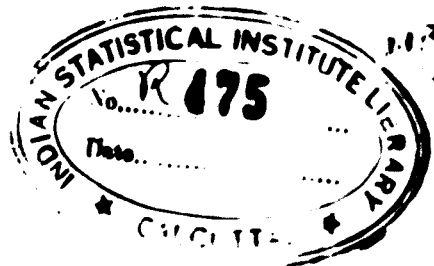
8. ANALYSIS AND INTERPRETATION

There are several obvious ways in which the data should be broken down to determine the importance of background information, patent experience, underlying differences, and the like.

Particular emphasis should be laid on the study of any trends revealed by the respondents. If a group conference is called, it may well be, as already indicated, that this would modify the over-all picture of the responses of Dept. 1300 from that obtained from the questionnaires. It is also desirable to keep in mind that the respondents in Dept. 1300 do not constitute a random sample of engineers in the Research Department. Hence care must be exercised when inferring how other research engineers might feel under similar conditions.

9. SURVEYS IN DEPT. 1500 and 1600

Mr. Potter has indicated that the heads of Depts. 1500 and 1600 might be willing to make a somewhat similar survey of the reaction of their engineers. It is suggested, therefore, that as soon as we have analyzed the results of the survey in Dept. 1300 these results be discussed with the department heads of 1500 and 1600. Obviously since they are operating under current standard procedure (System B) and have not had experience with the experimental procedure (System C) the questionnaire to be used in those departments may be different from that developed for Dept. 1300. Moreover, it is likely that our experience in Dept. 1300 will suggest other changes in the questionnaire and method of interviewing that might be of interest to if similar surveys are made in Departments 1500 and 1600.



W. A. SHEWHART

W. A. SHEWHART'S COLLECTION