SOME EXPERIENCES OF A SANITARY ENGINEER AS AN EXPERT WITNESS

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As a speaker on the subject of expert testimony, I shall have tc confess at once that I am an amateur. What I am going to say is not based on any textbook about how a witness should behave, how he should react to direct and indirect questions, and so forth. I shall base my talk primarily upon my own experience and the conclusions which I have reached myself as to how expert testimony should be given.

There are, ordinarily speaking, two types of testimony—factual testimony and expert testimony. The lay witness can only testify as to facts. He is not allowed or expected to express an opinion. An expert witness can give opinions based on his experience, his studies, or upon his research. He also is quite apt to be a factual witness as well as an expert opinion witness.

In giving testimony as an expert witness or as a lay witness, you are first subjected to direct examination by the attorney, who hopes or expects you to give testimony favorable to the client he represents. After you give your direct testimony (the technique of giving direct testimony is a little different from giving testimony on cross-examination), you are turned over to the lawyer on the other side for the cross-examination. One of the most important things which a witness should remember is that his manner of presenting his testimony may carry as much weight as his actual testimony, and sometimes even more weight. That is particularly true in the case of testimony being given before a jury.

The lawyer, also, in framing his questions and in his examination, modifies his questions and his manner of asking those questions, according to whether he is having a case tried before a jury or before a master or a judge. A master or a judge is not inclined to be

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misled, let us say, by dramatics. A jury may be swayed by dramatics and by oratory. Judges and masters are not.

It is, I would say, always better to be giving testimony before a judge or an auditor rather than before a jury, because the expert is usually testifying on technical matters which are difficult for the average layman to comprehend. Judges and auditors are lawyers. They have been accustomed to understanding complex problems of all sorts, from engineering to medical. It is my experience that the average lawyer or the average judge can grasp the essentials of technical matters with relative accuracy. Not always, but by and large, they make a much more satisfactory audience than jurors, for the presentation of testimony of a technical nature.

On the other hand, there are times, as I have seen happen, when if you are very young, quite boyish-looking, and the attorney on cross-examination gets you mixed up, the jury is so aroused by the rough tactics of the cross-examiner (especially if there are women on the jury) that the jurors forget the merits of the testimony and are inclined to side with the young witness.

I remember one case in Ohio quite some years ago (a pollution case), when the witness was a young chemist from our office. He was shortly out of Worcester Polytechnic Institute. He was a nice-looking young man, and in cross-examination he was confused. He blushed easily. He looked so honest and was trying so hard to be correct in his testimony that I could see the several women on the jury looking at him with the greatest of compassion. I knew right away that the side for which he was testifying had acquired friends on that jury. The attorney had made the mistake of badgering our young witness a bit; and, although he was confused, the confusion was offset by his obvious honesty and his good looks. To the jurors, it seemed as though he were their son and they felt for him as for a son.

The expert witness, as I said a little earlier, is permitted to express opinions based not only on his study of the particular problems involved in the case but also on any study that he ever made which was germane to the particular problem involved.

Sometimes that sort of testimony gets sidetracked. I remember a New Hampshire case. Arthur Weston was testifying in connection with the protection of the sanitary qualities of a water supply pond where the matter of bacterial analyses was being considered in court.

When Mr. Weston started to testify as to the interpretation of the results of the bacterial examinations, the attorney for the opposite side objected. I have always felt that the attorney for the side Mr. Weston was testifying for was a little bit lax, because the other side's attorney, objecting to Mr. Weston's interpretation of bacterial analyses, said to Mr. Weston, "Did you ever make any examinations yourself?"

"No, I never did, but I have interpreted hundreds of analyses."

"Well, since the witness has not made examinations himself, I believe Mr. Weston should not be permitted to give testimony because he has never made any analyses."

The judge allowed the exclusion of Mr. Weston's testimony. That is not in accordance with the usual rulings in similar situations, because Mr. Weston could have said that as a result of his study and experience he could and did interpret bacterial examinations, even though he had never made analyses. When the lawyer for the opposition came to me, and objected to my testimony, saying, "You never made any bacterial analyses yourself, have you?" I replied, "I have made hundreds." That shut him up.

There are certain precepts, certain advice that may be of value to some of you younger men who may be called upon to testify in court on technical matters.

Of course, one of the very first things that an expert must do—and his attorney must see that he does it—is to show that he can qualify, right up to the hilt. If you are modest you will hesitate to blow your own horn; you will hesitate to tell all you have done and the honors you have received. But don't let modesty deter you from giving all your qualifications.

The lawyers of utility companies, when they have an expert witness to put on the stand, qualify him right up to the hilt. This is necessary, not just for the court in which the case is being tried, but also at times for the record. You have to remember that some of the questions and answers that are brought out in court are for the record and not for the judge or jury.

Whether you are a lay witness or an expert witness, state the facts. If you are not quite sure of the facts, refresh your memory on the case by reference to notes, if you have them. It is very easy to get misled by your own memory. Memory is a very tricky thing.

I remember a case in Dayton, Ohio, where a large sewer of the

city of Dayton was discharging at the time of the trial, through an outlet about 5 ft. above the normal water level of the Miami River. (This was a pollution nuisance case brought by residents below the city.) The sewer discharged into an arm, or bayou, of the river in which sludge deposits had taken place and had caused a generally unsightly condition. The witnesses for the plaintiff, described the conditions exactly as they were at the day of the trial. In the state of Ohio there is a 6-year statute of limitations. The attorney for the plaintiff asked these witnesses to describe conditions as of that morning. Also, "How was it last year?"

"Just the same." Each witness testified that for 6 years back the conditions were "just the same."

When the witnesses got to the seventh year, they did not remember; but for 6 years they were sure.

As a matter of fact until about 3 years prior to this date of the trial, the sewer discharged under water. This shallow bayou was then the main thread of the stream, and the bridge which they described as being there had not been built. Now they remembered—or they had assumed—that that condition had existed for 6 years, but it had existed only 3 years. This is one of the hazards you may run into if you try to remember the conditions which existed some time ago.

One of the real difficulties of an expert in giving testimony on technical matters is the presentation of his material in nontechnical, homely language. I remember another case in Ohio. One of the witnesses for the defense was a young chemist. The case revolved in part around the discharge of acid-iron wastes into the Portage River. This young chemist had been talking about ferrous sulfate. When it came to cross-examination, the attorney said to him, "Well, now, Mr. ————, you have been talking about ferrous sulfate. Can you spell it for us?" "Oh," said the chemist, "$FeSO_4$."

Another moral: Instead of learning to express themselves in ordinary familiar language technical men show a tendency to use technical language rather than English. Technical witnesses must remember the very important need for simple illustrations and nontechnical language.

I recall one case where I was talking about organic matter. Organic matter means something to the chemist, or to anyone who is studying chemistry but little to the layman. In speaking about the

decomposition of organic matter, I described the sources of pollution which contribute organic matter, and how such organic matter is decomposed. "Even with a bouquet of the most beautiful flowers which you may have in your house in a vase of water, if the water is not changed, the stems of those flowers will undergo decomposition, and the water will smell to high heaven."

That is the type of illustration that the ordinary layman understands. Nobody has ever failed to empty the water from a vase of flowers after they have been kept very long without a change of water! This example illustrates a natural source of organic pollution, and also illustrates the decomposition of organic matter.

A trick question that lawyers always love to ask, (along the line of "Have you ever stopped beating your wife?") is this one, "Have you talked with anyone about this case?" The man testifying for the first time thinks it is wrong to discuss the case with anybody. This is not so. Unfortunately, a nervous witness will say that he has not, when you know he has. Then he will have to admit that he has talked it over with somebody, and so is discredited in the eyes of the court. Say, "I have talked it over with the lawyer." Admit it.

I remember a former federal judge in Ohio, whom I knew as a practicing attorney before he was a judge. He said that lawsuits are not won in the courtroom but outside, in the way in which preparation has been carried on. This applies not only to the attorney but also to the expert. If you are going to give expert testimony, it is, of course, most important that you prepare your material just as thoroughly as possible. Be prepared as best you can, with respect to the matters which you are going to present, by anticipating the case that the other side is likely to put on. Be prepared for the questions which may be asked on cross-examination. Understand the weaknesses of your own case, and the strength of the other fellow's case; and, by all means, brief your attorney or the attorney representing the side retaining you. Prepare him, too, as thoroughly as possible.

It is my experience that, as a rule (there are always exceptions), the younger attorneys are quicker to catch on to technical matters than are the older attorneys. I have seen high-ranking attorneys with a long-established reputation find it quite difficult to grasp the technical aspects of some cases I have been associated with; but younger men catch on with a good deal of rapidity.

In direct examination, you have somewhat more latitude than on cross-examination, and in direct examination it is not unwise sometimes to give a little lecture on the subject about which you are testifying. The lawyer who is examining you directly may ask a question which gives you an opportunity to expand your answer to the benefit of the court as a matter of education.

On the other hand, on cross-examination it is probably wise to answer "Yea, yea," or "Nay, nay," because the cross-examination questions may be loaded to catch you in a trap. Again, they may not: they may be straightforward. But, if you volunteer information on cross-examination, you may find yourself subject to embarrassing moments.

I recall once being asked something like this, on a water supply case: "When you came to Hudson Falls, didn't Dr. X tell you that there was never a case of typhoid traceable to the water supply?"

"Yes, I suppose he did, that's what they always tell me."

The attorney for the opposition then raked me over the coals. "Do you mean that Dr. X would willfully mislead you?"

I felt like a plugged nickel. That is what happens oftentimes, when you try to be smart. I got it, and I deserved it.

Occasionally, however, on cross-examination the opposing attorney will lay himself open, and then, if you are alert, you can very well turn it to the advantage of the side which is retaining you, for whom you are testifying.

On one case of cross-examination I was asked, "Why did you arrive at that opinion?"—Which immediately gave me the opportunity to explain five reasons for my opinion. That is a very unwise question for an attorney to ask because, if he has a witness who knows what he is talking about, the witness has the right to answer, and the answers may not please the questioner.

Another very common cross-examination question is one like this: "Isn't it possible that a man could fall from the fifth floor of the 'Y' Building and live?" The answer should be: "It would be possible, but highly improbable." That usually will shut up the cross-examining attorney. I was asked that question once and replied in just those few words. The Assistant Attorney General said in a displeased tone, "I did not ask you to make a speech."

It is unquestionably true that there are two sides to every lawsuit, and as an expert you will probably find yourself forced to make

admissions. The late Thomas W. Proctor, who was a well-known lawyer in Boston, said, "When it comes to making admissions, make them as though it didn't matter. Make them, but in a manner that indicates that they did not count in the scheme of things."

Another favorite trick of some attorneys is to say (after a recess), "This morning, Mr. Witness, you said that two and two make five." You don't know but what you did say so, but you had better say, "I didn't say that." The lawyer for the other side is trying to get you to make contradictory admissions.

If a question raised in court doesn't make sense—sometimes the questions of the attorney for the side you represent don't make sense—let your own attorney down as easily as possible, but when it comes to the cross-examiner, don't hesitate to say, "That doesn't make sense to me, Mr. XXX." One attorney has stated, "You experts generally have it all over us lawyers, talking on something we don't know too much about. You sometimes embarrass us by saying, 'Now, to me, I don't understand that question,' or 'That question doesn't make sense—doesn't sound intelligent to me.' " That throws them.

One of the essential factors in expert testimony, or in any testimony, is to be thoroughly convinced that the truth and the virtue lie on the side which you represent. If you don't believe that your tie-up has adequate grounds either for defense or for offense, you had better not take the job on.

Present your testimony in as convincing a way as is possible for you to do. Talk what you believe, and believe what you talk.

There was a case some years ago where the witness on the other side had a hesitant way of testifying. In talking with the court stenographer afterwards, I said to her, "What do think of his testimony?"

"I don't think he believed it himself."

As it happened, he had a hesitant, nonconvincing way of presenting his testimony.

As far as possible, present your evidence in as objective a manner as possible. Present it in much the way you would present a technical paper before an engineering group. You don't present a paper before a group like this without believing what you are talking about, and a convincing manner is one of the very important

things in connection with giving any kind of testimony, for that matter.

Some of the funny cases I have been mixed up with are really something out of this world.

The funniest one I ever had was some years ago when Mague the garbage contractor for the city of Newton, Massachusetts had a transfer station on Lexington Street between Auburndale and Waltham. An abutting owner, named Keith claimed that this transfer station was operated in an unsanitary and objectionable manner and brought action to have Mague enjoined from operating the transfer station. Mr. Proctor was Mague's attorney. The court gave Mague a year in which to correct conditions. At the end of that time, after Mague had spent ten to fifteen thousand dollars to improve conditions, this chap Keith petitioned to have Mague adjudged in contempt of court for failing to correct conditions.

Then we got into the situation, and one of my jobs was to run out and sniff the ambient atmosphere and report back to the attorney. The work Mague had done and the way he was conducting the station had materially improved the situation. The garbage wagons still drove in and out. They still looked unsightly. The station didn't stink, and there were no odors over the property line.

One day I was making an inspection along the line between Keith's property and Mague's and got over onto Keith's property and his daughter ordered me off. During the next inspection as I went along the line, very carefully keeping on Mague's land, there was a chap haying on both the Keith and the Mague property. So, as I walked by him, I spoke and said, "Say, are you cutting hay for both Mague and Keith?"

"No, I am cutting it for Keith."

"Did you know you were over on Mague's property?"

He said, "No. I will go down and see the old man, and make it all right."

The next week when I made my inspection the chap was raking up the hay, loading it on the wagon, but was on the Keith property close to the line. I said, "Well, did you get straightened out with Mr. Mague?"

"No, Mague said 'Your mistake, let her lay.' I'll get even with the old x%"#$%&X%$#%."

When I came back to the lawyer's office I told him Keith had a

new witness. Sure enough, when the case was heard, this chap appeared as one of the witnesses. He testified that, when he was making hay on the Keith land, the odors from the transfer station were so nauseating that he had to get down from the load of hay and lie down in the shade of Keith's house. The following then ensued:

Cross-Examiner: "Now, Mr. X, you don't like Mr. Mague."
Mr. X: "Oh, I ain't got nothin' against the man."
C-E: "Didn't you have trouble with him?"
Mr. X: "Oh, yes, I remember that; it was nothin'."
C-E: "You were pretty mad."
Mr. X: "Oh, no!"
C-E: "You didn't call him hard names?"
Mr. X: "Oh, no!"
C-E: "You didn't call him a x%#"#$&*¢X%&$%?"
Mr. X: "Oh, no, I seldom use that language."
When you are testifying, be careful of your language.

In connection with that case, the washings from the garbage wagons and from the transfer station itself were flushed down into a large leaching cesspool. I had looked into this cesspool and had seen the highest point to which the contents had risen. Acid digestion had taken place and the accumulation of garbage had become a more or less homogeneous mass of yellow-gray sludge. Up near the top of the cesspool there was a 10-in. drain leading off to the top of a bank which, in turn, sloped down to a marsh. The contents of that cesspool had never risen anywhere near this overflow evidently put in as a safety measure. But on the day the view was held when the auditor came out to see the premises, Keith led the auditor down to the point where this drain came out near the top of the bank, Keith was going to show the auditor the end of this overflow pipe, which Keith claimed had been in operation. I was suspicious of the way Keith acted when it was found that everything below the drain was clean and dry, so I went poking around the bushes below the end of the drain and down the slope. Out of sight hidden by the bushes was a half peck of fresh garbage.

You have heard of "salted" mines. This was a case of "salted" garbage at the end of the drain. What had happened (after the "salting") was that the day before the view there had been a heavy thun-

der shower, and this "salted" garbage at the end of the drain had been washed out of sight by the runoff from the land above the drain, much to the disappointment and puzzlement of Mr. Keith.

Another rather amusing experience was in connection with a well in Connecticut, which, it was claimed by the owner, had been polluted by drainage from the City dump. We had had test wells put on a semicircle around this well, claimed to have been polluted by the dump, and we had taken samples from these wells at periodic intervals, as well as from the well itself, to see if there was any evidence in the groundwater of the pollution that was attributed to the dump.

As an additional test, we put a well in the dump itself, which was a few hundred feet distant from the plaintiff's well and dumped into it a load of salt. We did it after dark, because we didn't want embarrassing questions, but did want to find out whether or not there would be an increase in the chloride content of the water. There was no change as far as chloride was concerned. That was not too conclusive, so in the course of the defense we did not use that negative evidence as we might have; it was not too good. The expert on the other side, when he was put under cross-examination, was asked about the tests he had made, and his test analyses, which incidentally checked with our own analyses. Then the attorney for the City inquired if he had made any more tests. He was hesitant, so the attorney pressed him. He admitted that he had dumped a load of salt in the dump, and that his results were also negative. The dump had had two doses of salt, instead of one and neither side had cared to put their results into evidence, although for different reasons.

One final word I would like to leave with you in connection with testifying. Particularly in answering cross-examinations, think first about what the question really means; second, don't be led into hasty, ill-considered answers. You may find yourself in the position of having to explain, which is always very bad. Be a little more afraid of the smooth, polite cross-examiner than of the browbeating type.

I remember Mr. Eddy, Senior, saying that the cleverest cross-examiner that he had ever been up against was Charles Choate, Jr., who asked his questions in such a pleasant manner that you wanted to answer them just as he wanted you to answer.

Another example of the value of, first, being prepared, and then of taking your time in answering, was an incident that occurred in

the case of Connecticut vs. Massachusetts, on the diversion of the Swift and Ware Rivers. Mr. Eddy, Senior, was testifying in behalf of the Commonwealth. One afternoon he hadn't finished yet someone from our office observed that the attorney from Connecticut, and one of the experts were huddling over a small book. The observer also saw that this book was the report which Mr. Eddy had made about 1906 to Cincinnati, on sewerage for that city.

That evening, in the course of preparing for the next day's testimony, we were given the report in our office, to comb it with a fine-tooth comb and see what the Connecticut people had up their sleeves. We came across some paragraphs which, it seemed to us and to Mr. Eddy, could be thrown up at him the next day.

Sure enough, he was handed this report. "Now, did you make this statement?" and they read from the report.

"May I see that report?"

"Oh, yes."

He took it, looked it over, turned back one page and said, "Now, if you will turn back to the previous page, you will see that I said so-and-so." The statement in that report, when taken as a whole, had no contradictory effect on his testimony although the excerpt the attorney tried to get in the record might have done so.

This is a favorite trick with attorneys—to take something you have written which seems to contradict your testimony—so remember what you have written.

In another case in Ohio the attorney asked me questions on points which, so far as I could see, had nothing to do with my testimony or the case. I answered him anyway. Later I talked with one of the attorneys about those questions. He said, "We were reading them right out of American Sewerage Practice. You answered almost verbatim."