THE DISCOVERY SURVEY

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I
INTRODUCTION

Formal discovery under the Federal Rules of Civil Procedure is one of the most abused and obfuscated aspects of our litigation practice. Attorneys generally select one of several often fungible discovery devices—interrogatories, requests for admissions, depositions by written questions—and proceed unilaterally to seek information. There is a pervasive assumption that information gathered under fire or in the crucible of the adversarial process is superior to any possible alternative. Virtually no effort is expended to determine whether there are more timely, efficient, or accurate methods of gathering information; attorneys can become oblivious to the blind spots created by looking at the world through adversarial lenses. Instead of tailoring formal discovery devices to the desires of persons from whom or for whom information is being gathered, attorneys tend to concentrate almost exclusively on their own tactical concerns in the discovery process. They generally assume that information has value as long as there is some perceived adversarial advantage for further discovery; lower quality but more efficient surrogates are often seen as poor substitutes for 100 percent certainty, regardless of cost.

This article will discuss a lawsuit involving approximately 10,000 plaintiffs in which the court and the parties tested several assumptions regarding discovery in the context of actual litigation. The plaintiffs in the case were allegedly exposed to a pesticide released by the defendant corporation. In studying discovery-related procedures throughout the litigation, the court and parties assumed that: (1) there are opportunities for the parties to litigation to work together in gathering information without sacrificing the protections of the adversarial process; (2) it is feasible to create specialized discovery devices that neutralize tactical advantages for the parties, while maximizing the chances of meeting the needs of the persons providing and using the information; and (3) it is possible to compare alternative discovery devices by measuring their relative costs in time and money, their accuracy, and the satisfaction they engender in counsel, experts, and litigants.

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This article provides an account of the pesticide litigation, *Wilhoite v. Olin*; discusses the creation of a new discovery device, the discovery survey (see Appendix A); and provides a description of the discovery survey in comparison with other discovery techniques. The article also describes the research design of an empirical study comparing the discovery survey to other discovery devices and the compilation of the results of the study with respect to time, cost, quality and quantity of information, and satisfaction on the part of clients, attorneys, and experts. Finally, this article suggests variations and future uses of the discovery survey.

II

WILHOITE V. OLIN

A. Problem

In 1978, approximately 2500 residents of Triana, Alabama, filed suit against the Olin Corporation, alleging that 500 tons of dichloro-diphenyl-trichloro-ethane ("DDT") escaped from an Olin plant into a tributary of the Tennessee River. The residents also alleged that the DDT entered local water supplies, causing personal injuries and property damage.[1] In 1981, the case was settled prior to trial in an agreement that provided for a payment of $10,000 to each individual plaintiff, the establishment of a health center for the plaintiffs, and a cleanup of the site over a ten-year period.[2] The settlement agreement was limited, however, to the plaintiffs named in the original lawsuit.[3]

Within one year, approximately 10,000 additional residents in the area surrounding Triana filed suit against Olin and the Tennessee Valley Authority in the United States District Court for the Northern District of Alabama, making virtually identical allegations.[4] There was nothing particularly complex about the case except for the vast number of named plaintiffs and the technical evidence concerning a correlation, if any, between DDT exposure and the plaintiffs' health. United States District Judge U.W. Clemmon and the parties concluded that the case needed additional attention, and the judge

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1. Cloud v. Olin Corp., No. CA-79L-5128-NE (N.D. Ala. filed July 9, 1979). *See also* Streever, *A Town, a River and DDT: 1,000 Plaintiffs Sue Over Insecticide "Dumping" in Alabama*, NAT'L L. J., Nov. 23, 1981, at 1, col. 1.

2. *Cloud*, No. CA-79L-5128-NE (N.D. Ala. filed July 9, 1979).

3. *Id.*

4. Two sets of attorneys filed the actions. Wilhoite v. Olin Corp., No. CV-83-C-5021-NE (N.D. Ala. filed Jan. 11, 1983); Hagood v. Olin Corp., No. CV-83-C-5917-NE (N.D. Ala. filed Dec. 30, 1983). The two actions were consolidated along with Wilhoite v. Tennessee Valley Auth., No. CV-83-C-5670-NE (N.D. Ala. filed Sept. 20, 1983) (Motion for Joinder to Amend the Complaint filed Nov. 8, 1984). The *Hagood* complaint named both Olin and the TVA as defendants. Eventually, each group filed additional complaints which were also consolidated. Washington v. Olin Corp., No. CV-85-H-5128-NE (N.D. Ala. filed Feb. 13, 1985); Washington v. Tennessee Valley Auth., No. CV-85-C-5127-NE (N.D. Ala. filed Feb. 13, 1985); Hargett v. Olin Corp., No. CV-85-HM-5078-NE (N.D. Ala. filed Jan. 30, 1985).

appointed a special master to develop and implement a case management plan.[5]

B. Diagnosis

The probability of an early settlement in the case was slim. In the previous lawsuit there had been a concurrent Superfund action that apparently facilitated the settlement. The $10,000-per-plaintiff payment in the first case may have been motivated more by a desire to resolve the cleanup issue than by an agreement that the residents of Triana should be compensated for their alleged injuries. Indeed, Olin contended vehemently that there was no evidence that DDT causes any harm to humans.[6] Thus, *Wilhoite* falls into a category of mass tort cases, like the Agent Orange litigation, where the central legal and factual issues are related to causation—in this case, whether DDT caused or can cause personal injury to any given individual. This emphasis on causation distinguishes *Wilhoite* from other mass tort actions involving products like asbestos and the Dalkon Shield, where causation may not be a critical issue. The plaintiffs in the second DDT case did not expect causation to act as an obstacle to recovery. They had heard of the payments in the first case and had concluded that they, too, would be receiving $10,000 each.

Aside from the causation issue, the difficulties facing the special master in devising a case management plan were twofold: (1) efficiency—how to ensure that such a large number of cases could be resolved without clogging the docket for the Northern District of Alabama; and (2) fairness—how to address the efficiency concern without using a procedure that would bias the outcome toward one side or the other. Counsel for the parties did not agree on either issue. Attorneys for the plaintiffs suggested that they should select a small number of their clients and proceed immediately to trial on a first come, first served basis. The defendants proposed that there be a separate trial on the issue of causation alone.

If the traditional model of individual trials on a first come, first served basis were to be used, it appeared that neither the efficiency nor the fairness goal would be met. The plaintiffs would seek an immediate trial for their strongest cases. The attorneys would have minimal start-up costs because of their extensive discovery in the previous DDT litigation. Because there had been widespread publicity in northern Alabama concerning the allegations against Olin and the earlier settlement, there was also a distinct possibility that hometown emotions would be strong.

As long as the plaintiffs could raise a factual issue that DDT was capable of causing harm in humans, even if they were unsuccessful in obtaining a favorable jury verdict, they would still have an incentive to keep trying cases

5. One of the authors of this paper, Francis E. McGovern, was appointed special master. *Wilhoite*, No. CV-83-C-5021-NE, Order Appointing Special Master (N.D. Ala. filed Aug. 10, 1983).

6. *See, e.g.*, Memorandum of Defendant Olin Corporation in Support of its Motion for Partial Summary Judgment Against the In-Depth Plaintiffs on Their Personal Injury Damage Claims at 8-16 (N.D. Ala. filed Dec. 20, 1985).

until they were victorious. They would probably be convinced that the next jury would view the case differently. Even if the plaintiffs were successful in their first attempt, the need for additional trials would potentially still remain. The defendants were convinced that if the plaintiffs could raise a factual issue on causation, the jury verdicts would be idiosyncratic—because of either the peculiarities of the juries or the unrepresentativeness of the plaintiffs in the trials. They, too, would arguably have an incentive to keep trying cases, to seek more favorable outcomes and to slow the velocity of case resolutions. Thus, the traditional model of first come, first served might provide a strategic advantage to the plaintiffs, while virtually ensuring a long and expensive resolution.

The defendants argued from a different perspective. They suggested that a quick trial would be grossly unfair—either they would be forced to settle all the cases under the threat of a huge award, or they would have to defend themselves in repeated trials until eventually one isolated plaintiff succeeded. Even if they won four out of five cases on their best issue—causation—they would still be forced to try an astronomical number of cases. Instead, they wanted the court to try the scientific issue of whether DDT was capable of causing harm in humans. Although initially appealing, this approach was extremely difficult to accomplish. Almost any substance—including water—can be harmful if used in large amounts; thus, the issue would inevitably be tied to a concrete dosage—thereby necessitating a large number of individual trials.

Notwithstanding this apparent conflict in the parties' interests, there were areas of joint concern—but the parties were unable to find them. Their problem resembled a classic prisoner's dilemma.[7] Unable to communicate candidly with each other out of a concern that one side would take advantage of the other in adversarial gamesmanship, the negotiations resembled a traditional zero sum game. Neither side wanted to try a large number of cases, and it was unnecessary to decide how cases would be tried until there was more information. The massive number of claimants had been generated not so much by evidence that DDT caused certain types of harm, but by the publicity concerning the $10,000 awarded to everyone in the Triana case. The uncertainty over both facts and law created a situation in which neither side really knew which plaintiffs, if any, were deserving of compensation.

An "onion peel" approach to case management seemed advisable: a quick and inexpensive method of paring back each layer of uncertainty in the lawsuit until only those plaintiffs, if any, who could raise a factual issue remained. Only then would it be possible to select truly representative plaintiffs for trial or to reach a settlement on the values of the cases.

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7. For an explanation of the prisoner's dilemma game, see generally, A. RAPOPORT & A. CHAMMAH, PRISONER'S DILEMMA: A STUDY IN CONFLICT AND COOPERATION (1965); Rapoport, *Prisoner's Dilemma: Recollections and Observations*, in 2 GAME THEORY AS A THEORY OF CONFLICT RESOLUTION 17 (A. Rapoport ed. 1974).

D. Parties

The fundamental purpose of the case management plan was to identify the plaintiffs who could raise a factual issue before a jury. At the same time there would be an opportunity for the defendants to present any legal issue that might relieve them from liability.

Some of the plaintiffs had also filed suit against the Department of the Army under the Federal Tort Claims Act.[13] Although this case proceeded separately from the special master's management plan, the court coordinated the two cases for settlement or trial.

E. Issues

As with the parties, the case management plan was designed to identify those issues that were viable. It was necessary to define legal issues such as statutes of limitations, theories of recovery, and compensable harms. At the same time, the essential factual issues on exposure, background risk, and diseases needed to be identified and defined.[14]

F. Information

The type of information generated by the general, in-depth, and law tracks was not remarkable. The methodology for obtaining the information on all plaintiffs in the general discovery track was quite unusual, as was the opportunity to test empirically various methods of discovering the same type of information. The traditional options for this type of discovery under the Federal Rules of Civil Procedure were interrogatories, motions to produce, and depositions.[15] The defendants believed that interrogatories would be of limited value because the plaintiffs' attorneys would craft standardized answers that would provide minimal individualized information. The plaintiffs' attorneys reacted against the possibility of deposing every plaintiff because of the cost associated with the preparation, questioning, and transcription of depositions. Yet, as was indicated above, both plaintiffs and defendants actually had a mutual interest in learning more about the named plaintiffs. They both had an interest in weeding out the false positive plaintiffs.

The special master proposed an alternative discovery procedure—the discovery survey.[16] The discovery survey consisted of a questionnaire jointly

13. 28 U.S.C. § 2401 (1982).

14. The plaintiffs had to prove a cause-in-fact link between exposure to this DDT and their injuries. *See generally* Dore, *A Commentary on the Use of Epidemiological Evidence in Demonstrating Cause-in-Fact*, 7 HARV. ENVTL. L. REV. 429 (1983); Robinson, *Multiple Causation in Tort Law: Reflections on the DES Cases*, 68 VA. L. REV. 713 (1982); Note, *Proving Causation in Toxic Torts Litigation*, 11 HOFSTRA L. REV. 1299 (1983); Comment, *Proof of Causation in a Private Action for Acid Rain Damage*, 36 ME. L. REV. 117 (1984); Motley, *Proving the Cancer Connection in the Courtroom*, TRIAL, Mar. 1979, at 40.

15. *See* FED. R. CIV. P. 30 (depositions), 33 (interrogatories), 34 (production of documents and things).

16. Wilhoite v. Olin Corp., No. CV-83-C-5021-NE, Pre-Trial Order No. 1, ¶¶ 6-17 (N.D. Ala. filed May 30, 1984).

drafted by plaintiffs and defendants through a series of negotiations. Once the common discovery instrument was completed, neutral third parties, paid for jointly by plaintiffs and defendants,[17] were hired to administer the survey and make the information available to all the parties.[18]

There were extensive discussions among the parties concerning the creation of the discovery survey. They generally agreed that there were certain benefits to the discovery survey over traditional depositions, motions to produce, and interrogatories. There were also perceived weaknesses and substantial uncertainty associated with the novel procedure. By negotiating limits on the questions included in the questionnaire, the parties made some potentially premature judgments concerning the marginal value of information, and they also restricted their flexibility to ask additional questions. The special master conducted a pretest of the questionnaire prior to full implementation to determine any obvious weaknesses or omissions in the instrument, but uncertainty remained.

The most persuasive arguments in favor of the discovery survey were based on time and cost. It was estimated that all 10,000 plaintiffs could be given the discovery survey within eight months at an average cost of approximately $15 per plaintiff.[19] This would be one-fifth less expensive and over four times as fast as having the plaintiffs answer interrogatories.[20] There would also be a substantial savings in transferring the data to computers if the parties desired to do so.[21]

Plaintiffs were notified by mail that they were required by the court to attend an interview session and complete a questionnaire or their cases would be dismissed. They were also required to bring any relevant personal and medical records with them to refresh their memories. By requiring plaintiffs to appear physically at an interview center, it was anticipated that a large number of marginally interested plaintiffs would drop out of the case. Plaintiffs who had an acceptable excuse for not attending an interview session could answer interrogatories in lieu of the questionnaire.

There were lengthy discussions concerning the ability of the plaintiffs to comprehend and answer the questions in the questionnaire. Because of a suspected high illiteracy rate among the plaintiffs, the parties decided to have an interviewer read the questionnaire to each plaintiff and record the answers. The interviewer was instructed to press for answers when plaintiffs appeared unable or reluctant to respond. Notwithstanding these precautions, there was still some concern that the plaintiffs would misunderstand the questions or the ramifications of their answers. There was also some concern that the plaintiffs would be unable to answer detailed questions unless they had access to extensive personal documents to refresh their memory. The interviewers

17. *Id.* at ¶¶ 18-23.
18. *Id.* at ¶ 14(h).
19. See accompanying charts on time and cost.
20. *Id.*
21. *Id.*

were restricted from providing any additional assistance to plaintiffs unless supplementary comments had been approved in advance by the special master. Attorneys were allowed to oversee the interview process but were not permitted to speak to their clients once they entered an interview center.[22] They could, of course, brief their clients in advance and debrief them afterwards.

The negotiations themselves concerning the questions to be included in the questionnaire occasionally created additional problems. Not unlike negotiations over special issues or interrogatories to be submitted to a jury, the lawyers were sometimes more concerned with the tactical and legal ramifications of questions than their lucidity. They reached agreement on the wording of several questions at the cost of virtually guaranteeing confusion on the part of either the person answering or those assigned to analyze the answer.

This problem became particularly acute in the context of decisions concerning the use of open-ended or closed-ended questions and answers and the use of prompting to obtain full answers.[23] Generally, the defendants desired to have open-ended questions without prompting, whereas the plaintiffs preferred more tightly structured questions and answers. By virtue of extensive negotiations, compromises were reached on all of these issues.

On balance, the defendants favored the discovery survey because the plaintiffs themselves were providing direct answers to neutral interview questions, thereby enhancing the defendants' chances of obtaining more timely and accurate information about the plaintiffs individually and as a whole. The plaintiffs' attorneys supported the idea because of the phenomenal cost savings over traditional discovery procedures and the speed of the process. The parties thus agreed on this alternative procedure.[24]

G. Use of Surveys

By January 1986, 10,119 plaintiffs had been scheduled for the discovery survey, 6731 had completed a questionnaire, 300 had answered interrogatories, 20 had been deposed, and 3068 had been dismissed. The parties determined that thirteen of the randomly selected cases from the in-depth discovery track were representative, and in March 1986, the court consolidated seven of these cases for trial on all issues. The case settled for approximately $15 million in May of the same year. The settlement was a Rule 23(b)(3) class action settlement that included all persons exposed to DDT in a six-county area in northern Alabama. Notice was given to all potential class action members allowing them to opt in or opt out of the

22. Wilhoite v. Olin Corp., No. CV-83-C-5021-NE, Pre-Trial Order No. 1, ¶¶ 6-17 (N.D. Ala. filed May 30, 1984).

23. The attorneys were correct in identifying these issues as important. *See infra* notes 36-44 and accompanying text discussing the pros and cons of various questionnaire formats.

24. *See* Arthurs, *Students Give DDT Discovery a Boost*, Legal Times, Aug. 13, 1984, at 1, cols. 2-3 (quoting observations of opposing counsel).

settlement. There were three opt outs and 5968 opt ins. In addition, the 3068 plaintiffs who had been dismissed for failure to attend interview sessions were allowed to join the settlement. All persons who had not completed questionnaires were sent a blank questionnaire form, the so-called "mailed discovery survey," and were required to return them to the court. Six thousand eighteen plaintiffs completed the mailed discovery survey.

The settlement also provided that the special master allocate the settlement funds among the plaintiffs based upon each individual plaintiff's blood DDT level, exposure to Olin DDT, diseases or injuries, and other relevant factors. The special master scheduled all plaintiffs in the settlement class to attend a session where they could have their blood sampled and complete an updated form of the discovery survey entitled "survey update." This survey was significantly shorter than the previous survey, contained primarily closed-ended questions, and concentrated more on the needs of the providers and end-users of the data being collected, and less on the tactical concerns of the attorneys. The survey update was self-administered at the blood collection site unless assistance was required, in which case an interviewer read the questionnaire to the plaintiff and recorded the answers. When it was turned in, the update was reviewed for completeness by the neutral parties who administered the sessions.

From the time of the filing of the lawsuit to the distribution of the settlement funds, five different discovery devices—depositions, interrogatories, discovery survey, mailed discovery survey, and survey update—had been used to obtain roughly the same type of information from approximately the same type of plaintiffs. Chart 1 contains an overview of the different discovery techniques; Appendix A contains excerpts from each discovery device.

III

GENERAL ISSUES FOR THE DISCOVERY SURVEY

A. Questionnaire Construction

A substantial amount of scientific literature exists on the consequences of using various types of survey questions.[25] A variety of question formats are available, and a critical task in survey design is deciding the type of question that is most appropriate for the topic under investigation. Two format issues are of particular importance to the use of discovery surveys: whether the instrument should be oral or written and whether open-ended or closed-ended questions should be used.

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25. Discussions of these and other issues related to survey construction are found in E. BABBIE, SURVEY RESEARCH METHODS (1973); J. CONVERSE & S. PRESSER, SURVEY QUESTIONS: HANDCRAFTING THE STANDARDIZED QUESTIONNAIRE (1986); C. MOSER & G. KALTON, SURVEY METHODS IN SOCIAL INVESTIGATION (1971); S. SUDMAN & N. BRADBURN, ASKING QUESTIONS: A PRACTICAL GUIDE TO QUESTIONNAIRE DESIGN (1982).

CHART 1

CHARACTERISTICS OF DISCOVERY DEVICES

DISCOVERY DEVICE	ORIGIN	ADMINISTRATOR	FORMAT	ATTORNEY ROLE
Deposition	Party	Party	Oral	Before
Interrogatories	Party	Party	Written	During
Discovery Survey	Negotiated	Neutral	Oral	Before
Mailed Discovery Survey	Negotiated	Self	Written	During
Survey Update	Neutral	Self/Neutral	Written	Before

1. *Oral Versus Written Surveys.* Most questionnaire surveys are either interviews, in which the respondent is questioned orally either in person or on the telephone, or self-administered questionnaires, in which the respondent is asked to read and respond in writing to a set of written questions. As noted in Chart 1, the discovery devices varied in this regard. The depositions and the discovery survey were oral, while the interrogatories, mailed discovery survey, and survey update were written.[26] It is of interest, therefore, to see what the survey research literature would predict with respect to how each format affects the information gathered.

Oral and written surveys each have advantages and disadvantages. In general, oral surveys result in lower rates of refusal to participate than do written surveys, especially mailed written questionnaires, because people are less likely to refuse to talk to an interviewer than to discard a questionnaire.[27] Oral surveys also tend to have higher rates of response to specific questions than do written surveys because the interviewer can explain the question or encourage the respondent to answer it.[28] Oral surveys can incorporate contingency questions[29] (questions that are asked only when the respondent gives a specific response to a previous question) more easily than can written surveys because the interviewer can identify and follow instructions to omit or add questions more easily than can the respondent. Oral surveys are especially useful when the respondents might have some problem understanding or answering the questionnaire or some of the questions in it,[30] as for example, when literacy or language problems might limit comprehension of the question or when technical or esoteric questions are being asked.

On the other hand, oral surveys open the possibility of bias being introduced by the tone or non-verbal cues of the interviewer,[31] or by such features of the interviewer-respondent interaction as differences in race, gender, or age. As noted below in the discussion of adversary versus non-adversary questioning, a substantial body of research shows that the manner in which a question is asked can bias the response. The use of oral surveys can reduce response rates to socially sensitive questions or bias the responses in the direction of socially acceptable answers.[32]

Written surveys, if conducted without severe time limits, provide more opportunity for reflection. Written surveys can be answered when and where convenient for the respondent and are therefore often more useful than oral surveys for questions that require retrieving detailed information from records. Because the written format lends itself to different physical layouts, written surveys can more easily present questions that require lists or physical

26. As noted above, the survey update was administered orally upon plaintiff request.
27. E. BABBIE, *supra* note 25, at 171.
28. *Id.* at 171-72.
29. *See id.* at 146-47.
30. *Id.* at 172.
31. *Id.* at 172-73.
32. S. SUDMAN & N. BRADBURN, *supra* note 25, at 54-56, 79-82.

representations.[33] Because no one else is present, people are often more comfortable answering questions about sensitive issues in written surveys than in oral surveys. In addition, although the wording of questions in written surveys can bias responses,[34] this form of bias can be judged by reading the questionnaire, while bias from tone or other sources in oral surveys is more difficult to identify.

On the negative side, many of the advantages of oral surveys are disadvantages of written surveys. Written surveys often have more serious problems of non-response to specific items than do oral surveys. Written surveys, as suggested above, often have lower overall response rates than do oral surveys, and problems of comprehension can pose a serious threat to written surveys.

Some of these issues are more readily applicable to the discovery devices used in *Wilhoite* than are others. For example, in the context of compulsory discovery requests, overall response rates are not likely to be a serious problem, whatever the format of the discovery instrument. On the other hand, non-response to specific items can—and as will be seen below, did—pose a threat to the completeness of the information collected by some of the written devices. Given the possibility of literacy deficiencies on the part of some of the plaintiffs, comprehension could have been a problem, especially with respect to the interrogatories sent directly to plaintiffs and the mailed discovery survey, both of which were written discovery devices administered without immediate assistance for respondents. The possibility of bias from the tone of the questioning is also especially relevant in the context of a lawsuit.

2. *Open-ended Versus Closed-ended Questions.* Open-ended questions allow the respondent to answer in his or her own words; closed-ended questions require the respondent to supply a more specific answer, either by selecting from among a limited number of response options or by supplying without elaboration a single number, date, or place. Again, there are advantages and disadvantages to each format.[35] Open-ended versus closed-ended questions will be discussed in this article as though they were the only two alternatives because this is how the research literature has been organized. In fact, though, questions and answers can be more or less specific and can realize more or less of the advantages of each question type.

Open-ended questions offer respondents more opportunity to give full information in response to the question because the respondent is allowed to present all of the information that he or she believes to be important.[36] Especially when prompts are used to assure that the answer covers all relevant

33. *Id.*

34. J. CONVERSE & S. PRESSER, *supra* note 25, at 41-42.

35. In order to capitalize on the advantages of both question types, a frequent practice in survey research is to ask a question using a closed-ended format, and then follow up with an open-ended question.

36. S. SUDMAN & N. BRADBURN, *supra* note 25, at 72-73, 149-52.

points, open-ended questions provide a broader response than do closed-ended questions.[37] Open-ended questions allow the respondent to decide important distinctions and do not require the questionnaire designer to know beforehand the categories that are needed to capture the range of responses.[38] Responses to open-ended questions are richer, containing more shades of tone and expression,[39] and they are especially useful when individualized judgments are to be based on the response.[40]

Open-ended questions tend to take more time to answer than do closed-ended questions, and they show greater variability due to verbal ability.[41] In addition, open-ended questions without adequate prompting can generate highly individualized, but not comparable, responses, while prompting can constitute a source of bias through its form and timing. Particular problems arise when open-ended questions are to be used for statistical analyses or for computing general indices. In these cases, coding categories must be developed, and if they do not fit all the responses, a relatively expensive and time-consuming coding process must be undertaken.[42]

In contrast, closed-ended questions force the respondent to give answers that are directly comparable to the responses of others. Especially when the issue addressed by the question concerns factual information, closed-ended questions are useful in eliminating irrelevant or uncodable responses because the respondent must pick one of several response options, each of which is designed to capture important information. The response categories offered by closed-ended questions can themselves help to clarify the information being requested by giving additional indications of the type of factual determination that is sought. The coding of responses is much faster and much less expensive for closed-ended than for open-ended questions; typically, only a "data edit" of the completed questionnaire is required in order to code missing data and responses outside the provided categories. Closed-ended questions are therefore particularly useful when inferences are to be drawn from the total collection of responses, rather than from any single response. On the other hand, closed-ended questions raise the possibility of bias in the response options as well as in the question itself, and they may fail to retrieve useful information when the response options do not fit well with the information being gathered.[43] Finally, there is little subjective tone in responses to closed-ended questions, and therefore it is difficult to get much of a feel for the respondent's affect or veracity.

The discovery devices used in *Wilhoite* covered a considerable range in terms of how open-ended the questions were. Depositions are the most

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37. J. CONVERSE & S. PRESSER, *supra* note 25, at 33-35; S. SUDMAN & N. BRADBURN, *supra* note 25, at 150.
38. S. SUDMAN & N. BRADBURN, *supra* note 25, at 151.
39. *Id.* at 150.
40. *See infra* notes 56-58 and accompanying text discussing clinical versus statistical judgments.
41. S. SUDMAN & N. BRADBURN, *supra* note 25, at 151-52.
42. E. BABBIE, *supra* note 25, at 140-41.
43. *See id.*

general and open-ended of the instruments, interrogatories are less so, the original and the mailed discovery surveys are more specific, and the survey update is the most specific and closed-ended. The cost and time differences between open-ended and closed-ended question formats would be expected to favor the surveys over the traditional discovery devices. The closed-ended surveys, and especially the survey update, would also be expected to provide the most easily identifiable and the most easily codable information. But these are only predictions from the general survey literature; the research described below determined which discovery devices produced the best information at the lowest cost of time and money.

B. Adversary Versus Non-adversary Questioning

Another general issue raised by the various discovery devices used in *Wilhoite* concerns the advantages and disadvantages of information gathered by partisan counsel versus non-partisan third parties. There is a body of empirical research on the quantity and quality of information collected by adversary and non-adversary questioners. All of the research described in this section used experimental simulations to investigate the phenomena of interest. That is, rather than attempting to measure the quantity and quality of information collected in actual legal cases, the research simulated in the laboratory various aspects of the discovery process and drew inferences from the behavior of research subjects in the simulation. The reader's attention is drawn to this aspect of the research because it represents an approach to the scientific study of legal processes quite different from that used in the *Wilhoite* study.[44]

1. *Information Quantity.* One rationale of the adversarial pretrial process is that placing control over the collection of evidence in the hands of partisan counsel results in a more complete investigation of the case than does placing the investigatory process in the hands of third parties.[45] The argument is that partisan counsel will be more diligent in its pursuit of facts because self-interest will stimulate continued investigation at a point when disinterested parties would have ceased looking for new information. This claim has been tested in a simulation study[46] that showed that there was no across-the-board advantage in adversary investigation.[47] Only when adversary attorneys found

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44. For discussions of the use of simulation methods, see E. LIND & T. TYLER, SOCIAL PSYCHOLOGY OF PROCEDURAL JUSTICE ch. 3 (1988); Lind & Walker, *Theory Testing, Theory Development, and Laboratory Research on Legal Issues*, 71 J. L. & HUM. BEHAV. 1129 (1979).

45. Freedman, *Professional Responsibilities of the Civil Practitioner*, in EDUCATION IN THE PROFESSIONAL RESPONSIBILITIES OF THE LAWYER 151, 152 (D. Weckstein ed. 1970); E. MORGAN, SOME PROBLEMS OF PROOF UNDER THE ANGLO-AMERICAN SYSTEM OF LITIGATION 3 (1956); Barrett, *The Adversary System and the Ethics of Advocacy*, 37 NOTRE DAME LAW. 479, 481 (1962).

46. Lind, Thibaut & Walker, *Discovery and Presentation of Evidence in Adversary and Nonadversary Proceedings*, 71 MICH. L. REV. 1129 (1973) (study performed using first-year law students).

47. *Id.* at 1134 ("Analyses . . . revealed no statistically significant differences in information search between client-centered attorneys and court-centered attorneys when the distribution of facts was 50 per cent or 75 per cent favorable ($p < .10$).").

the facts generally unfavorable to their cases did they engage in especially diligent investigation,[48] and this phenomenon resulted in the introduction of a systematic bias in the facts reaching the decisionmaker.[49]

2. *Information Quality.* Several studies have shown that adversary investigation of a case biases the information produced in the investigation, but there has been some debate about whether this bias is good or bad. On the basis of the study just described, which shows a systematic bias in favor of the party initially disadvantaged by the evidence, some theorists have argued that adversary investigation introduces a useful bias against premature cessation of discovery.[50] Others have argued, on the basis of different studies, that the bias introduced by adversary investigation discovery is more pernicious.[51]

Two lines of research converge to suggest that adversary questioning does bias case information and that this bias is far from benign. First, several studies have shown that the wording or framing of questions not only affects the answer given in response to the question,[52] but also can bias memories and alter responses to more neutral questions at a later date.[53] These findings show that human memory is much more malleable than is generally assumed. If a person is induced to bias his or her answer in one direction or another, this bias can change the original memory or the person's interpretation of the issues in question. The result is that the bias will appear subsequently even if the bias-producing question is absent. The bias is not intentional and the witness may not even be aware that he or she has given a biased answer. This bias, unlike that found to result from adversary diligence in seeking facts, is not of the sort that could have a benign influence on the overall result of case investigation. Rather, it is a fundamental distortion of the information available for decisionmaking.

While the research just described shows that adversary questioning can bias information, the question remains whether such bias in fact does occur. A second line of research suggests that it does. Two studies have investigated the memories and testimony of persons who have been subjected to simulated

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48. *Id.* at 1135 ("When only 25 per cent of the discovered evidence was favorable, however, client-centered attorneys purchased significantly more facts than did court-centered attorneys ($p < .033$).").

49. *Id.*

50. *Id.* at 1143; J. THIBAUT & L. WALKER, PROCEDURAL JUSTICE: A PSYCHOLOGICAL ANALYSIS 38-40 (1975).

51. Vidmar & Laird, *Adversary Social Roles: Their Effects on Witnesses' Communication of Evidence and the Assessments of Adjudicators*, 44 J. PERSONALITY & SOC. PSYCHOLOGY 888, 888-98 (1983).

52. *See, e.g.*, H. SHUMAN & S. PRESSER, QUESTIONS AND ANSWERS IN ATTITUDE SURVEYS: EXPERIMENTS ON QUESTION FORM, WORDING, AND CONTEXT (1981); Tversky & Kahneman, *Judgment under Uncertainty: Heuristics and Biases*, 185 SCIENCE 1124 (1974).

53. *See generally* Loftus, *Leading Questions and the Eyewitness Report*, 7 COGNITIVE PSYCHOLOGY 560, 571 (1975); Loftus, Miller & Burns, *Semantic Integration of Verbal Information into a Visual Memory*, 4 J. EXPERIMENTAL PSYCHOLOGY: HUMAN LEARNING AND MEMORY 19 (1978); Loftus, *Shifting Human Color Memory*, 5 MEMORY & COGNITION 696 (1977).

adversary interrogation.[54] Both studies found evidence that greater bias in fact does occur under conditions of adversary interrogation than under conditions of non-adversary interrogation.[55]

If the simulation studies described above are correct, then the adversary discovery devices used in *Wilhoite*—the depositions and interrogatories—might show greater consistency of information within the device, and greater consistency between the device and later questioning, than would the non-adversary devices. These consistencies would result if the plaintiffs who experienced the adversary devices biased their answers in response to the adversary questions and then incorporated this bias either in their memories or interpretations of the facts in question.

C. Statistical Versus Clinical Inference

Differences between how information is used in a mass tort case and how it is used in a more traditional lawsuit raise a question that has been a matter of some debate: What are the relative merits of statistical and clinical inference?[56] The principal issue is whether clinical decisions, by which are meant individualized decisions based on impressions and interactions with the person who is the target of the decision, are inferior or superior to statistical decisions, by which are meant actuarial decisions based on statistical analyses of data based on large numbers of individuals. Note that traditional legal decisionmaking, both by judges and juries at trials and by attorneys in the process of developing information prior to trial, falls in the clinical category as the term is used in this debate. The issue arises in a variety of criminal and civil law contexts, but most of the debate has focused on criminal law issues such as parole and sentencing decisionmaking. A number of psychologists have argued that clinical decisionmaking, by virtue of basic flaws inherent in how humans process and interpret information, neglects relevant information.[57] Statistical information processing is more accurate, these commentators argue, because it gives appropriate weight to all relevant information. A rebuttal of the application of such criticisms to trial decisionmaking is provided by those who point out that the use of statistical

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54. *See, e.g.*, Sheppard & Vidmar, *Adversary Pretrial Procedures and Testimonial Evidence: Effects of Lawyer's Role and Machiavellianism*, 39 J. PERSONALITY & SOC. PSYCHOLOGY 320 (1980); Vidmar & Laird, *supra* note 51.

55. *Id.*

56. For a cross-section of the debate, see C. BARTOL, PSYCHOLOGY AND AMERICAN LAW 6-10, 165-66 (1983); Meehl, *Law and the Fireside Inductions: Some Reflections of a Clinical Psychologist*, J. SOC. ISSUES, No. 4, 1971, at 65 ; Tribe, *Trial by Mathematics: Precision and Ritual in the Legal Process*, 84 HARV. L. REV. 1329 (1971).

57. *See, e.g.*, Kahneman & Tversky, *On The Psychology of Prediction*, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES 48 (D. Kahneman, P. Slovic & A. Tversky eds. 1982); Meehl, *supra* note 56; Carroll, *Judgments of Recidivism Risk: The Use of Base-Rate Information in Parole Decisions*, in NEW DIRECTIONS IN PSYCHOLEGAL RESEARCH (P. Lipsitt & B. Sales eds. 1980); Nisbett, Borgida, Crandall & Reed, *Popular Induction: Information Is Not Necessarily Informative*, in COGNITION AND SOCIAL BEHAVIOR (J. Carroll & J. Payne eds. 1976).

inference may neglect the broader set of values served by individualized process.[58]

The experience in *Wilhoite* and the data from our study of the various discovery devices cannot resolve this debate, of course. However, this study offers some relevant evidence, since it tests whether there was any deficit in information collected using devices designed for clinical decisionmaking—the depositions and interrogatories—or devices designed for statistical decisionmaking—the discovery surveys. The study also tests whether the plaintiffs who were exposed to a greater number of clinical discovery devices were any more or less likely than those who were exposed to more statistical discovery devices to feel they had been treated fairly.

IV

EVALUATION OF THE DISCOVERY DEVICES

Wilhoite v. Olin provides a unique opportunity for an empirical comparison of alternative discovery devices. The multiple information-gathering instruments used in the case offer the possibility of comparing traditional discovery devices and the various forms of the discovery survey with respect to their costs in time and money, the quality and quantity of information they collected, and evaluations of the devices by plaintiffs, attorneys, and experts.[59] In the sections that follow, the five procedures are compared with respect to each of these criteria.

A. Timeliness and Cost

Because of the novelty of the discovery survey and because of the joint participation in expenses associated with the survey, detailed records were kept of each stage of the process. Charts 2 and 3 contain a breakdown of the time and cost associated with the creation of each discovery device, its administration, and the processing of information from the device. The negotiation of the original questionnaire was abnormally long. This length can be attributed in part to the natural timidity of attorneys faced with a deviation from familiar practice, the inexperience of the drafters in creating a questionnaire, the fluidity of the other discovery issues under negotiation, and the pace of negotiations set by the special master. Experiences in other cases suggest that negotiating an instrument is difficult and time-consuming but can possibly be accomplished within several months with a total cost of $25,000. As seen in Charts 2 and 3, the time and cost figures for the follow-up documents—the mailed discovery survey and the survey update—were substantially lower because of the experience gained from the first instrument.

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58. Tribe, *supra* note 56. "I think it fair to say that the costs of attempting to integrate mathematics into the factfinding process of a legal trial outweigh the benefits." *Id.* at 1377.

59. The research on information quality and quantity and that on plaintiff reactions to the discovery procedures owe much to the efforts of Judy Bridgers, who supervised the data collection effort.

CHART 2

COST OF DISCOVERY DEVICES

DISCOVERY DEVICE	CREATION (TOTAL)	ADMINISTRATION (PER PLAINTIFF)	PROCESSING (PER PLAINTIFF)	TOTAL COST
Deposition	$ 20,000	$1000	$100	$7,720,000
Interrogatories	$ 10,000	$200	$50	$1,760,000
Discovery Survey	$150,000	$16	$5	$ 297,000
Mailed Discovery Survey	$150,000	$3	$5	$ 206,000
Survey Update	$ 50,000	$8	$2.50	$ 123,500

CHART 3

TIMELINESS OF DISCOVERY DEVICES

DISCOVERY DEVICE	CREATION (TOTAL)	ADMINISTRATION (PER PLAINTIFF)	PROCESSING (PER PLAINTIFF)	TOTAL TIME
Deposition	200 hours	5 hours	4 hours	63,200 hours
Interrogatories	100 hours	3 hours	2 hours	35,100 hours
Discovery Survey	1500 hours	45 min.	40 min.	11,416 hours
Mailed Discovery Survey	1500 hours	1 hour	40 min.	13,166 hours
Survey Update	500 hours	15 min.	10 min.	3416 hours

The time and cost figures for the depositions and interrogatories contained in Charts 2 and 3 were obtained from interviews with attorneys and clients and from a review of the documents themselves. This comparison strongly suggests that the discovery survey has a potential role in discovery, at least in the kind of cases illustrated by *Wilhoite.*

B. Information Quantity and Quality

The study tested the quantity of information produced by each discovery device by assessing the extent to which each device contained enough information to infer three important pieces of information about each plaintiff: (1) the plaintiff's length of residence in the affected area; (2) the duration of his or her exposure to ground water that might contain DDT; and (3) the duration of his or her exposure to river fish that might contain DDT. The study tested the quality of information: first, by assessing the extent to which the information contained in each discovery device was internally consistent; second, by assessing the overall consistency between each of the earlier discovery devices and the survey update; and third, by assessing the extent to which there was close agreement on specific times of residence and exposure in the earlier devices and the survey update.

The information quality and quantity portion of the study evaluated the information contained in eighty-nine discovery surveys selected at random from those completed by the original plaintiffs in the lawsuit. A random sample of 102 of the interrogatories and thirty-four of the self-administered mailed discovery surveys completed by plaintiffs who joined the case in 1984 were also evaluated. The quality and quantity of information in all twenty of the depositions were also coded. For all of the plaintiffs whose information was coded in any of these groups, an attempt was made to locate and code their survey updates, resulting in information coding for 172 survey updates.[60] Because the information coded in this part of the study was based on either random samples or total population samples of the completed discovery devices in the case, the findings can be generalized to all instances of each of the discovery devices, within the limits of accuracy dictated by missing data.[61]

The information quantity and quality data were collected with a twelve-item coding instrument, which is included in Appendix B. Detailed coding instructions were generated on the basis of pretest coding of instances of each discovery device. Trained coders searched through each discovery instrument for information on the length of residence in the geographic area potentially affected by the Olin DDT, duration and frequency of exposure to

60. Survey updates could not be located for 73 of the earlier discovery devices. Virtually all of the missing updates were those for out-of-state plaintiffs who had completed interrogatories but who had not completed survey updates at the time the information quality and quantity data were coded.

61. Because relatively few survey updates were available for out-of-state plaintiffs who completed interrogatories, some caution is called for in interpreting the findings with respect to interrogatories.

ground water, to river fish, and to cotton fields, use of medication that might render serum DDT tests inaccurate, number of past illnesses claimed to be related to DDT, number of present illnesses claimed to be related to DDT, number of present illnesses not related to DDT, and any assertion by the plaintiff that he or she feared DDT-related illnesses. As just noted, the researchers were particularly interested in the information on the duration of residence and duration of exposure through water and fish.

To test the completeness of the information gathered by the various discovery instruments, counts were made of the frequency with which each instrument contained two categories of information: (1) the length of residence in the relevant area, and (2) the duration of exposure to ground water and river fish. We counted the discovery device as containing information in the category in question if we could arrive at a value for the number of months of residence or exposure. (The exposure category was counted as complete only if the values could be computed for exposure through both water and fish.) Figure 1 shows the percentage of instances of complete information in each category. As can be seen from the figure, there were differences in the completeness of information across the five discovery procedures.[62]

For the length of residence information, all of the discovery instruments were reasonably complete, and the depositions and survey updates were nearly always complete. Approximately 14 percent of the discovery surveys, 14 percent of the interrogatories, and 18 percent of the mailed discovery surveys did not contain the information. For the duration of exposure to ground water and fish, more information was missing. Information on both types of exposure was found in only about two-thirds of the interrogatories, depositions, and discovery surveys, and exposure information of one type or the other was missing from two-thirds of the self-administered discovery surveys. The only device that consistently contained both types of exposure information was the survey update, which was complete 86 percent of the time.[63]

The major finding with respect to the quantity or completeness of information was that the discovery survey performed as well as did the traditional discovery devices—interrogatories and depositions—when it was administered under controlled circumstances. The mailed self-administered discovery surveys were not as good. Examination of the mailed discovery survey forms revealed that the device often lacked exposure information because a substantial proportion of the plaintiffs failed to complete the entire

62. Statistical tests of the proportion of complete information across the five discovery devices showed that there were indeed statistically significant differences. For length of residence, Chi-square(4) = 24.70, $p > .001$; for duration of exposure, Chi-square(4) = 47.88, $p > .001$.

63. It should be noted that differences in information completeness can reflect problems with accessing the information in the discovery device as well as the absence of the information altogether. For example, the rather low rate of complete exposure information for depositions might be due to the information being absent from some depositions, or it might be due to the absence of sufficient detail or context to allow the coder to interpret the information.

survey form; instead they answered only the residence questions and left the rest of the questionnaire blank. Finally, the information quantity analysis showed that the survey update performed at least as well, and perhaps better, than the traditional discovery devices.

Three measures of the quality of information produced by the various discovery devices were examined. The first measure of quality of information is called its internal *reliability*, as the term of art is used in test theory. Briefly, reliability refers to the accuracy of a method of gathering information in terms of its capacity to measure consistently that which it seeks to measure. Each of the five discovery instruments contained multiple questions on the duration of claimed exposure to DDT. This design allowed for the computation of an index termed "Cronbach's alpha," which quantifies the reliability of information on exposure. High reliability is reflected by values close to 1.0; values less than .60 are generally viewed as raising questions about the quality of the information. Figure 2 shows Cronbach's alpha for each discovery instrument.[64] All of the discovery instruments except the mailed discovery survey have quite acceptable alphas. With the exception of the mailed discovery survey, all of the devices are good, and all are about equally good on this test of information quality.

The other two measures of information quality used the information from the survey update to test the consistency of information across time. Most of the people who had completed any of the earlier four discovery devices were asked twice—once earlier in the case and again when they completed the update—about their residence in the affected area and their exposure to water and fish. Therefore, comparison of the two answers could be used to assess the quality of the first device they answered. Using the update information as a standard against which to judge the information on the other devices is reasonable because, as the second assessment of the information, it was likely to be more accurate.

Figure 3 shows a measure of reliability computed on the basis of the information on the two discovery devices completed by each person. The measure is an index termed the Spearman-Brown coefficient, which like Cronbach's alpha measures the consistency of a measurement instrument. The Spearman-Brown coefficient was developed to test the reliability of tests that could be divided into two parts, and it shows the reliability of the overall information on both parts. Because part one, the survey update, was the same for all the people in the sample, any differences in reliability between the two can be attributed to the earlier discovery device. In fact, however, all four of the earlier devices showed similar, quite acceptable retest reliabilities.[65]

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64. The values in the figure are the alphas of each instrument, based on the duration of residence, exposure to water, and exposure to fish measures.

65. The alpha values were computed using only the discovery responses that are not missing information on any dimension and may give a more favorable picture of the mailed surveys than is justified.

FIGURE 1

INFORMATION QUANTITY: FREQUENCY OF COMPLETE INFORMATION

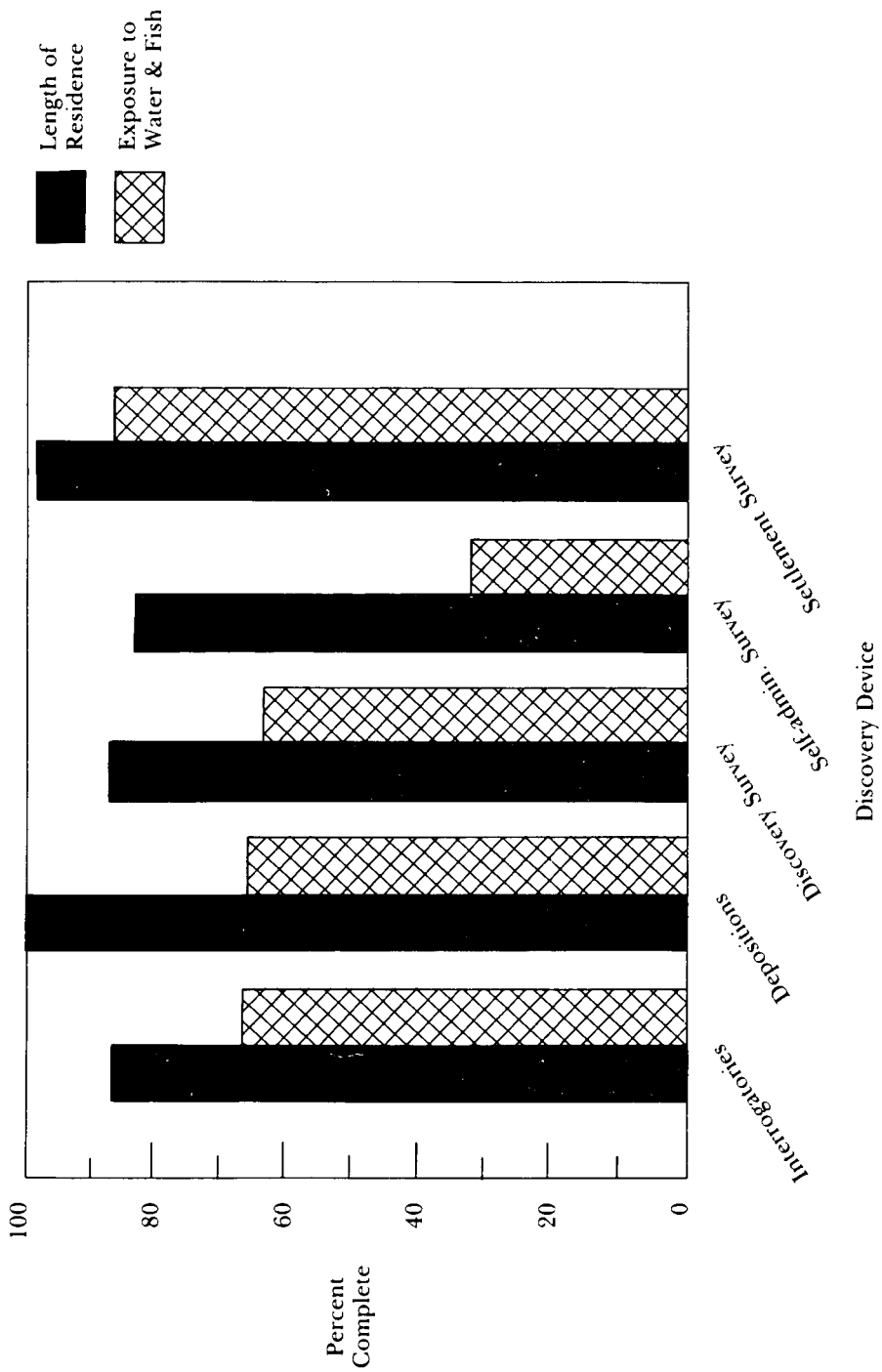


FIGURE 2

INFORMATION QUALITY: INFORMATION RELIABILITY—CRONBACH'S ALPHA

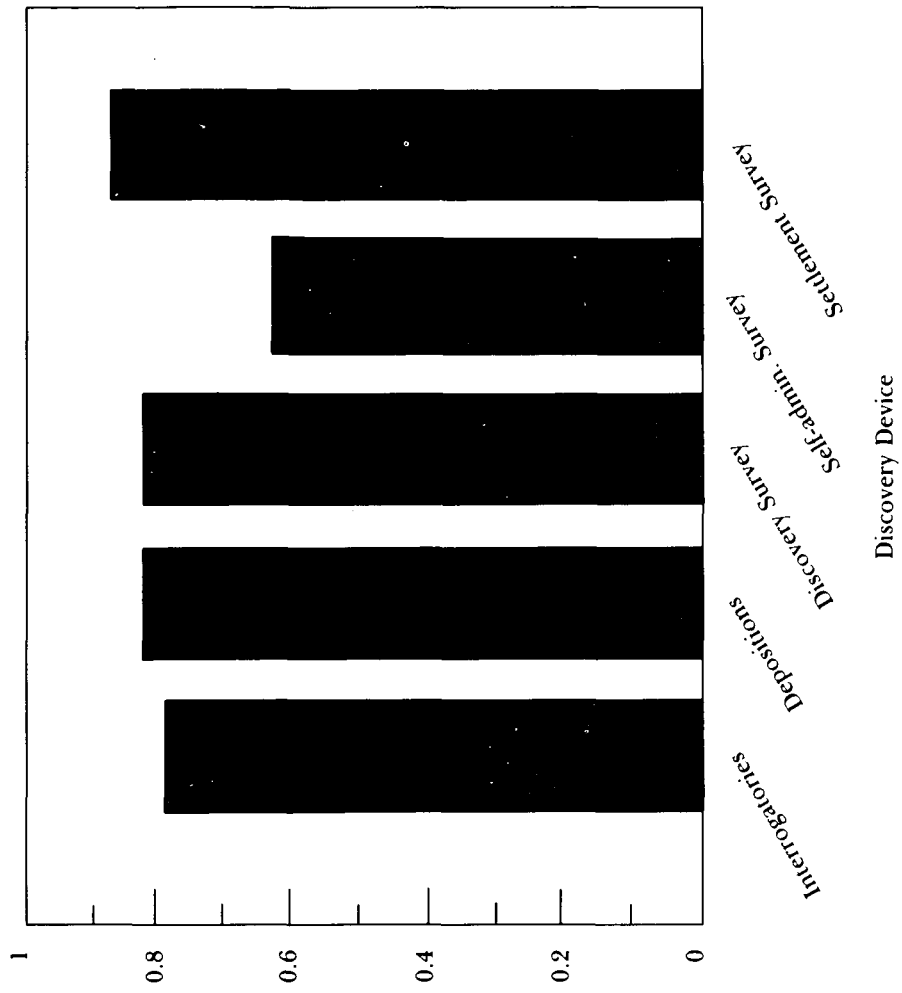


FIGURE 3

INFORMATION QUALITY: RETEST RELIABILITY—SPEARMAN-BROWN VALUE

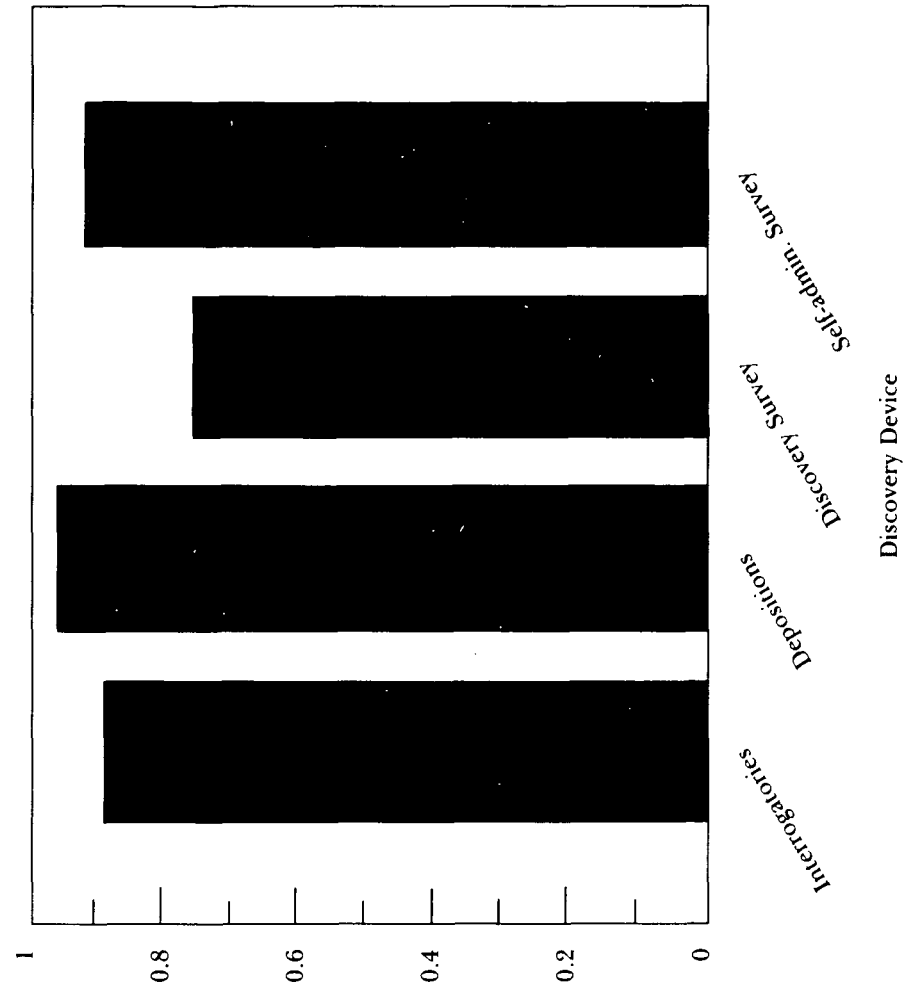


Figure 4 shows the fourth measure of information quality—the proportion of plaintiffs for whom the information on the original discovery device fell within 20 percent of their information on the survey update. For each of two categories of information—length of residence in the affected area and duration of exposure to water and fish—the researchers tallied the number of the original responses within 20 percent of the value derived from the survey update.[66] The results with respect to this measure show no statistically significant differences among the four original discovery devices.[67]

On the basis of these results, it appears that the discovery survey and the survey update were at least as successful as the more traditional procedures of interrogatories and depositions. The surveys yielded information that was by and large as complete and consistent as the information produced by the traditional procedures. However, it is important to add one caveat to the endorsement of discovery surveys. The frequency of missing information in the self-administered mailed discovery surveys suggests that surveys are best when administered through interviews or under close supervision, but not when they are administered through mailings.

These findings are very favorable indeed for the discovery survey methods, especially when one considers the low cost of these instruments relative to more traditional discovery procedures. If similar levels of information quality and quantity can be obtained with substantially less costly discovery devices, the devices are certainly worth considering. The results reported above show that limits to the uses of surveys might exist—care is obviously called for with respect to how the survey is administered. If surveys are administered in person by trained interviewers, or even if they are self-administered under close supervision, as was the case with the survey update, there is little reason to doubt that survey methods can produce information as good as that supplied by interrogatories and depositions. If surveys are self-administered without supervision, as was the case with the discovery surveys sent to plaintiffs who joined the case in 1984, they might result in less than complete information.

C. Plaintiff Evaluations

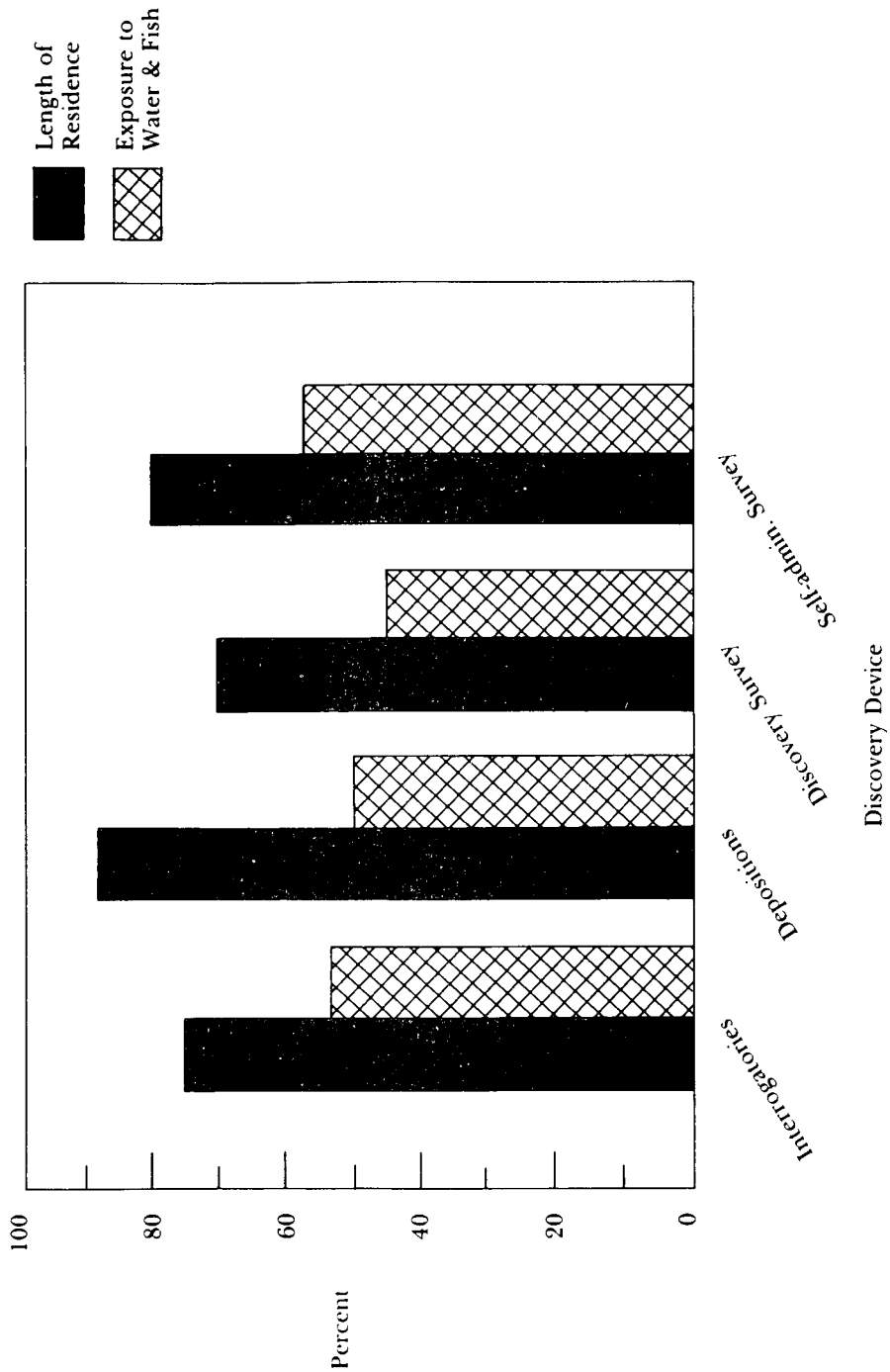
Litigant burden is a major issue in debates about problems and possible reforms in discovery. We interviewed random or complete population samples of the plaintiffs exposed to each discovery device in order to learn how they viewed the discovery experience.[68] Interviews were attempted with

66. Again, the values in the figure were computed using only the discovery responses that were not missing information on any dimension and may give a more favorable picture of the mailed surveys than is justified.

67. For residence information, Chi-square(4)=2.48, not significant; for exposure information, Chi-square(4)=.50, not significant.

68. The interview samples were restricted to plaintiffs born prior to January 1, 1968. The samples were restricted in this fashion because the interviews asked about experiences with and reactions to the original DDT discovery survey and other discovery devices. It was unlikely that plaintiffs who were less than 16 years old at the time of the original survey would have answered the

FIGURE 4
INFORMATION QUALITY: RETEST ACCURACY



674 plaintiffs, a set that included all of the deposed plaintiffs. The other interview samples consisted of a stratified random sample of the adult plaintiffs exposed to the discovery device in question. The sample was based on lists used to schedule plaintiffs for the update and blood testing sessions. Most of the interviews were conducted at those sessions.[69] At the beginning of each session in the sample, plaintiffs scheduled for the session were identified and invited to participate. The interviews were conducted after the plaintiffs had completed the update survey and had had their blood drawn.

Of the 662 targeted plaintiffs, 166 (25 percent) were not at their scheduled session and were never located at any session. Of the remaining 496 targeted plaintiffs, 181 (36 percent) declined to participate in the interview, and 315 (64 percent) were interviewed. The completion rate of 64 percent of the located sample (48 percent of the targeted sample) is considered rather good for a study of this type.[70] Responses were obtained for 242 discovery survey experiences, 55 experiences with mailed discovery surveys, 18 interrogatories,[71] 12 depositions, and, because all of the interviewed plaintiffs experienced and were asked about the survey update, responses were obtained for 315 survey updates.

The interviews were conducted by the students who assisted the special master with the update survey. The students were trained in interview techniques and in the specific procedure for administering the present interview. The interviews generally took fifteen minutes to complete.

The plaintiff reaction interviews asked for ratings of each discovery instrument on a variety of dimensions: the extent to which the plaintiff was allowed to present his or her information; the extent to which the plaintiff understood the questions; whether the plaintiff believed that his or her answers mattered in the case; whether the plaintiff was treated with respect, kindness, and fairness; whether the plaintiff had trouble answering the questions; whether the plaintiff had trouble remembering information; whether he or she needed papers or documents to answer the questions; whether there was enough time to answer the questions; whether help was needed to answer the questions; whether the plaintiff wanted to talk to his or her lawyer and was unable to do so; whether the questions were phrased in a way that hurt the plaintiff's case; and whether the plaintiff was permitted to

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surveys themselves, and thus unlikely that these plaintiffs would have been able to answer many of the questions in the interviews.

69. Sixteen interviews were conducted over the telephone. Most of the telephone interviews were conducted with plaintiffs who had been deposed. Telephone interviews were used with these plaintiffs because the number of deposed plaintiffs was quite small and it was necessary to obtain as many interviews as possible with plaintiffs who had experienced the deposition procedure.

70. E. BABBIE, *supra* note 25, at 165. Of course, any survey that fails to gather data on a substantial portion of the samples must be interpreted with caution. It is necessary to consider whether the findings of the survey might have been different if those who were not interviewed had given their views. In the present study, there is no reason to think that non-responses pose a serious threat to the validity of the findings.

71. Twelve of the ratings of interrogatory experiences were made by plaintiffs who had been deposed and who were also interviewed with respect to their deposition experiences.

answer questions in his or her own words. In addition, the interview asked for overall ratings of the discovery instrument and impressions of how well the blood tests were handled. The plaintiffs were also asked a number of questions about their desired outcome from the lawsuit, and how much money they believed they deserved. Appendix C contains sample pages from the interview form used for plaintiffs who answered interrogatories; the forms for plaintiffs receiving the discovery surveys and those who were deposed were quite similar.

The plaintiffs' responses showed that by and large they saw all of the discovery methods as reasonable and fair. In fact, only two plaintiffs in the entire sample of 315 said they had been treated unkindly, and only seven in the entire sample said they had been treated unfairly. Against the background of this generally favorable response to discovery, however, there were some differences in reactions to different discovery procedures. Two items give a good picture of the general pattern of responses to the discovery devices. Figure 5 shows responses to a question asking the extent to which the plaintiff felt he or she had been treated well. Two of the procedures, interrogatories and the survey update, were especially likely to provoke an unqualifiedly positive response, and one procedure, deposition, was less likely than the others to induce a favorable response.

Figure 6 shows the percentage of plaintiffs saying that answering the questions in the discovery instrument was "a lot of trouble." Again, depositions are viewed less positively than are the other discovery procedures. Similar patterns of reactions, with plaintiffs reporting more problems with depositions, were seen in responses to questions on whether the plaintiff found the questions hard to answer, had trouble with the way the questions were worded, had trouble remembering information needed to answer the questions, and did not understand all the questions.

The findings with respect to the plaintiffs' reactions to the various discovery procedures are interesting. The plaintiffs might be described as uncomplaining in their assessment of the discovery procedures. They almost never saw the procedures as unfair, and they were seldom unwilling to tolerate even relatively burdensome procedures such as interrogatories or depositions. Notwithstanding their unwillingness to view any of the procedures in a negative light, however, the plaintiffs' responses do show that they experienced some trouble with depositions. They apparently had a good deal of difficulty in understanding the questions and responding with the right information. These problems probably account for the only hint of negative reaction to the discovery experience: The plaintiffs who were deposed were less likely to think they had been treated well in the course of the discovery process.

D. Satisfaction of Attorneys

The general reaction of the attorneys to the discovery survey was favorable, with time and cost being the major pluses. Attorneys also showed

FIGURE 5
PLAINTIFF BURDEN: FEELINGS OF GOOD TREATMENT

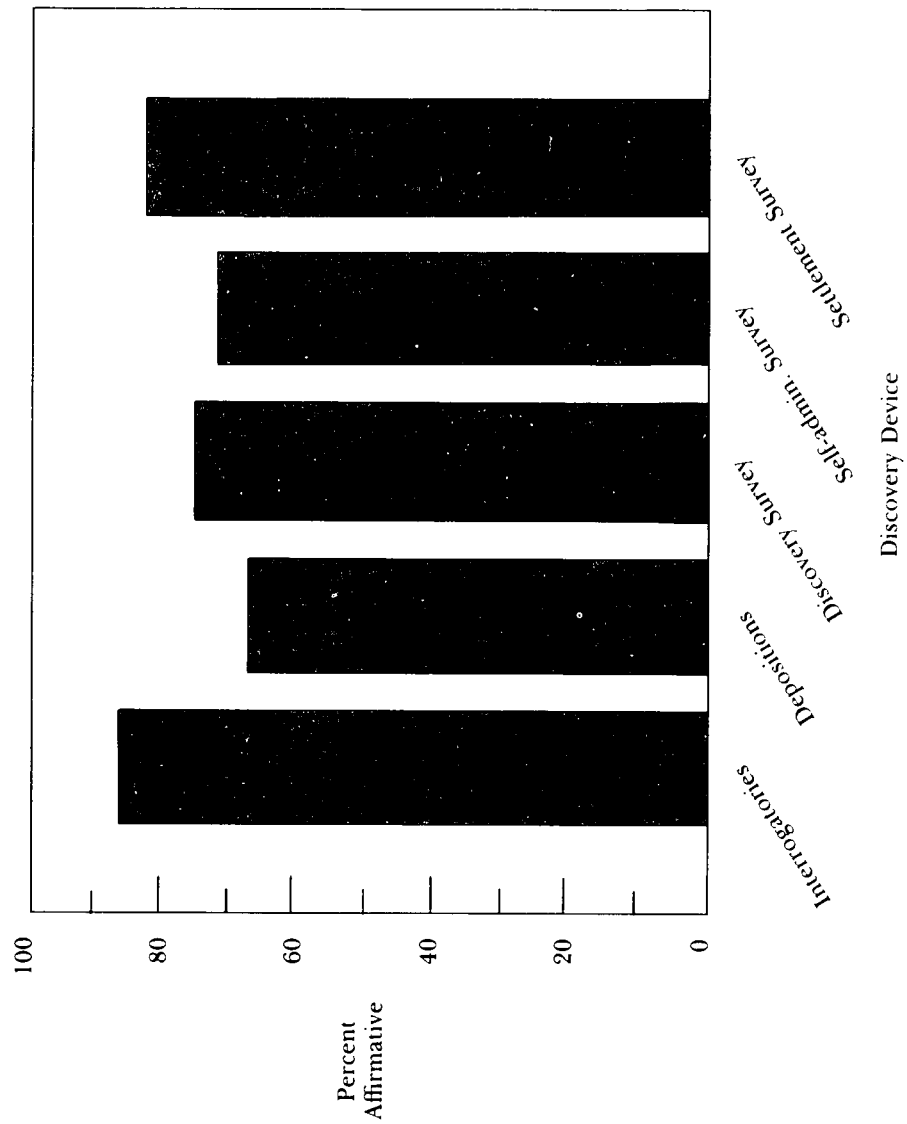
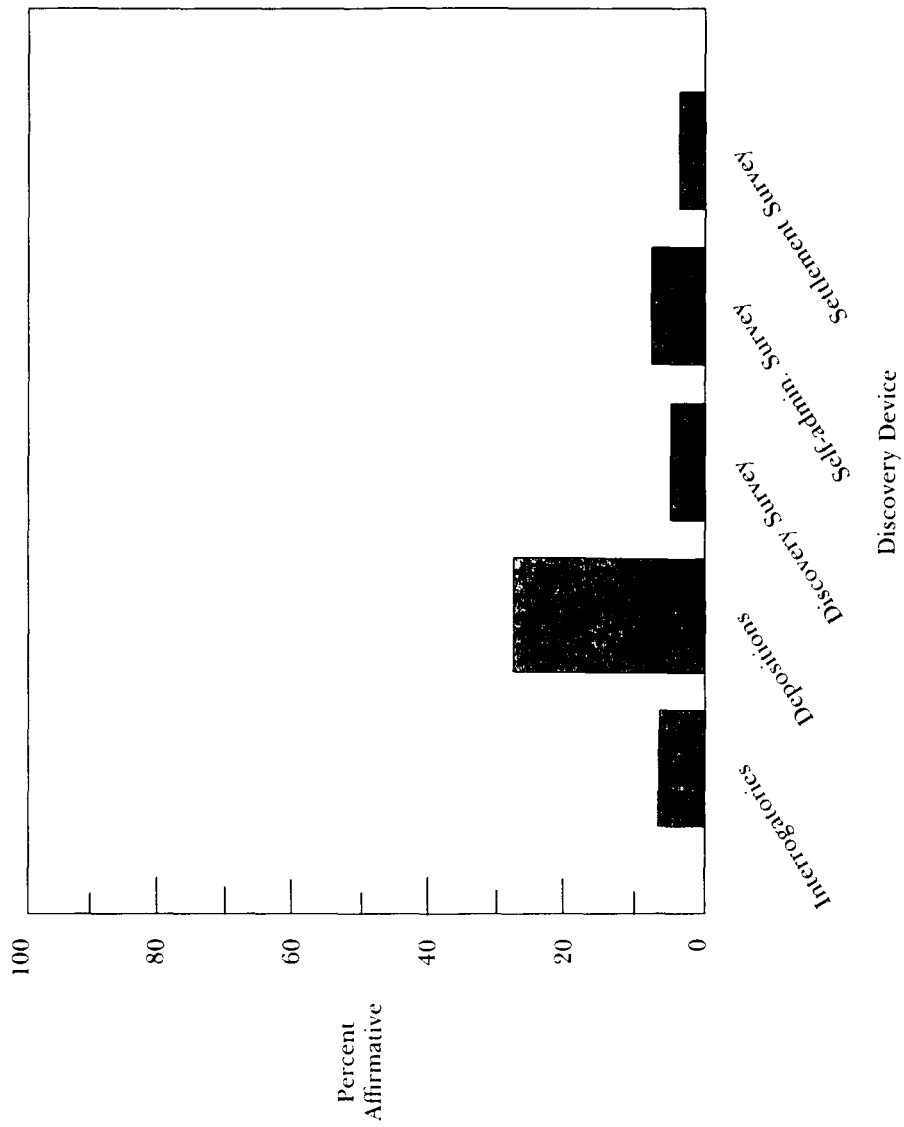


FIGURE 6

PLAINTIFF BURDEN: TROUBLE ANSWERING QUESTIONS



substantial appreciation for the ability to get an overview of the entire range of plaintiffs. Initial concerns that the neutral interviewers would interject some type of bias into the information were not realized. Expectations that some attorneys would manage to take tactical advantage of the situation also did not materialize.

At the more detailed level, concern remains about the possibility of potential bias and unfairness resulting from the precise wording of the questions. Most of the attorneys felt that questions calling for straightforward, objective, verifiable information from the plaintiffs worked best. Any question that had the potential for a plaintiff to waive some type of right or claim because of a lack of understanding of the ramifications of an answer would still be viewed with skepticism by plaintiffs' attorneys. Most defense attorneys felt that any straightforward, intelligible question worked well.

The debate concerning open-ended versus closed-ended questions remains unchanged by the attorneys' experience with the discovery survey. The bulk of the open-ended questions were uncodable, however, and the attorneys recognized the limits of the value of anecdotal evidence.

There was unanimity that redundancies and excesses existed in the original questionnaire. In retrospect, the limited inquiries in the survey update were probably sufficient. The attorneys still feel, however, that it was extremely difficult at the time of the negotiation of the discovery survey to place severe limits on the range of inquiries. Perhaps if there had been more discovery prior to the design of the questionnaire, it would have been possible to agree upon an abbreviated format.

V

CONCLUSION

The *Wilhoite* study leads to a number of general observations. First, there are opportunities for attorneys to work together in the context of the adversarial process to develop innovative and more efficient discovery methods. Second, it is possible to tailor discovery techniques to specialized needs and concerns. Finally, empirical measurement of the relative merits of different data collection methods can facilitate the fine-tuning of experimental information-gathering approaches and the comparison of the merits of alternative suggestions.

In particular, the discovery survey—a negotiated questionnaire administered and processed by neutrals—can be a useful addition to the development of data in a case involving large numbers of plaintiffs. Short-term tactical advantages sought by attorneys in discovery can be neutralized, and massive amounts of information can be gathered quickly at relatively low cost. Care should be given to the drafting of any questionnaire to insure that parties are not inadvertently deprived of any rights. Straightforward questions calling for objective, verifiable information and persistent monitoring by neutrals can result in accurate and complete responses.

Carefully controlled answers can be readily processed by computer. The satisfaction of clients, attorneys, and experts with respect to the discovery survey can be maintained at a higher level than it can with respect to more conventional discovery techniques. These and other conclusions can be verified by empirical analysis of the use of the discovery device.

APPENDIX A

EXCERPTS FROM DISCOVERY DEVICES

1. DEPOSITION

Q From Guntersville?
A Yes.
Q Do you ever ask the fishman at the Big Star where he gets his fish?
A No.
Q Have you ever thought about where it might come from?
A Yes.
Q When your father fished, where did he fish?
A The Beaverdam and the Triana River.
Q Did he normally fish with other people or did he fish by himself?
A With other people.
Q Did they use a boat normally or did they normally fish off the bank?
A Off the bank.
Q I assume that you've been eating catfish and fish that your father has caught most of your life?
A Yes.
Q And I assume that the normal preparation of that fish would be that of frying it?
A Yes.

2. INTERROGATORIES

Questions:

11.

Since 1965 have you ever eaten any fish which you think were caught in rivers, streams or creeks in Northern Alabama? If so,

a. What kind of fish from such waters do you usually eat?

b. Did you catch the fish yourself?

c. Where did you catch them (for example, in what body of water and near what place(s))?

d. If you did not fish, where did you get the fish you eat?

Answers:

11. (aa) Yes
(a) Bass, cod, catfish, Buffalo
(b) No
(c) They caught them in Triana, Ala.
(d) My grandfather & Father fished some times and my uncles.

3. DISCOVERY SURVERY

→ 73. *Since 1965* have you ever eaten any fish which you think were caught in rivers, streams, reservoirs, lakes or creeks in Northern Alabama? (Northern Alabama meaning any of these counties: Colbert, Jackson, Lauderdale, Lawrence, Limestone, Madison, Marshall and Morgan)

Yes ✓ No _____

If yes, answer questions 74 to 83. (Remember that all your answers to questions 74 to 83 refer *only* to fish *caught* in the rivers, streams, reservoirs, lakes, or creeks in Northern Alabama)

→ 74. Did you catch the fish yourself?

Yes _____ No ✓

→ 75. Where did you catch the fish you caught in these waters (for example, in what body of water and near what place(s))?

NA

→ 76. Other than fish you caught yourself, where did you get the fish you ate which were caught in these waters?

My Grandmother

4. MAILED DISCOVERY SURVERY

→ 73. *Since 1965* have you ever eaten any fish which you think were caught in rivers, streams, reservoirs, lakes or creeks in Northern Alabama? (Northern Alabama meaning any of these counties: Colbert, Jackson, Lauderdale, Lawrence, Limestone, Madison, Marshall and Morgan)

Yes _____ No _____

If yes, answer questions 74 to 83. (Remember that all your answers to questions 74 to 83 refer *only* to fish *caught* in the rivers, streams, reservoirs, lakes, or creeks in Northern Alabama)

→ 74. Did you catch the fish yourself?

Yes _____ No _____

→ 75. Where did you catch the fish you caught in these waters (for example, in what body of water and near what place(s))?

_____

_____

_____

→ 76. Other than fish you caught yourself, where did you get the fish you ate which were caught in these waters?

_____

_____

5. SURVEY UPDATE

QUESTIONNAIRE
Page 2

7. WHEN YOU *LIVED IN ANY* OF THESE COUNTIES ARE YOU CLAIMING THAT YOU DRANK WATER OR ATE FISH OR OTHER ANIMALS CONTAINING OLIN DDT OR IN ANY OTHER WAY CAME IN CONTACT WITH OLIN DDT?
Yes X No ___

If yes, indicate how you think you came in contact and how often:

a. Water X — From 1933 to 1987
Daily X — Monthly ___ Weekly ___ Occasionally ___

b. Fish X — From 1933 to 1987
Daily ___ — Monthly ___ Weekly X Occasionally ___

c. Other Animals Rabbits, Squirrels, etc. — From 1933 to 1987
Daily ___ — Monthly ___ Weekly ___ Occasionally X

d. Cotton Field X — From 1943 to 1952
Daily X — Monthly ___ Weekly ___ Occasionally ___

e. Other (What?) T.V.A. sprayed with DDT — From 19__ to 19__
Daily ___ — Monthly ___ Weekly ___ Occasionally X

APPENDIX B

DISCOVERY INFORMATION CODING FORM

[Form I(a); DDT Discovery Study Information Coding Form; Page 1]

DDT Discovery Information Form

Note: If you have difficulty coding any of the items, refer to the coding specifications. If problems remain, code the item as well as you can, put an asterisk next to the item, and note on the back or second page of this form what the problem was and how you resolved it. Remember to write "NF" if the information to code the item is "Not Found" in the discovery materials being coded.

Discovery materials being coded:

DDT Questionnaire 1 _____(1) DDT Questionnaire 2 _____(2) /01

Interrogatory Answers_____(3) Deposition_____(4) Pay Questionnaire 1_____(5)

Name_____

Identification code_____(#####) /02-06

Coder_____(FMI) /07-09

1. Months living in Northern Alabama counties between 1946-1981: _____(###) /10-12

2. Months of exposure to well or river water in N. Alabama, 1946-1981: /13-15
_____(###)

3. Frequency of exposure to well or river water:
Daily____(1) Weekly____(2) Monthly____(3) Less than once a month____(4) /16

4. Frequency of exposure to fish in N. Alabama, 1946-1981:_____(###) /17-19

5. Frequency of exposure to river fish:
Daily____(1) Weekly____(2) Monthly____(3) Less than once a month____(4) /20

6. Months of exposure to cotton fields, 1946-1981: _____(###) /21-23

7. Frequency of exposure to cotton fields:
Daily____(1) Weekly____(2) Monthly____(3) Less than once a month____(4) /24

8. Currently taking sedatives or tranquilizers: Yes_____(1) No_____(2) /25

9. Number of past illnesses claimed to be related to DDT: _____(###) /26-29

10. Number of present illnesses claimed to be related to DDT: _____(###) /30-32

11. Number of present illnesses not claimed to be related to DDT: _____(###) /33-35

12. Claims fear or expectation of future DDT-related illness: Yes_____(1) /36
No_____(2)

13. DDT level in blood (most recent test): _____(##########) /37-50
Date of test: _____(MMDDYY) /51-56

APPENDIX C

EXCERPT FROM PLAINTIFF REACTION INTERVIEW FORM

[Form B; DDT Satisfaction Questionnaire; Page 1]

DDT Satisfaction Survey

Card 1
/01
Form B
/02

Introduction: These questions will help us to understand how you feel about how you have been treated in this lawsuit. Please try to answer each question with your honest feelings about the case. YOUR ANSWERS TO THIS QUESTIONNAIRE WILL *NOT* CHANGE WHAT YOU GET FROM THE CASE.

Name_____

Identification code_____(=====) /03-/07

Interviewed: _____In person(1) _____By telephone(2) /08

Date interviewed_____(MMDDYY) /09-/14

If not interviewed, why? _____Not at session(1) _____Refused or Non-return(2) /15
_____Other (explain on back)(3)

Time interview began_____(HHMM) /16-/19

Interviewer_____(FML) /20-/22

I. [*Interrogatory procedure—this questionnaire is for claimants who received interrogatories about their claim. Make sure the respondent knows which questionnaire you are asking about. This section concerns the interrogatories, the questions mailed to the claimant; a later section concerns the current questionnaire.*] Please think about the time you were asked to answer questions or "interrogatories" you received in the mail. Answer these questions as you think about that time.

Card 1

1. Do you think you had a chance to give all the information you had about the case? Would you say you had a chance to give. . . Card 1

All the information you had_____(1) /23

Most of the information you had_____(2)

Some of the information you had_____(3), or that

You could not give much of your information_____(4)

[*Don't know (DK); No Answer (NoAns); Not Applicable (N/A)*]_____(7,8,9)

[*If any answer other than "All the information. . ."*] What information would you have liked to give that you could not give?

_____(1=answer;2-=no) /24

_____(Use back of form if necessary).

[Form B; DDT Satisfaction Questionnaire; Page 2]

2. How well did you understand the questions on the interrogatories? Would you say you. . .

Understood all the questions_____(1) /25

Understood some questions, not others_____(2), or

Didn't understand a lot of the questions_____(3)

[*Don't know (DK); No Answer (NoAns); Not Applicable (N/A)*]_____(7,8,9)

3. Did you feel like your answers to the questions would make any difference in the case? Would you say your answers. . .

Mattered a lot_____(1) /26

Mattered a little_____(2), or

Didn't matter much at all_____(3)

[*Don't know (DK); No Answer (NoAns); Not Applicable (N/A)*]_____(7,8,9)

4a. How were you treated when you were filling out interrogatories? Would you say you were treated. . .

With respect_____(1), or With no respect_____(2) /27

[*Don't know (DK); No Answer (NoAns); Not Applicable (N/A)*]_____(7,8,9)

4b. Would you say you were treated. . .

Kindly_____(1), or Unkindly_____(2) /28

[*Don't know (DK); No Answer (NoAns); Not Applicable (N/A)*]_____(7,8,9) Card 1

Card 1

4c. Would you say you were treated. . .

Fairly_____(1), or Unfairly_____(2) /29

[*Don't know (DK); No Answer (NoAns); Not Applicable(N/A)*]_____(7,8,9)

5. How much trouble did you have answering the questions on the interrogatories? Did the questions give you. . .

A lot of trouble_____(1), Some trouble_____(2), or No trouble_____(3) /30

[*Don't know (DK); No Answer (NoAns); Not Applicable(N/A)*]_____(7,8,9)

6. Did the way the questions were asked make it hard for you to give answers that said what you meant for them to say? Would you say it made it. . .

Very hard_____(1) Kind of hard_____(2), or Not hard at all_____(3) /31

[*Don't know (DK); No Answer (NoAns); Not Applicable (N/A)*]_____(7,8,9)

7. Did you have any trouble remembering the information asked for in the interrogatories?

Yes_____(1) No_____(2) /32

[*Don't know (DK); No Answer (NoAns); Not Applicable (N/A)*]_____(7,8,9)

8. Did you need to refer to papers or documents you didn't have when you answered the interrogatories?

Yes_____(1) No_____(2) /33

[*Don't know (DK); No Answer (NoAns); Not Applicable (N/A)*]_____(7,8,9)

[Form B; DDT Satisfaction Questionnaire; Page 3]

9. Did you have enough time to answer the questions?

Yes_____(1) No_____(2) /34

[*Don't know (DK); No Answer (NoAns); Not Applicable (N/A)*]_____(7,8,9)

10. Did you feel that you needed help to answer the questions, but couldn't get it?

Yes_____(1) No_____(2) /35

[*Don't know (DK); No Answer (NoAns); Not Applicable (N/A)*]_____(7,8,9)

11. Did you want to talk to your lawyer about how you should answer the questions, but weren't able to?

Yes_____(1) No_____(2) /36

[*Don't know (DK); No Answer (NoAns); Not Applicable (N/A)*]_____(7,8,9)