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## PROBLEMS OF INFERENCE AND PROOF IN PARTICIPANT OBSERVATION \*

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THE participant observer gathers data by participating in the daily life of the group or organization he studies.<sup>1</sup> He watches the people he is studying to see what situations they ordinarily meet and how they behave in them. He enters into conversation with some or all of the participants in these situations and discovers their

interpretations of the events he has observed.

Let me describe, as one specific instance of observational technique, what my colleagues and I have done in studying a medical school. We went to lectures with students taking their first two years of basic science and frequented the laboratories in which they spend most of their time, watching them and engaging in casual conversation as they dissected cadavers or examined pathology specimens. We followed these students to their fraternity houses and sat around while they discussed their school experiences. We accompanied students in the clinical years on rounds with attending physicians, watched them examine patients on the wards and in the clinics, sat in on discussion groups and oral exams. We ate with the students and took night call with them. We pursued internes and residents through their crowded schedules of teaching and medical work. We stayed with one small group of students on each service for periods ranging from a week to two months, spending many full days with them. The observational situations allowed time for conversation and we took advantage of this to interview students about things that had happened and were about to happen, and about their own backgrounds and aspirations.

Sociologists usually use this method when they are especially interested in understanding a particular organization or substantive problem rather than demonstrating relations

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\* This paper developed out of problems of analysis arising in a study of a state medical school. The study is sponsored by Community Studies, Inc., of Kansas City, Missouri. It is directed by Everett C. Hughes; Anselm Strauss is also a member of the research team. Most of the material presented here has been worked out with the help of Blanche Geer, who has been my partner in field work and analysis in this study. I am grateful to Alvin W. Gouldner for a thorough critique of an earlier draft.

Substantive papers on the study, whose findings are made use of throughout, include: Howard S. Becker and Blanche Geer, "The Fate of Idealism in Medical School," *American Sociological Review*, 23 (February, 1958), pp. 50-56, and "Student Culture in Medical School," *Harvard Educational Review*, 28 (Winter, 1958), pp. 70-80. Another paper on participant observation by the same authors is "Participant Observation and Interviewing: A Comparison," *Human Organization*, 16 (Fall, 1957), pp. 28-32.

<sup>1</sup> There is little agreement on the specific referent of the term *participant observation*. See Raymond L. Gold, "Roles in Sociological Field Observations," *Social Forces*, 36 (March, 1958), pp. 217-223, for a useful classification of the various procedures that go by this name. Our own research, from which we have drawn our illustrations, falls under Gold's type, "participant-as-observer." The basic methods discussed here, however, would appear to be similar in other kinds of field situations.

between abstractly defined variables. They attempt to make their research theoretically meaningful, but they assume that they do not know enough about the organization *a priori* to identify relevant problems and hypotheses and that they must discover these in the course of the research. Though participant observation can be used to test *a priori* hypotheses, and therefore need not be as unstructured as the example I have given above, this is typically not the case. My discussion refers to the kind of participant observation study which seeks to discover hypotheses as well as to test them.

Observational research produces an immense amount of detailed description; our files contain approximately five thousand single-spaced pages of such material. Faced with such a quantity of "rich" but varied data, the researcher faces the problem of how to analyze it systematically and then to present his conclusions so as to convince other scientists of their validity. Participant observation (indeed, qualitative analysis generally) has not done well with this problem, and the full weight of evidence for conclusions and the processes by which they were reached are usually not presented, so that the reader finds it difficult to make his own assessment of them and must rely on his faith in the researcher.

In what follows I try to pull out and describe *the basic analytic operations carried on in participant observation*, for three reasons: to make these operations clear to those unfamiliar with the method; by attempting a more explicit and systematic description, to aid those working with the method in organizing their own research; and, most importantly, in order to propose some changes in analytic procedures and particularly in reporting results which will make the processes by which conclusions are reached and substantiated more accessible to the reader.

The first thing we note about participant observation research is that analysis is carried on *sequentially*,<sup>2</sup> important parts of the

analysis being made while the researcher is still gathering his data. This has two obvious consequences: further data gathering takes its direction from provisional analyses; and the amount and kind of provisional analysis carried on is limited by the exigencies of the field work situation, so that final comprehensive analyses may not be possible until the field work is completed.

We can distinguish three distinct stages of analysis conducted in the field itself, and a fourth stage, carried on after completion of the field work. These stages are differentiated, first, by their logical sequence: each succeeding stage depends on some analysis in the preceding stage. They are further differentiated by the fact that different kinds of conclusions are arrived at in each stage and that these conclusions are put to different uses in the continuing research. Finally, they are differentiated by the different criteria that are used to assess evidence and to reach conclusions in each stage. The three stages of field analysis are: the selection and definition of problems, concepts, and indices; the check on the frequency and distribution of phenomena; and the incorporation of individual findings into a model of the organization under study.<sup>3</sup> The fourth stage of final analysis involves problems of presentation of evidence and proof.

#### SELECTION AND DEFINITION OF PROBLEMS, CONCEPTS, AND INDICES

In this stage, the observer looks for problems and concepts that give promise of yielding the greatest understanding of the organization he is studying, and for items which may serve as useful indicators of facts which are harder to observe. The typical conclusion that his data yield is the simple one that a given phenomenon exists, that a certain event occurred once, or that two phenomena were observed to be related in one instance; the conclusion says nothing about the frequency or distribution of the observed phenomenon.

By placing such an observation in the con-

<sup>2</sup> In this respect, the analytic methods I discuss bear a family resemblance to the technique of *analytic induction*. Cf. Alfred Lindesmith, *Opiate Addiction* (Bloomington: Principia Press, 1947), especially pp. 5-20, and the subsequent literature cited in Ralph H. Turner, "The Quest for Universals in Sociological Research," *American Sociological Review*, 18 (December, 1953), pp. 604-611.

<sup>3</sup> My discussion of these stages is abstract and simplified and does not attempt to deal with practical and technical problems of participant observation study. The reader should keep in mind that in practice the research will involve all these operations simultaneously with reference to different particular problems.

text of a sociological theory, the observer selects concepts and defines problems for further investigation. He constructs a theoretical model to account for that one case, intending to refine it in the light of subsequent findings. For instance, he might find the following: "Medical student X referred to one of his patients as a 'crock' today."<sup>4</sup> He may then connect this finding with a sociological theory suggesting that occupants of one social category in an institution classify members of other categories by criteria derived from the kinds of problems these other persons raise in the relationship. This combination of observed fact and theory directs him to look for the problems in student-patient interaction indicated by the term "crock." By discovering specifically what students have in mind in using the term, through questioning and continued observation, he may develop specific hypotheses about the nature of these interactional problems.

Conclusions about a single event also lead the observer to decide on specific items which might be used as indicators<sup>5</sup> of less easily observed phenomena. Noting that in at least one instance a given item is closely related to something less easily observable, the researcher discovers possible shortcuts easily enabling him to observe abstractly defined variables. For example, he may decide to investigate the hypothesis that medical freshmen feel they have more work to do than can possibly be managed in the time allowed them. One student, in discussing this problem, says he faces so much work that, in contrast to his undergraduate days, he is forced to study many hours over the week-

end and finds that even this is insufficient. The observer decides, on the basis of this one instance, that he may be able to use complaints about weekend work as an indicator of student perspectives on the amount of work they have to do. The selection of indicators for more abstract variables occurs in two ways: the observer may become aware of some very specific phenomenon first and later see that it may be used as an indicator of some larger class of phenomena; or he may have the larger problem in mind and search for specific indicators to use in studying it.

Whether he is defining problems or selecting concepts and indicators, the researcher at this stage is using his data only to speculate about possibilities. Further operations at later stages may force him to discard most of the provisional hypotheses. Nevertheless, problems of evidence arise even at this point, for the researcher must assess the individual items on which his speculations are based in order not to waste time tracking down false leads. We shall eventually need a systematic statement of canons to be applied to individual items of evidence. Lacking such a statement, let us consider some commonly used tests. (The observer typically applies these tests as seems reasonable to him during this and the succeeding stage in the field. In the final stage, they are used more systematically in an overall assessment of the total evidence for a given conclusion.)

*The Credibility of Informants.* Many items of evidence consist of statements by members of the group under study about some event which has occurred or is in process. Thus, medical students make statements about faculty behavior which form part of the basis for conclusions about faculty-student relations. These cannot be taken at face value; nor can they be dismissed as valueless. In the first place, the observer can use the statement as evidence *about the event*, if he takes care to evaluate it by the criteria an historian uses in examining a personal document.<sup>6</sup> Does the informant have reason to lie or conceal some

<sup>4</sup> The examples of which our hypothetical observer makes use are drawn from our own current work with medical students.

<sup>5</sup> The problem of indicators is discussed by Paul F. Lazarsfeld and Allen Barton, "Qualitative Measurement in the Social Sciences: Classification, Typologies, and Indices," in Daniel Lerner and Harold D. Lasswell, editors, *The Policy Sciences: Recent Developments in Scope and Method*, Stanford: Stanford University Press, 1951, pp. 155-192; "Some Functions of Qualitative Analysis in Sociological Research," *Sociologica*, 1 (1955), pp. 324-361 (this important paper parallels the present discussion in many places); and Patricia L. Kendall and Paul F. Lazarsfeld, "Problems of Survey Analysis," in R. K. Merton and P. F. Lazarsfeld, editors, *Continuities in Social Research*, Glencoe: Free Press, 1950, pp. 183-186.

<sup>6</sup> Cf. Louis Gottschalk, Clyde Kluckhohn, and Robert Angell, *The Use of Personal Documents in History, Anthropology, and Sociology*, New York: Social Science Research Council, 1945, pp. 15-27, 38-47.

of what he sees as the truth? Does vanity or expediency lead him to mis-state his own role in an event or his attitude toward it? Did he actually have an opportunity to witness the occurrence he describes or is hearsay the source of his knowledge? Do his feelings about the issues or persons under discussion lead him to alter his story in some way?

Secondly, even when a statement examined in this way proves to be seriously defective as an accurate report of an event, it may still provide useful evidence for a different kind of conclusion. Accepting the sociological proposition that an individual's statements and descriptions of events are made from a perspective which is a function of his position in the group, the observer can interpret such statements and descriptions as indications of the individual's perspective on the point involved.

*Volunteered or Directed Statements.* Many items of evidence consist of informants' remarks to the observer about themselves or others or about something which has happened to them; these statements range from those which are a part of the running casual conversation of the group to those arising in a long intimate *tete-a-tete* between observer and informant. The researcher assesses the evidential value of such statements quite differently, depending on whether they have been made independently of the observer (volunteered) or have been directed by a question from the observer. A freshman medical student might remark to the observer or to another student that he has more material to study than he has time to master; or the observer might ask, "Do you think you are being given more work than you can handle?", and receive an affirmative answer.

This raises an important question: to what degree is the informant's statement the same one he might give, either spontaneously or in answer to a question, in the absence of the observer? The volunteered statement seems likely to reflect the observer's preoccupations and possible biases less than one which is made in response to some action of the observer, for the observer's very question may direct the informant into giving an answer which might never occur to him otherwise. Thus, in the example

above, we are more sure that the students are concerned about the amount of work given them when they mention this of their own accord than we are when the idea may have been stimulated by the observer asking the question.

*The Observer-Informant-Group Equation.* Let us take two extremes to set the problem. A person may say or do something when alone with the observer or when other members of the group are also present. The evidential value of an observation of this behavior depends on the observer's judgment as to whether the behavior is equally likely to occur in both situations. On the one hand, an informant may say and do things when alone with the observer that accurately reflect his perspective but which would be inhibited by the presence of the group. On the other hand, the presence of others may call forth behavior which reveals more accurately the person's perspective but would not be enacted in the presence of the observer alone. Thus, students in their clinical years may express deeply "idealistic" sentiments about medicine when alone with the observer, but behave and talk in a very "cynical" way when surrounded by fellow students. An alternative to judging one or the other of these situations as more reliable is to view each datum as valuable in itself, but with respect to different conclusions. In the example above, we might conclude that students have "idealistic" sentiments but that group norms may not sanction their expression.<sup>7</sup>

In assessing the value of items of evidence, we must also take into account the observer's role in the group. For the way the subjects of his study define that role affects what they will tell him or let him see. If the observer carries on his research incognito, participating as a full-fledged member of the group, he will be privy to knowledge that would normally be shared by such a member and might be hidden from an outsider. He could properly interpret his own experience as that of a hypothetical "typical" group member. On the other hand, if he is known to be a researcher, he must learn how group members define him and in particular whether or not they believe that certain

<sup>7</sup> See further, Howard S. Becker, "Interviewing Medical Students," *American Journal of Sociology*, 62 (September, 1956), pp. 199-201.

kinds of information and events should be kept hidden from him. He can interpret evidence more accurately when the answers to these questions are known.

#### CHECKING THE FREQUENCY AND DISTRIBUTION OF PHENOMENA

The observer, possessing many provisional problems, concepts, and indicators, now wishes to know which of these are worth pursuing as major foci of his study. He does this, in part, by discovering if the events that prompted their development are typical and widespread, and by seeing how these events are distributed among categories of people and organizational sub-units. He reaches conclusions that are essentially quantitative, using them to describe the organization he is studying.

Participant observations have occasionally been gathered in standardized form capable of being transformed into legitimate statistical data.<sup>8</sup> But the exigencies of the field usually prevent the collection of data in such a form as to meet the assumptions of statistical tests, so that the observer deals in what have been called "quasi-statistics."<sup>9</sup> His conclusions, while implicitly numerical, do not require precise quantification. For instance, he may conclude that members of freshmen medical fraternities typically sit together during lectures while other students sit in less stable smaller groupings. His observations may indicate such a wide disparity between the two groups in this respect that the inference is warranted without a standardized counting operation. Occasionally, the field situation may permit him to make similar observations or ask similar questions of many people, systematically searching for quasi-statistical support for a conclusion about frequency or distribution.

In assessing the evidence for such a conclusion the observer takes a cue from his statistical colleagues. Instead of arguing that a conclusion is either totally true or false, he decides, if possible, how *likely* it

is that his conclusion about the frequency or distribution of some phenomenon is an accurate quasi-statistic, just as the statistician decides, on the basis of the varying values of a correlation coefficient or a significance figure, that his conclusion is more or less likely to be accurate. The kind of evidence may vary considerably and the degree of the observer's confidence in the conclusion will vary accordingly. In arriving at this assessment, he makes use of some of the criteria described above, as well as those adopted from quantitative techniques.

Suppose, for example, that the observer concludes that medical students share the perspective that their school should provide them with the clinical experience and the practice in techniques necessary for a general practitioner. His confidence in the conclusion would vary according to the nature of the evidence, which might take any of the following forms: (1) *Every* member of the group said, *in response to a direct question*, that this was the way he looked at the matter. (2) *Every* member of the group *volunteered* to an observer that this was how he viewed the matter. (3) *Some given proportion* of the group's members either *answered* a direct question or *volunteered* the information that he shared this perspective, but none of the others was asked or volunteered information on the subject. (4) Every member of the group was asked or volunteered information, but *some given proportion* said they viewed the matter from the differing perspective of a prospective specialist. (5) No one was asked questions or volunteered information on the subject, but *all members were observed to engage in behavior* or to make other statements from which the analyst *inferred* that the general practitioner perspective was being used by them as a basic, though unstated, premise. For example, all students might have been observed to complain that the University Hospital received too many cases of rare diseases that general practitioners rarely see. (6) *Some given proportion* of the group *was observed* using the general practitioner perspective as a basic premise in their activities, but *the rest of the group* was not observed engaging in such activities. (7) *Some proportion* of the group *was observed*

<sup>8</sup> See Peter M. Blau, "Co-operation and Competition in a Bureaucracy," *American Journal of Sociology*, 59 (May, 1954), pp. 530-535.

<sup>9</sup> See the discussion of quasi-statistics in Lazarsfeld and Barton, "Some Functions of Qualitative Analysis . . .," *op. cit.*, pp. 346-348.

engaged in activities implying the general practitioner perspective while *the remainder* of the group was observed engaged in activities implying the perspective of the prospective specialist.

The researcher also takes account of the possibility that his observations may give him evidence of different kinds on the point under consideration. Just as he is more convinced if he has many items of evidence than if he has a few, so he is more convinced of a conclusion's validity if he has *many kinds* of evidence.<sup>10</sup> For instance, he may be especially persuaded that a particular norm exists and affects group behavior if the norm is not only described by group members but also if he observes events in which the norm can be "seen" to operate—if, for example, students tell him that they are thinking of becoming general practitioners and he also observes their complaints about the lack of cases of common diseases in University Hospital.

The conclusiveness which comes from the convergence of several kinds of evidence reflects the fact that separate varieties of evidence can be reconceptualized as deductions from a basic proposition which have now been verified in the field. In the above case, the observer might have deduced the desire to have experience with cases like those the general practitioner treats from the desire to practice that style of medicine. Even though the deduction is made after the fact, confirmation of it buttresses the argument that the general practitioner perspective is a group norm.

It should be remembered that these operations, when carried out in the field, may be so interrupted because of imperatives of the field situation that they are not carried out as systematically as they might be. Where this is the case, the overall assessment can be postponed until the final stage of postfield work analysis.

#### CONSTRUCTION OF SOCIAL SYSTEM MODELS

The final stage of analysis in the field consists of incorporating individual findings into a generalized model of the social system or

organization under study or some part of that organization.<sup>11</sup> The concept of social system is a basic intellectual tool of modern sociology. The kind of participant observation discussed here is related directly to this concept, explaining particular social facts by explicit reference to their involvement in a complex of interconnected variables that the observer constructs as a theoretical model of the organization. In this final stage, the observer designs a descriptive model which best explains the data he has assembled.

The typical conclusion of this stage of the research is a statement about a set of complicated interrelations among many variables. Although some progress is being made in formalizing this operation through use of factor analysis and the relational analysis of survey data,<sup>12</sup> observers usually view currently available statistical techniques as inadequate to express their conceptions and find it necessary to use words. The most common kinds of conclusions at this level include:

(1) Complex statements of the necessary and sufficient conditions for the existence of some phenomenon. The observer may conclude, for example, that medical students develop consensus about limiting the amount of work they will do because (a) they are faced with a large amount of work, (b) they engage in activities which create communication channels between all members of the class, and (c) they face immediate dangers in the form of examinations set by the faculty.

(2) Statements that some phenomenon is an "important" or "basic" element in the organization. Such conclusions, when elaborated, usually point to the fact that this phenomenon exercises a persistent and continuing influence on diverse events. The observer might conclude that the ambition to become a

<sup>11</sup> The relation between theories based on the concept of social system and participant observation was pointed out to me by Alvin W. Gouldner. See his "Some Observations on Systematic Theory, 1945-55," in Hans L. Zetterberg, editor, *Sociology in the United States of America*, Paris: UNESCO, 1956, pp. 34-42; and "Theoretical Requirements of the Applied Social Sciences," *American Sociological Review*, 22 (February, 1957), pp. 92-102.

<sup>12</sup> See Alvin W. Gouldner, "Cosmopolitans and Locals: Toward an Analysis of Latent Social Roles," *Administrative Science Quarterly*, 2 (December, 1957), pp. 281-306, and 3 (March, 1958), pp. 444-480; and James Coleman, "Relational Analysis: The Study of Social Structure with Survey Methods," mimeographed.

<sup>10</sup> See Alvin W. Gouldner, *Patterns of Industrial Bureaucracy*, Glencoe, Ill.: Free Press, 1954, pp. 247-269.

general practitioner is "important" in the medical school under study, meaning that many particular judgments and choices are made by students in terms of this ambition and many features of the school's organization are arranged to take account of it.

(3) Statements identifying a situation as an instance of some process or phenomenon described more abstractly in sociological theory. Theories posit relations between many abstractly defined phenomena, and conclusions of this kind imply that relationships posited in generalized form hold in this particular instance. The observer, for example, may state that a cultural norm of the medical students is to express a desire to become a general practitioner; in so doing, he in effect asserts that the sociological theory about the functions of norms and the processes by which they are maintained which he holds to be true in general is true in this case.

In reaching such types of conclusions, the observer characteristically begins by constructing models of parts of the organization as he comes in contact with them, discovers concepts and problems, and the frequency and distribution of the phenomena these call to his attention. After constructing a model specifying the relationships among various elements of this part of the organization, the observer seeks greater accuracy by successively refining the model to take account of evidence which does not fit his previous formulation;<sup>13</sup> by searching for negative cases (items of evidence which run counter to the relationships hypothesized in the model) which might force such revision; and by searching intensively for the interconnections *in vivo* of the various elements he has conceptualized from his data. While a provisional model may be shown to be defective by a negative instance which crops up unexpectedly in the course of the field work, the observer may infer what kinds of evidence would be likely to support or to refute his model and may make an intensive search for such evidence.<sup>14</sup>

After the observer has accumulated several partial-models of this kind, he seeks connections between them and thus begins to construct an overall model of the entire organi-

zation. An example from our study shows how this operation is carried on during the period of field work. (The reader will note, in this example, how use is made of findings typical of earlier stages of analysis.)

When we first heard medical students apply the term "crock" to patients we made an effort to learn precisely what they meant by it. We found, through interviewing students about cases both they and the observer had seen, that the term referred in a derogatory way to patients with many subjective symptoms but no discernible physical pathology. Subsequent observations indicated that this usage was a regular feature of student behavior and thus that we should attempt to incorporate this fact into our model of student-patient behavior. The derogatory character of the term suggested in particular that we investigate the reasons students disliked these patients. We found that this dislike was related to what we discovered to be the students' perspective on medical school: the view that they were in school to get experience in recognizing and treating those common diseases most likely to be encountered in general practice. "Crocks," presumably having no disease, could furnish no such experience. We were thus led to specify connections between the student-patient relationship and the student's view of the purpose of his professional education. Questions concerning the genesis of this perspective led to discoveries about the organization of the student body and communication among students, phenomena which we had been assigning to another part-model. Since "crocks" were also disliked because they gave the student no opportunity to assume medical responsibility, we were able to connect this aspect of the student-patient relationship with still another tentative model of the value system and hierarchical organization of the school, in which medical responsibility plays an important role.

Again, it should be noted that analysis of this kind is carried on in the field as time permits. Since the construction of a model is the analytic operation most closely related to the observer's techniques and interests he usually spends a great deal of time thinking about these problems. But he is usually unable to be as systematic as he would like until he reaches the final stage of analysis.

<sup>13</sup> Note again the resemblance to analytic induction.

<sup>14</sup> See Alfred Lindesmith's discussion of this principle in "Comment on W. S. Robinson's 'The Logical Structure of Analytic Induction,'" *American Sociological Review*, 17 (August, 1952), pp. 492-493.

FINAL ANALYSIS AND THE PRESENTATION  
OF RESULTS

The final systematic analysis, carried on after the field work is completed, consists of rechecking and rebuilding models as carefully and with as many safeguards as the data will allow. For instance, in checking the accuracy of statements about the frequency and distribution of events, the researcher can index and arrange his material so that every item of information is accessible and taken account of in assessing the accuracy of any given conclusion. He can profit from the observation of Lazarsfeld and Barton that the "analysis of 'quasi-statistical data' can probably be made more systematic than it has been in the past, if the logical structure of quantitative research at least is kept in mind to give general warnings and directions to the qualitative observer."<sup>15</sup>

An additional criterion for the assessment of this kind of evidence is the state of the observer's conceptualization of the problem at the time the item of evidence was gathered. The observer may have his problem well worked out and be actively looking for evidence to test an hypothesis, or he may not be as yet aware of the problem. The evidential value of items in his field notes will vary accordingly, the basis of consideration being the likelihood of discovering negative cases of the proposition he eventually uses the material to establish. The best evidence may be that gathered in the most unthinking fashion, when the observer has simply recorded the item although it has no place in the system of concepts and hypotheses he is working with at the time, for there might be less bias produced by the wish to substantiate or repudiate a particular idea. On the other hand, a well-formulated hypothesis makes possible a deliberate search for negative cases, particularly when other knowledge suggests likely areas in which to look for such evidence. This kind of search requires advanced conceptualization of the problem, and evidence gathered in this way might carry greater weight for certain kinds of conclusions. Both procedures are relevant at different stages of the research.

<sup>15</sup> "Some Functions of Qualitative Analysis . . .," *op. cit.*, p. 348.

In the post field work stage of analysis, the observer carries on the model building operation more systematically. He considers the character of his conclusions and decides on the kind of evidence that might cause their rejection, deriving further tests by deducing logical consequences and ascertaining whether or not the data support the deductions. He considers reasonable alternative hypotheses and whether or not the evidence refutes them.<sup>16</sup> Finally, he completes the job of establishing interconnections between partial models so as to achieve an overall synthesis incorporating all conclusions.

After completing the analysis, the observer faces the knotty problem of how to present his conclusions and the evidence for them. Readers of qualitative research reports commonly and justifiably complain that they are told little or nothing about the evidence for conclusions or the operations by which the evidence has been assessed. A more adequate presentation of the data, of the research operations, and of the researcher's inferences may help to meet this problem.

But qualitative data and analytic procedures, in contrast to quantitative ones, are difficult to present adequately. Statistical data can be summarized in tables, and descriptive measures of various kinds and the methods by which they are handled can often be accurately reported in the space required to print a formula. This is so in part because the methods have been systematized so that they can be referred to in this shorthand fashion and in part because the data have been collected for a fixed, usually small, number of categories—the presentation of data need be nothing more than a report of the number of cases to be found in each category.

The data of participant observation do not lend themselves to such ready summary.

<sup>16</sup> One method of doing this, particularly adapted to testing discrete hypotheses about change in individuals or small social units (though not in principle limited to this application), is "The Technique of Discerning," described by Mirra Komarovsky in Paul F. Lazarsfeld and Morris Rosenberg, editors, *The Language of Social Research*, Glencoe, Ill.: Free Press, 1955, pp. 449-457. See also the careful discussion of alternative hypotheses and the use of deduced consequences as further proof in Lindesmith, *Opiate Addiction*, *passim*.



They frequently consist of many different kinds of observations which cannot be simply categorized and counted without losing some of their value as evidence—for, as we have seen, many points need to be taken into account in putting each datum to use. Yet it is clearly out of the question to publish all the evidence. Nor is it any solution, as Kluckhohn has suggested for the similar problem of presenting life history materials,<sup>17</sup> to publish a short version and to make available the entire set of materials on microfilm or in some other inexpensive way; this ignores the problem of how to present *proof*.

In working over the material on the medical school study a possible solution to this problem, with which we are experimenting, is a description of the natural history of our conclusions, presenting the evidence as it came to the attention of the observer during the successive stages of his conceptualization of the problem. The term “natural history” implies not the presentation of every datum, but only the characteristic forms data took at each stage of the research. This involves description of the form that data took and any significant exceptions, taking account of the canons discussed above, in presenting

the various statements of findings and the inferences and conclusions drawn from them. In this way, evidence is assessed as the substantive analysis is presented. The reader would be able, if this method were used, to follow the details of the analysis and to see how and on what basis any conclusion was reached. This would give the reader, as do present modes of statistical presentation, opportunity to make his own judgment as to the adequacy of the proof and the degree of confidence to be assigned the conclusion.

#### CONCLUSION

I have tried to describe the analytic field work characteristic of participant observation, first, in order to bring out the fact that the technique consists of something more than merely immersing oneself in data and “having insights”. The discussion may also serve to stimulate those who work with this and similar techniques to attempt greater formalization and systematization of the various operations they use, in order that qualitative research may become more a “scientific” and less an “artistic” kind of endeavor. Finally, I have proposed that new modes of reporting results be introduced, so that the reader is given greater access to the data and procedures on which conclusions are based.

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<sup>17</sup> Gottschalk, Kluckhohn, and Angell, *op. cit.*, pp. 150–156.