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An Introduction
To
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In
Social Sciences

Also by M. H. Gopal

Mauryan Public Finance
The Trend of Profit — A Factual Analysis
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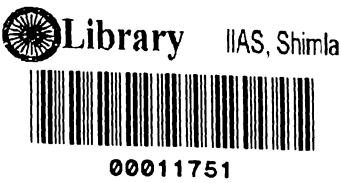

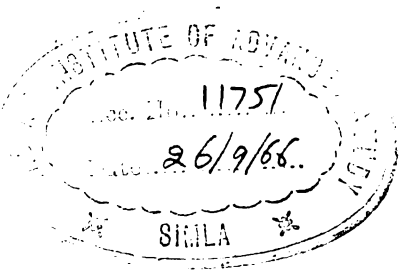

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To the Memory of

My Brother Krishna

AND

Nephew Narayana

CONTENTS

PREFACE

THE FOLLOWING pages comprise my lectures as Professor of Economics in the Ford Foundation (Applied Social Science Research), Unit at the University of Madras in 1956-59. The lectures, delivered extempore and now reduced to writing, do not claim to be 'research' or original in any respect. Their purpose was and is to introduce the Indian post-graduate student to research procedure, and as such, they are based on a number of published books, articles, reports, etc. as well as my own limited experience in the Social Science research field. Some of the publications utilized in these lectures have been cited in the text, but there may be many more from which ideas, words and phrases have been freely borrowed, which, however, could not be located because of the lapse of time between delivery of the lectures and committing them to writing. I wish, therefore, to acknowledge my deep obligation to the authors cited and to those who could not be traced.

These lectures dealing with basic considerations and collection of data form the first part of my *Introduction to Research Procedure*. The second part dealing with data analysis, interpretation, reporting and presentation, and also other methods and techniques as applied to specific problems is under preparation. I thank my colleagues and post-graduate trainees of the Ford Foundation Unit for the opportunity to deliver the lectures and discuss the ideas, and particulary Miss M. S. Ramesh, Mr. M. R. Ganapathy Rao, Mr. S. Ramakrishnan, Dr. S. Subbaramaiah and Dr.K. V. Sriram for encouraging me to write down the talks; Mr. T. P. Govindan and Mr. S. Jagannathan for preparing the typescript; and Principal C. D. Narasimhaiah of the Mysore University for reading part of the typescript.

A few of these lectures have appeared in some form or other in the *Asian Economic Review, Indian Economic*

Journal, Indian Economic Review and the *Seminar Papers* of the erstwhile Ford Foundation Unit of the Madras University.

I trust that this publication would be of some use to the post-graduate student in India.

Madras, July, 1963 M. H. GOPAL

An Introduction
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I

NATURE OF SOCIAL SCIENCES AND RESEARCH

ONE of the characteristics of an underdeveloped country attempting to develop rapidly is its enthusiasm for research. This tendency has been very marked in India in the last few years. The Planning Commission, the Reserve Bank of India, the University Grants Commission, foreign Foundations and similar organizations have been spending generously on research projects, organizations and departments in Universities. There is a growing emphasis specially on research in social sciences. In the pursuit of this objective, occasionally one feels that sometimes funds are being spent and projects and organizations instituted without adequate personnel acquainted with the nature and significance of these sciences and the basis of research in them.

WHAT IS SCIENCE?

Any attempt to analyse the role of research in social sciences and of the methods and techniques utilized by them raises the initial issues as to what exactly a science is; whether, after all, social studies can claim the appellation of science; and whether they have scientific techniques of their own. There is no complete agreement even among non-social scientists, recognized as such, as to the essential nature of science. For instance, Henri Poincare, a famous mathematician, defined science as knowledge not of things but of their relations. According to Dr. Singer, a medical authority, science is a process which makes knowledge, while the noted psychologist, Havelock Ellis, regarded science as the search for the reasons of things. "Science", observes the biologist, Julian Huxley,[1] "is that activity by

[1] *Man in the Modern World*, 1952, p. 111.

which today we attain the great bulk of our knowledge of and control over the facts of nature."

From this and other definitions of science, two broad approaches to its nature can be inferred: science as organized knowledge, and science as the process or method leading to knowledge. The first approach emphasizes conservation of the results and regards science as relatively static; and the second, which emphasizes the process rather than the result, is dynamic. In fact, however, the two approaches are not distinct but are inter-linked, because, progress is possible only through conservation and transmission; and the accumulation and conservation of knowledge can be only through a process of analysis and verification. But, as between the two approaches, scientists would perhaps lay stress more on the method and the process rather than on knowledge and the results.

The consequence of this approach is to regard science as a public possession. Not only should the available knowledge and any additions to it be communicated to the professional world but even the technique of acquiring and verifying results should be public property. "True scientific publication", observes Professor Hardin,[2] "must include the clear and open description of all the relevant details of the means with which the data were gathered so that others may repeat the observations." Publication in science is, in fact, almost a ritual and a condition. Such communication is effected, partly, through personal transmission from one researcher to another and, partly, through printed publication. Scientists are trained by fellow scientists more by example than by precept. Laboratories not only add to knowledge but also train new generations of workers.

The important purpose of insisting upon publication and communication as essential to the pursuit of science is to enable verification of the claim of discovery. Statements not lending themselves to verification by competent colleagues do not become part of scientific knowledge. Thus, Einstein's theory of relativity, propounded in the first decade of this century, was not accepted as part of

2 G. Hardin, *Biology: its human implications*, 1953, p. 6.

knowledge until it had been verified by other scientists in the beginning of the Twenties. Repeatability is, therefore, the cornerstone of science. These two features, communication and repeatability, have converted science into a social activity, in the sense of being the product of a number of workers, mutually stimulating and checking the work of others.

FUNCTION OF SCIENCE

While emphasizing method and result, science has certain functions set for itself. The discovery of truth is the overall objective of a scientific study. "Truth", according to the great physicist, Niels Bohr, "is something that we can attempt to doubt, and then perhaps, after much exertion, discover that part of the doubt is not justified." He adds: "There are trivial truths and great truths. The opposite of a trivial truth is plainly false. The opposite of a great truth is also true."

This objective has both a theoretical or general, and a particular or practical purpose. The function of science according to Professor Braithwaite[3] "is to establish general laws governing the discovery of empirical events or objects with which science is concerned, and thereby enable us to connect together our knowledge of the separately known event and to make reliable predictions of events, as yet unknown". Thus, the fundamental concept of science is that of scientific law and its fundamental aim is the establishment of such laws. In addition to this and in the process of discovering the laws, science performs the function of resolving conflicting interpretations on the fringes of knowledge. It also attempts to find solutions to practical problems and, wherever possible, to predict the future course of events.

Whichever function may dominate science, the approach to the problem is characterized by a method of thinking, marked by a fierce hostility to dogmatism. Niels Bohr epitomizes this attitude thus: "Every sentence I utter must be understood not as an affirmation but as a question".

It is this method of analysis, that makes any study a science.

3 R. B. Braithwaite, *Scientific Explanation*, p. 1.

Scientific thinking is in a way not basically different from what is called "common sense" in its assumptions or limitations or even objectives. Only, the former systematizes and standardizes the whole approach. Detachment, continuity, and accuracy have been rightly claimed to be the three marks of any science and "any study so marked is scientific, no matter what its subject is".[4] This points to three features of scientific thinking: (1) motive and discovery of truth and detachment from personal bias; (2) exactness in results; in fact, the more developed the science, the greater is the accuracy of its findings and (3) continuity and thoroughness. Scientific thinking is not content with isolated facts or results but attempts a connected account of events so as to bring harmony out of chaos and diversity. It is this attempt that comprises research.

WHAT IS RESEARCH?

Research is neither reading nor writing a text book.[5] It is not even a haphazard looking for facts. It is essentially a systematic enquiry seeking facts through objective, verifiable methods in order to discover the relationship among them and to deduce from them broad principles or laws. To quote Prof. Clifford Moody:[6] "In the last analysis research *per se* constitutes a method for the discovery of truth which is really a method of critical thinking. It comprises defining and redefining problems; formulating hypotheses or suggested solutions; collecting, organizing and evaluating data; making deductions and making conclusions; and at last, carefully testing the conclusions to determine whether they fit the formulated hypothesis".

Broadly, there are three types of research, although it is difficult, and sometimes almost impossible, to isolate them; for, the difference between them is only one of emphasis as to which facet is more important. These three types are: *firstly*, the discovery of facts, as in social surveys; for example, the *Rural Credit Survey* of the Reserve Bank of India. It is true that the data gathered are interpreted but in a survey of

[4] L. T. Hobhouse, *Development and Purpose*, p. 122.
[5] J. M. Pfiffner, *Research Methods in Public Administration*, p. 3.
[6] *Journal of Educational Research*, 1927, p. 172.

this type gathering of facts is the dominant objective. There is, *secondly,* research which largely interprets already available information. While the former variety utilizes the "primary data" techniques, the latter, by and large, is bibliographical in approach; that is, it makes use of secondary data; for example, R. G. Hawtrey's *Century of Bank Rate.* It does not mean that this type of research does not at all collect primary data or new facts; but it only means that the emphasis is more on the analysis and interpretation of existing information. There is, *finally,* research of a purely theorizing type, for example, J. M. Keynes' *General Theory of Employment* or Einstein's theory of relativity. The essence of this type is building up of the higher reaches of pure theory based only distantly upon primary and secondary data and sometimes on the basis of pure reasoning. In a way, the three types may be distinguished according to the degree of abstract thought underlying them. Thus, in the building up of pure theory, thinking is of the highest order, whereas in the survey variety, it is least important. This does not mean that one is necessarily more original than the other. For, originality in one may take the form of discovering facts, in another of correlating them and in the third of theorizing on them.

SCIENTIFIC ATTITUDE

Whatever the type, research is essentially an attitude of mind and the application of a technique in confronting a problem. This attitude is synonymous with an open mind, whether in collecting facts or interpreting them; that is, a mind with the maximum possible freedom from prejudices and preconceptions.

Prejudices are either personal or derived. Personal prejudices emanate from life-long habits of thought and may be of many varieties. They may arise from temperamental weaknesses such as over-credulity, that is, the inclination to accept statements without proof, which tendency may lead the unwary astray. The remedy for this weakness is to adopt a questioning attitude at all times.

Sometimes questioning may be overdone and then it becomes a weakness in itself. A sceptical attitude, which de-

mands an undue amount of proof, leads to closing the mind tight against any suggestions. Undue scepticism can be controlled by developing an attitude of tolerance. Another possible weakness is the tendency to form opinions, either too hastily or too positively, a defect arising from a lack of balance in the worker. The remedy is to cultivate the habit of deferring judgement till the facts are adequate and fully to weigh the pros and cons in every case. Sometimes, lack of balance might give rise to a radical tendency, i.e. always looking for things, new or different from the current creed. This drawback can be avoided by testing every new idea that is either put across or that one evolves in his own mind, in terms of practicability and empirical referents. While research requires imaginative thinking, it is undesirable to have an over-active imagination instead of a controlled and constructive one. Otherwise, facts and interpretations may be coloured so that they are far removed from truth. This weakness can be avoided by paying close attention to details and emphasizing accuracy and precision. Yet another weakness is giving way to one's feelings. Sentiments and emotion have a place in life, because the researcher is human; but they have no place in science and scientific processes. Where, however, there is a tendency towards emotionalism, the researcher could resort to the merit test on every issue.

Prejudices may also be derived, that is, derived through contact with others, particularly outside the scientific fraternity. Some of these prejudices may arise from improper training; and the longer a person has been in this improper groove, the more will the incorrect habits of thought have taken root and the greater the difficulty in eradicating them. Sometimes, custom and tradition, as, for example, in the analysis of Indian social institutions such as the caste system, may engender prejudices. Often, these may arise from the influence of authority giving rise to the habit of accepting the conclusions of others who are better known scientists or persons in power. These derived prejudices are specially common in underdeveloped countries where scientific tradition is yet to be developed, and where improper training, custom, tradition and authority are common and supreme. Instances are found in the current attitude of some Indian

social scientists towards the Plans. This weakness could be neutralized by the researcher considering every investigation as a new piece of work, attacking it from a fresh and wider angle and always reminding himself that he represents a new approach to the problem.

Although it is difficult completely to eradicate prejudices, it is possible to mitigate their incidence by following a few simple rules. An attitude of tolerance and an attempt to keep an open mind would go a long way. Developing powers of analysis and viewing the evidence on all sides are helpful. The habit of suspending judgement till all the essential facts are gathered and of analysing them closely should be cultivated.

BASIC COMPONENTS OF RESEARCH

Research in any science and of any kind has some broad features. Some of these are presuppositions, forming the permanent framework of any type of study; and others are the variable framework related to particular sciences or groups of sciences. Of the former kind are the use of symbols, often mathematical, and the logical processes – the first, to give precision and effect a saving of time and energy, and the second, to standardize and systematize the thinking process which underlies all research. The second essential component of research is the language system, describing the objects themselves and the relations between them. Here, again, though the actual means of communication may vary from the purely equational type as in mathematics to the descriptive one as in social surveys, there is an underlying tradition characterized by precision, directness, simplicity, adequacy and comprehensiveness.

The third essential, already referred to, is the ritual of publication of both the results obtained and the techniques employed. For, science believes that a private fact is not a fact at all. The insistence upon publication of the techniques is to enable verification of the result. Nothing that is not verifiable by competent, critical colleagues in the field can be a part of science. As Professor Gibson[7] observes, a fact

[7] Gibson, "Some Implications of Research", *The John Hopkins University Magazine*, 1955 April, p. 9.

or experience is valid only when it is independent of the observer, and when it can be reproduced by anyone who takes the trouble of repeating the observation or experiment under the proper conditions. This leads to another equally essential feature of science, viz. objectivity. A scientific attitude is more than being dispassionate—objective and unbiased devotion to look for facts and to establish truth. It believes in the universality of cause and effect and tries to discover their relationship. In fact, objectivity may be claimed almost as a fundamental article of faith of scientific research. Reproducibility and objectivity are possible only when research is characterized by free and open discussion which, again, is another *sine qua non* of scientific research.

Apart from these essentials which constitute the constant factors in any kind of research, there are a few variable, but no less important, characteristics. These are the orientations peculiar to any given science, and their relative role would naturally vary in different sciences. Thus, quantitative communicability characterizes the physical sciences to a much greater extent than the biological and social sciences, partly because of the nature of the problems in the several studies, and partly because of the varying degrees of precision in the techniques of measurement and analysis. Another variable, which is closely related to the quantitative characteristic, is the scope for experimentation. Broadly, the greater the scope, the more precise and mature are the science and its conclusions. Because of this, there has been, of late, a tendency, even among social sciences, to develop techniques of quantitative measurement and experimentation, and econometry and sociometry are instances in point.

GROWTH OF RESEARCH

In a way, the relative role of quantitative and experimental techniques indicates the degree of maturity of a science and its research. In another way, scientific research is itself one of the younger intellectual activities of mankind. It is hardly 300 years old and its application to problems of life and the living, hardly a century old. Not that in earlier times there was no intellectual pursuit, but it simply

suggests that the systematic study of problems on a large scale is comparatively recent. "It is the gradual growth of painstaking study of facts accumulated, checked, empirically verified over a period of time until from the plausible evidence and demonstrable relation of facts consistent generalisation or logical principles can be formulated." This converted intellectual pursuit inspired by accidental curiosity into a systematic development with specialized techniques of its own.

In this process of development certain objectives have been formulated, new techniques invented and new sciences evolved. The objectives are either of the specific problem-solving variety or of the fundamental research type not aimed at any immediate problem-solving. In either case research attempts to construct patterns into which valuable facts may be fitted with specifying consistency. In fact, research constantly attempts to simplify this pattern and the more facts the pattern accommodates the more satisfying it becomes. For example, Newton's contribution is stated[8] to be "not the observation that apples fell but the fitting of this fact quantitatively into the same pattern that describes the motion of the planets in their orbit and the expression of this pattern by a general formula that conveyed an exact meaning." Such a fitting in of facts into patterns and evolving laws and ideas is in varying stages of accuracy in different kinds of study. But all sciences are always in pursuit of such patterns.

BASIC AND APPLIED RESEARCH

In the course of this pursuit arise two broad categories of research — basic and applied. Basic research is a search for broad principles and syntheses without any immediate utilitarian objective; for example, Franklin's discovery of electricity, and Einstein's theory of relativity. This is more an intellectual exploration arising from insatiable intellectual curiosity. On the other hand, Thomas Alva Edison's work is an example of applied research associated with particular projects and problems. Such research, being of practical value, may relate to current activity or immediate practical

8 *Ibid.*

situations. Now-a-days, practical orientation marks most fields of study.

Basic and applied types of research, however, are not distinct and separate activities. One always involves the other. Only the relative emphasis on mere intellectual exploration or on the practical nature of the solution varies. As M. C. E. Elmer puts it:[9] "The ideal of science is the kind of research which aims to shed light upon permanent and recurrent aspects of reality; or, within the social field, research which tries to find out things that have long leases of influence upon human relations".

The basic and applied research categories may be viewed in terms of social sciences. Basic research is not concerned with solving any practical problems of policy but with designing and fashioning tools of analysis and with discovering underlying, and if possible universal, laws and theories, e.g. Joan Robinson's *Imperfect Competition* and Chamberlin's *Monopolistic Competition* are basic research; the Keynesian tools of the multiplier, the principle of acceleration and the theory of liquidity preference, Marshall's concept of Consumer's Surplus and time analysis of markets, Hicksian marginal rate of substitution and indifference curve technique belong to this category. The sphere of activity of basic research is extraordinarily wide. Although, originating in pure scientific curiosity, these tools are intended to be applied to economic and social problems, since the main task of economics and of other social sciences consists in discovering directly or indirectly the solutions to practical problems.

When these tools of analysis are utilized to elucidate problems – particular or general – we get the applied aspects of research. Keynes' *General Theory* and Hicks' *Value and Capital* are of the basic type, whereas the former's *Treatise on Money* and *Indian Currency and Exchange* and the latter's *Budgetary Reform* are applied research. Refining of the survey methods, evolving sampling techniques and fashioning experimental designs are basic while the use of any of these, for example, of the survey technique, in market research and consumer preferences analysis, is applied research. By and large, the major purpose of most

[9] M. C. E. Elmer, *Social Research*, p. 17.

applied research is to collect facts or "evolve methods which will be of immediate value in solving some specific applied problem", theoretical development being of minor importance.

It has been suggested[10] that, since problems are many and undetermined, pure research follows divergent paths, and that, therefore, it is characterized by the way in which the paths which it pursues radiate, as it were, from a single source. Applied research, on the other hand, follows the path of convergence. "Basic research resembles the sowing, whilst the judging of practical problems can be compared with the harvest".[11]

The distinction between the two types of research particularly in social sciences is not clear-cut. But sometimes,[12] three types are distinguished: (a) *pure* — the making of tools; (b) *applied* — their practical application to types of cases; and (c) *policy* — their specific application to a particular case. While conceding some force to this categorization, what perhaps is of greater value is to emphasize the true purpose of research in social sciences. The study of man and society is predominantly practical problem-oriented, and this is specially true of developing economies. Attention to fundamental theoretical or philosophical issues is, no doubt, necessary to build up thought, but the emphasis on this may be overdone as the 'Marginalists' did towards the end of the last century or the mathematical economists appear to be doing in the present — attempting to construct a new theoretical structure. A greater service that research can render is to study the practical and real problems facing backward societies and to synthesize the approaches and findings of different social sciences while analysing any problem.

Practically all social science research undertaken in India is of the applied variety, and more particularly of the type which helps formulation of policy. This feature is explained partly by the limitations to basic research in social sciences, partly by the multitude of pressing social problems facing the community, partly by the greater ease of carrying on applied

10 N. A. Johr and Singer, *The Role of the Economist as Official Adviser*, p. 11.

11 *Ibid.*, p. 9.

12 *Ibid.*, p. 8.

work, but largely by the lack of a tradition of basic research. This would suggest the need in India for a slightly different emphasis in planning and operating research institutions and projects. The problems, techniques, findings and generalizations of physical sciences do not materially, if at all, differ from country to country, so that a mere application of basic research findings elsewhere to the Indian context would be perfectly in order. But, since society and its problems vary in different environments, the discovery of underlying characteristics and laws in underdeveloped countries would demand in social sciences greater attention and it is conceivable that current ideas of economic behaviour, psychological responses, social forces and political reactions may need revision.

NATURE OF SOCIAL SCIENCES

Sciences are broadly divisible into the natural and social groups, the former being either physical or biological. Social sciences such as economics and sociology regard man not as an isolated individual but as a member of a group. This involves the observation of the behaviour of individuals in their varieties of association among themselves, and within everything that helps to create or modify these relationships and groupings of men, for example, geography, climate, weather, sociology, heritage, traditions, history, economic framework etc.; that is, social sciences study the matrix in which the social institutions are embedded. Sometimes, this web of social science is termed "socio-sphere" or "polit-sphere[13]" and is compared to the successive layers of an onion, each layer represented by one social science. Thus, anthropology, history, economics, politics, ethics and so on, are not separate and distinct branches, each independent of the other; they are really interdependent studies of the same centre of interest, viz. man, but from different angles or at different levels. This feature, which, in a way, distinguishes social sciences from physical ones, emphasizes that a social scientist must acquire a wider background and view his problems from the *macro* rather than the *micro* angle.

Social sciences are of recent origin, hardly a century old.

[13] Sydney & Beatrice Webb, *Methods of Social Study*, p. 3.

Julian Huxley regards Karl Marx as 'the true John the Baptist of social science', because Marx developed a system directly based on social facts and directly applicable to them. "Marx, like Bacon", observes Prof. Huxley[14], "gave expression to a new outlook and a new method of attack and helped materially to alter the intellectual climate so as to make it propitious for scientific work in his field". For, "the true characteristics of a science — curiosity for its own sake, interest in industrial techniques and practical control, freedom of enquiry, experimental verification in place of authority, and full publication and abundant discussion — were just unfolding themselves in social studies, although some of them are still in a rudimentary stage".

LIMITATIONS OF SOCIAL SCIENCES

Although the scientific spirit may remain unaltered whether it is contemplating the universe or a microcosm, a paddy field or a factory, social sciences have certain important limitations compared with physical sciences. For instance, they are not equally authoritative in their findings nor developed in their techniques. In fact, precise techniques in social research are only in the early stages of their development. This, along with the fact that the investigator is inside, instead of outside, his material has put social sciences in the stage of infancy, perhaps not even of adolescence.

The basic fact that, when a social scientist studies human society, he is really studying himself, gives rise to certain limitations. As Julian Huxley put it,[15] the fact that man must have to be his own guinea-pig has a number of methodological consequences both for social science research and for its practical applications. For instance, it restricts the scope for controlled experiments.

Natural laws cannot prevail to the same extent in social studies dealing largely with human reactions which are more emotional, and with social situations which are influenced by a variety of changing conditions and which create new problems. Even the units that come under social analysis are not absolutely identical. Nor are they unchang-

14 *Man in the Modern World*, p. 113.

15 *Ibid.*, p. 118.

ing or precisely measureable. Human relations which form the specific problem of social research are moulded by varied factors: for example, animal instinct such as blood relationship; religious emotions such as the feeling of awe and respect; abstract principles or humanistic ideals such as political creeds or 'Declarations', and deliberate planning for efficiency such as scientific management. The multiplicity and complexity of causation make it difficult to apply the natural science technique of isolating the causes from their total background.

A fundamental feature of scientific technique is the attempt to disentangle and weigh each of the manifold causes and posit each in its interrelatedness. With the available techniques in social sciences, multiple causation cannot fully be reduced to single entities. Further, a large part of social research is bound up with contemporary problems, in which the scope for investigations is largely limited. This introduces a degree of bias which may affect scientific judgement. "It is the equivalent of experimental and observational error in natural science. . . . The procedure of the discounting of error in natural science has. . . proved difficult enough. But to discover how to discount error in social sciences is proving very much harder."[16] The bias may take other forms; for example, it may be imposed by the investigator's own temperament, or his psychological predilections developed during childhood and adolescence.

These and other characteristics of social sciences have introduced a certain degree of flux and haziness in their generalizations and have influenced the direction of social research in three ways: descriptive research, such as surveys, has become dominant; problem-solving with a practical bias has become common; and research activities are directed largely to channels of availability of material. All these are evident in India and other underdeveloped countries. Thus, the schemes sponsored by the Research Programmes Committee or undertaken by the National Council of Applied Economic Research in India are practically completely of the survey variety.

These have obviously restricted the scope of social

[16] *Ibid.*, p. 114.

sciences and social research. It is necessary, therefore, for the researcher to know thoroughly the existing techniques, to discover new ones and to improve concepts as well as to define those not defined earlier. He should be wary while drawing generalizations. In such an atmosphere of flux and with relatively inadequate tools, the need for an overall perspective as well as for slowing down the process of work and analysis becomes necessary. The very term, science, when applied to social studies, would have to be interpreted more generously and less strictly. More than all, an unusual amount of thought would have to be bestowed on analysis as well as interpretation. What Frederick Banting, the discoverer of insulin, said of medical research is all the more appropriate to social studies: "The research worker must, if necessary depart from tradition and follow his own scheme of campaign. . . . Some men think too little and work too much."

WHAT IS 'SOCIAL RESEARCH'?

What then is research in social sciences? It is the scientific analysis of the nature and trends of social phenomena of groups or, in general of human behaviour so as to formulate broad principles and scientific concepts. "We may define social research", observes Pauline Young,[17] "as the systematic method of discovering new facts or of verifying old facts, through sequence, inter-relationship, causal explanations and the natural laws which cover them." The very nature of such an enquiry lies in its novelty, the lack of basic information and the consequent difficulties. A situation like this emphasizes that a great deal of such research has to be analytical and fact-finding and designed to test out new methods.

Social research may chart new scientific horizons, extending frontiers of science, advancing and testing new beliefs and principles and suggesting new concepts, as has been done, for instance, by J. M. Keynes. Or, it may check and revalue methods and findings already in use, as done, for instance, by Burns and Mitchell in measuring business fluctuations. Such verification is no less important, for, the

17 Pauline Young, *Scientific Social Surveys and Research,* p. 85.

tragedy in research is to build a beautiful theory which topples down when confronted by a set of hard facts, as in the case of the Sunspot theory of trade cycles. The social researcher may also collect and analyse data within the existing framework of scientific theory. He may not formulate new theories regarding social change or human behaviour in general nor evolve new methods of analysis. He may proceed on the basis of established theoretical formulations and concern himself with the vital problems little known or understood, for example, socio-economic surveys into migration, unemployment or urbanization. It is also possible to carry on social studies of an experimental nature under conditions of control, although this aspect of research is in the early stages of development.

In motivating social research of whatever type, a variety of factors may operate. For instance, curiosity about the unknown; this is an intrinsic quality of the human mind, and the habit of speculating upon fundamental causes is not uncommon. There may be the desire to understand acute social problems, such as slums and rural indebtedness. Or, there may arise novel situations challenging accepted situations and conceptions; for example, after the First and Second World Wars, the belligerent countries, specially the vanquished ones, had groups of children, wild like a pack of wolves, let loose on the community, or the millions of displaced persons in India adrift since 1947 like logs of wood on the stormy seas. Often constant changes characterizing social life, such as, labour-management problems or Government intervention generate research. While problematic situations, no doubt, interest the social scientist and should be tackled by him, there is always the need for getting at more fundamental principles, which, sometimes, are apparently unrelated to one another. The social researcher must thus try to answer the 'why' of a particular pattern of behaviour and to relate the causal factors themselves to one another, to the environmental forces, to their processes of growth and development, to their effect on personality and so on.

In a way, the nature of the problems and the inadequacy of the tools make the social scientist's work more difficult

and complex; but this position can be eased a great deal and the value of the findings increased, if a social scientist bears two factors in mind. Firstly, he should try to acquire detailed, integrated, intimate, factual knowledge of life around the particular problem that he is analysing. Secondly, he must acquaint himself with interrelated subjects, as, otherwise, research will become unrealistic. For example, the after-math of the two World Wars has been social unrest, little understood social movements, and scientific and technological advance affecting group relations. In India the relatively unsuccessful attempts of the Government in rehabilitating displaced persons may be traced to the purely economic approach to a problem with important psychological and social facets. The social, political or economic fermentations characteristic of developing countries like India, China and Egypt in the immediate past and to-day are really multi-grounded. An overall acquaintance with the related subjects of sociology, political science, law and so on becomes necessary, if an economist, for example, is to get the proper perspective of his own little problem, such as migration or unemployment. The researcher may also have to acquire control over different techniques of analysis and collection.

The process of analysing social problems may usefully be related to types of minds which researchers have. It is not everybody that could visualize situations, as, for instance, a genius like Einstein could. It would, therefore, be advisable to correlate the problem with the type of research mind.

Professor Gibson, a physical scientist, analyses research minds in general into certain categories.[18] First of all, there is the Promethean mind which injects something radically new, shows a continent of knowledge, or gives rise to an all-embracing theory, for example, Einstein or even Keynes. "It is a mind that transmutes ideas from one field of experience to another and sketches in the broader patterns." Secondly, the critical or analytical type of mind is one which takes nothing for granted. "It is a questioning mind, so greedy for clarification of complex situations, for establishing the variety of experience and for determining the con-

18 "Some Implications of Research", *Op. Cit.* p. 11.

sistency of patterns." There is, thirdly, the cumulative and inductive mind revelling in literature and experiment, collecting facts and putting them in order. "It is a type of mind that invents local elements of pattern." There is, further, the mind which is cumulative and descriptive and which characterizes a trained and keen observer who remembers what he sees and describes it clearly for others to read. "It is always evident on the frontiers of knowledge and is a stock-in-trade of the effective teacher." The meticulous mind is another type and is concerned with accuracy, precision of details in observation, procedure, and processes rather than with broad patterns and generalizations. Finally, we have the routine industrious mind which follows through the problem religiously especially where the repetitive processes are the essence.

The classification does not mean that there is a clear-cut division of one from the other. It only means that one or the other form of the activities is dominant in the research worker. For the growth of science all types of minds are necessary. Each one provides a fact necessary for the development of research and the accumulation of knowledge. For instance, the meticulous or the routine type provides the needs and materials for the creative and inductive thinker, while the critical mind keeps thoughts and observations on the track. To quote Professor Gibson:[19] "The secret of the efficient use of man power either on laboratory scale or on a nation wide basis lies in assigning to each mind a job suited to its attribute and carrying with it the recognition of contributions to a worthwhile objective".

Every research worker should, therefore, know his own limitations and take up the type of work that he is best suited for, as it is only then, along with co-operating with other types of minds and workers, that his own work can progress, and science, representing the growth of knowledge, can develop.

The foregoing observations have special implications for developing economies like India, where enthusiasm for research may outrun discretion. In underdeveloped countries, the problems and opportunities for social research are

19 *Ibid.*

many and varied; but the tradition, institutions, personnel and facilities for training are scarce and limited. A mere multiplication of institutions such as research institutes or university departments without trained personnel would merely repeat the story of the Co-operative Movement in India — an increase in number but not in efficiency or usefulness.

The first step, therefore, is for the existing institutions, e.g., universities, to specialize in undergraduate teaching or in research and not mix up the two, producing third rate research or low grade teaching. The next step is: where new organizations for research alone are founded, to follow up with a period of intensive training in the A B C of research methods, and with as wide a background of social studies and as deep an acquaintance with the research techniques as possible. Since research is in itself not general but particularized, the institutions themselves — and of course the individuals — should take to particular branches of the subject.

This suggests that the research workers and their directors should realize their own limitations. A number of institutions belong to the 'single teacher primary school' category, with perhaps only one trained researcher. Unless, therefore, the trained personnel can be increased, it would be futile and wasteful for institutions to take to research, specially in the socio-economic field, where problems are multifarious and complicated, techniques undeveloped and scope for prejudices and errors plentiful.

II

RECENT TRENDS IN SOCIAL SCIENCE RESEARCH

RESEARCH in social sciences is comparatively young. But even during these few decades of development, particularly in recent years, there has been a marked change in emphasis.

CHANGING EMPHASIS

This change is broadly traceable to three distinct causes. First, there has been the desire of the social scientist to catch up with developments in methods as well as in the precision of the generalizations and of the prediction possibilities in the physical sciences. Research in the latter being older, the techniques being largely experimental and the problems of study amenable to more definite and precise analysis, physical sciences have been perfecting their methods and techniques. In fact, the absence of these characteristics has made even the claim of the social sciences to a scientific status questionable. Naturally, therefore, the desire has been to bring about more precision into social science research methods.

A second factor underlying recent trends has grown out of the characteristics of social reality. Society is a complex organism and its problems are varied and qualitative. It is as though any researcher can anywhere pick up a social problem to enquire into and this has resulted in the growth of a number of different social disciplines and in unlimited scope for all and any to enter the field. It has, in fact, been like the gold rush in Alaska where prospectors ran pell-mell to peg their claims. Thus, various techniques and approaches have been developed in the last few years, and this has naturally led to confusion in social science research methodology.

One bit of such confusion has been the emphasis on routine work and pseudo-research as part of investigational methods. As has been observed,[1] much "research" has been little more than verification of principles, attitudes and beliefs, already established and based upon general, informal data. Routine studies imply, no doubt, the employment of research techniques and, possibly, even the modification of some established conclusions. But, by and large, they do not conform to what real research demands of the investigator, such as, careful formulation of the problem, determination of the basic procedure and an addition to knowledge in the sense of discovering previously unrecognized relationships and tendencies, or throwing up new problems which require to be solved. This kind of work would be similar to the routine analysis in any commercial analysing and testing chemical laboratory. The methods and techniques may apparently resemble research but in no sense is such work the real stuff. For, checking the conditions or activities of a series of communities to see how they compare with the established norms and in doing so, making use of the standardized techniques and methods of research would not be research but routine work.[2]

Another unwelcome development has been the production of superficial observations, crude assembling of inaccurate and obvious data, and the presentation of inferences and conclusions in support of current controversies. To this category belong quite a number of pamphlets and publications which Chambers of Commerce and similar commercial bodies bring out frequently. Research demands depth, balanced judgment and absence of bias. These naturally need time to develop and are difficult for one who would enter a controversy on urgent current problems, often championing a side. The results, therefore, are inadequate facts and vague generalizations, more appealing to the emotions than really satisfying scientific standards, through a mere summary of official or semi-official records and not through an evaluation of the sources themselves and of the data. Hustling of investigations occasionally characterizes even avowedly research organizations in underdeveloped countries; and

1 M. C. E. Elmer, *Social Research.* 2 *Ibid.*

this is accounted for partly by the time limits set by the sponsors of the research projects, partly by the urgency of the solution or analysis needed, partly by the desire to put on the market a large number of publications but largely because of mixing up 'volume' of research with 'quality', and 'extensiveness' with 'depth'.

This tendency to apparent research, which is the shell and shadow of the real stuff but not its essence, often has shown itself as a variant of normative research. For instance, in underdeveloped economies planning in the socio-economic field has become both an urgent need and a current fashion. Hurried and superficial studies suggesting the course of development or offering a basis for policy have become both essential and 'paying'. Even if these normative studies are genuine their purpose is not so much to discover something new, which is the criterion of real research, but is essentially either repetitive recording of facts and situations such as those of government departments or *ad hoc* solutions to satisfy a current demand. Such studies, of which currently plenty are found in India, may be useful to the community but cannot be contributions to knowledge as such, and, therefore, not true research even as commercial paintings and posters are not works of art.

The Consequent Developments

Standardization: These developments have latterly necessitated certain changes in social science research in the advanced countries. The first of such tendencies has been the attempt to standardize techniques, problems and approaches. A basic characteristic of research is verification, in the sense that, as far as possible, the data and the techniques must be capable of reproduction and of enabling comparisons between the methods and conclusions of different investigators. It is true that on account of factors connected with the subject matter itself, i.e. social reality, and the infancy of the techniques, verification and replication can only be very approximate. But, so long as replication is a characteristic of research in the physical sciences, social scientists must attempt and have been attempting to increase the scope for

verification. It is, therefore, inevitable that standardization is being attempted in different directions.

Standardization in techniques has been broadly in the fields of classification, concepts, data collection, analytical processes and so on. Thus, for instance, categorization in observation as a tool is stressed as very essential. The basic principles and structure of a questionnaire are being developed, irrespective of the subject matter of the particular enquiry. Greater use is being made of statistical devices in the choice of samples and in the processes of computation and tabulation. In fact, the attempts to develop socio-metric techniques, rating devices and experimental designs and to apply them to social problems are directly traceable to the desire to standardize techniques.

A second facet of standardization relates to the problems. As already stated, social problems are innumerable and complex, and their number and complexity increase as we move from developed to underdeveloped areas, and specially in view of the virgin field for study in oriental countries. In such a context and where resources in terms of men and materials are limited, effective use of these resources, proper appreciation of the nature and magnitude of the problems and balanced suggestions regarding solutions are possible only where the criterion of selectivity is introduced in the choice of problems for systematic study. Thus, for instance, the Research Programmes Committee of the Planning Commission in India has been encouraging, more or less on a set pattern, urban surveys in Bombay, Madras, Delhi and Calcutta and farm management studies and continuous village surveys through various Agro-Economic Research Centres. Here, not only is the technique largely standardized but the problems also have been narrowed down and uniformized in the different areas.

A third type of attempt at standardization is with regard to the very approach to the problem. The emphasis has been shifting from the subjective to the objective approach to analysis and to the identity and adequacy of data, i.e. not only the type but also the magnitude of the data to be collected is getting standardized. In a broad way, therefore, the research frame is getting systematized so that a particular

problem may be taken up in different areas and even in different countries and a particular type of technique utilized in that process."

1. *Normative Aspects:* The next trend in social research has been the growing emphasis on normative aspects. This is because the major field of social sciences and social research comprises, by and large, problem-solving. Therefore, normative studies become essential in order to formulate any economic or social plan as well as to compare it with other alternatives and to evaluate the soundness of the plan and its success. Further, adequate normative data are the important basis for evaluating social research; and this characteristic has brought into prominence the value of practical and field work.

2. *Field Research:* The third development has been the emergence of regional studies and field research. The latter has been aptly defined[3] as "a method of discovering specifically and realistically what actually is, and not what something should be; it is a matter of ascertaining intimately social attitudes, values and other forces which motivate the person and the group; a method of depicting society as an organic social process". Of course, however carefully it is done, social planning may not always proceed according to the programme because assumed conditions tend to change. This feature has emphasized the necessity for very careful research. It is the absence of these characteristics in underdeveloped countries that has resulted in plans and programmes being either over-ambitious in terms of resources or visionary and impracticable. One possible explanation for such bloated programmes, particularly in democracies, is the necessity to keep the demos in good humour and living on hopes. Possibly, some of the current ideas and schemes relating to research in India fall in this category. One of the limitations of techno-economic surveys is of this variety.

The emphasis here is that, where planning is necessary, its dependence on adequate and accurate sizing up of the resources and the problems in order to enable greater in-

3 Pauline Young, *Scientific Social Surveys and Research*, p. 87.

tensity of study, comprehensiveness and even economy of resources points out the need for regional studies and specific problem-analysis. How true it is that the first step in long-time social planning is a planned long-time research programme! The tendency, not unfamiliar in India today, for surveys based on hurried investigations made in limited time and with limited personnel to meet an urgent problem being undertaken, is a risk which may not be worthwhile in the long run and which goes counter to this recent trend in social research.

Co-ordination: The need for patient and detailed regional studies and for field research has resulted necessarily in another trend, namely, co-ordination of individual efforts. Research in social sciences, as in physical sciences, began with investigations by individuals, and these efforts have been very important in building up knowledge. Important achievements in research techniques and in the discovery and interpretation of facts have no doubt been made more by individuals than by institutions. But the multiplicity and complexity of problems have been relegating independent individual research to a secondary place because it leads often to superficial and even wasteful work. It has been aptly observed that where two or three able people gather together in co-operative research cross-pollination of ideas results, leading to the tapping of new levels of creative energy. Such group action is very effective in obtaining a variety of factual data and even in the formulation of different hypotheses, as much where the various phases of an enquiry are clear as where it is a matter of pioneering into a problem of unknown magnitude and implications. This does not, however, mean that the individual researcher disappears. For, he still holds the field as a pioneer on the fringes of relatively unknown fields.

The need to co-ordinate research activities has led to the greater use of primary data and a shift away from the use of secondary data as well as greater care in checking the reliability of official and non-official sources. The significance of these tendencies cannot be stressed too much in underdeveloped countries where the tendency is to accept what-

ever information is available and to build up programmes of social and economic betterment on the basis of inadequate data of doubtful reliability.

This co-ordination trend has also emphasized the great value of conserving research material, for, in all investigations of any appreciable magnitude, such as the *National Sample Survey* and the Reserve Bank's *Rural Credit Survey*, data more than adequate for the immediate purpose have been gathered. Their proper and fuller utilization would help the understanding and solution of some other problems as well. If this purpose is to be served, the primary material gathered must be conserved so as to be utilized as and when new problems and occasions arise or research personnel is available. Such conservation also serves the important scientific purpose of verification both of the data gathered and of the interpretation made.

The more comprehensive and co-operative in character the investigation is and the more intensive the effort demanded, the larger is the number of individuals specializing in different social sciences and the greater the need for fitting them into a comprehensive programme. Thus, a techno-economic enquiry demands the services of economists, statisticians, engineers, specialists in forestry and fisheries and so on if even one single project is to be satisfactorily completed. Such a collection of experts necessitates considerable financial resources in the institution and outstanding capacity in the leader in integrating the individuals into a team, almost similar to the work of General Eisenhower as the Supreme Commander during the World War. A hustled and biased collection of the personnel, an unplanned utilization of their knowledge, and inability or unwillingness to retain the team intact would not only prove costly but also lower the standard of research.

Another aspect of co-ordination relates to integration of different social sciences. Social reality is complex and, therefore, most of the social problems, if their full significance is to be understood, must be looked at from different angles. This multifaceted approach brings together research and social planning, for, it has been truly said that social research and social re-synthesis and planning represent separate but

interdependent procedures. The art of social planning is difficult and not always are the results as anticipated or hoped for, partly because of changing conditioning factors and partly because the various influences operating on a particular problem and its solution have not been sufficiently visualized. This necessitates greater care in research and a multi-angled approach and their co-ordination in the light of the specific problem under inquiry. Even where it is not action research but is merely of theoretical interest such as the discovery of new principles, facts, relationships and values, the multi-sided approach and the co-ordination of the different facets become desirable.

The foregoing approach to research in recent times has emphasized the need for very great care in the choice of men and problems as well as in the assessment and balancing of the several facets involved. Such choice is really difficult because the right type of men to fit into the problem on hand are not plentiful. This aspect of co-ordination suggests that, when such men have been gathered, it may not be wise or in the interest of research itself to lose them.

5. *Centralized Collection of Data:* Yet another trend in recent years has been the centralized collection of data, as, for instance, in the *Rural Credit Survey,* the Project Evaluation Programme and the *National Sample Survey* in India. Although the collection procedures have been or are being streamlined, data collection has today become more complex and expensive than it ever was, because of the wide variety of sources to be tapped, over different regions and often over a period of time. Such a process naturally requires experienced researchers and a well-organized institution.

Centralized collection of data has, however, its drawbacks, some of which are of the organizational variety and others of the methodological type. Of the first kind is, for instance, the inaccessibility of the material to researchers outside the collecting organization. In India, much of the collection work has been done by Government agencies and the data have automatically become 'departmentalized'. Since conservation and cataloguing are not generally very satisfactory in Government departments, an outside research worker

would find at least two difficulties in having access to them. The first relates to the permission to utilize the material and the second to the unnecessary effort needed to locate them. This limitation can be illustrated with reference to the vast data gathered by the Taxation Enquiry Commission or the Finance Commissions, or the Central Pay Commission. While the findings of these bodies have been valuable, they may not be the only or even the last word, and perhaps, further analysis of the material may bring out new issues and throw light on them as well as the old ones. But apart from utilizing the data, even fully locating them is not easy.

A second difficulty often associated with centralized collection relates to the danger of over-collection and unreliability of the primary data. The tendency to over-collection is evident from many of the questionnaires and schedules generally issued by Government enquiry committees and research bodies in India. When such collection is extended over a wide region and through the employment of dozens of investigators, who are not always fully trained or experienced, the reliability of the primary data, on which the top layers of the analysis have to be built up, may sometimes not be beyond question.

These difficulties of centralization are present everywhere but in some of the advanced countries, such as U.S.A., where research is standardized and democratized, accessibility is greater and the disadvantages are fewer than in underdeveloped countries where the tradition of open research and even the purpose of research appear to be different.

Stress on Trends: Yet another feature in recent years has been that greater attention is being paid by research workers to trends rather than to details. The shift from details to trends arises from the realization that social change and human progress are more important objectives of study than the mere gathering of details related to any particular single problem, and to the feeling that only trends are helpful in the formulation of broad national policies. This approach in research is very clearly illustrated in the studies undertaken in U.S.A. in 1929-34 by the President's Temporary National Economic Committee. An important limit-

ation of the 'trend approach' is the hurried search for 'trends' in underdeveloped countries. Trends relate to the overall course where the details are not stressed. But this does not mean that detailed investigations have not been made in arriving at the general conclusions, for, reliable trend analysis and prediction are possible only on the basis of careful and detailed enquiry. It is, however, not unusual in rapidly developing underdeveloped economies with urgent problems, inadequate research personnel and insufficient data, hastily to arrive at the trends on a very cursory review of the situation.

Prediction and Projection Studies: Prediction studies, which relate to anticipating behaviour on the basis of past and current trends, have also been growing in importance. Research, no doubt, is the application of a method to a problem, whether the latter is of current and future importance or is only one of historical curiosity. But since research involves outlay of energy, time and money and since social problems relate to pressing human issues, 'projecting the curve' of behaviour and suggesting solutions are essential and desirable if research has to serve any social purpose. Perspective planning, population projections and demand forecasts in India illustrate this feature. It is worth repeating that, in this process of projection, difficulties arise because new and unknown facts, such as new inventions, enter and upset prediction.

Opinion Surveys: A final trend in recent times has been the growing emphasis on opinion and attitude studies, of which the 'Gallup Poll' is a well-known example. Public opinion has been growing in importance as a phenomenon in behaviour not only on the political side but also with reference purely to economic issues such as the course of consumer demand. Even to a hard-headed businessman, a knowledge of the public attitude towards his product could be of very great business value in suggesting changes in products and their marketing processes. Because of this growing importance of opinion, in Western countries to a large extent and in India to a lesser degree, special research centres

such as the Indian Institute of Public Opinion have been set up. Attitude surveys are not concerned with the development and testing of any fundamental theory. Their object is less ambitious and consists, on the one hand, in applying known techniques of social research to discover public opinion on any particular issue, and on the other, to forecast, on the basis of this analysis, the future trend. Occasionally, public opinion institutes also attempt to develop new and more accurate techniques for measuring attitudes.

Any attempt to measure opinions has its own limitations too, because opinions are largely subjective and frequently change, even with reference to the same individual. Categorization cannot be precisely done, and measurement is often as difficult as interpreting and predicting opinion, but yet a great deal is being attempted to perfect the measuring instruments and the techniques.[4]

[4] This will be dealt with in detail in Part II of *The Introduction.*

III

THE SOCIAL SURVEY —ITS ROLE AND DEVELOPMENT WITH SPECIAL REFERENCE TO INDIA

DURING recent years, particularly since the operation of the Five Year Plans, socio-economic surveys of different types have become, in India, a regular and common feature. The urban surveys, e.g. in Madras, Bombay and Delhi, the numerous unemployment investigations and the *Rural Credit Survey* of the Reserve Bank of India are instances in point.

In the course of such enquiries, some peculiar features of underdeveloped countries, like India, should be borne in mind. To start with, really very little is known about the socio-economic conditions even to guide initially; and the little available knowledge, specially of the quantitative type, has been built more on surmises, general observations and limited enquiries. This is partly due to the very late interest taken in socio-economic enquiries, partly to the multitude of problems, but mainly to the tradition of broad generalizations largely founded on surface observations.

A second feature is the existence of innumerable social institutions. All societies, no doubt, have such institutions, but the trend in developed countries, e.g. the U.S.A., is towards reduction in their number, clarification of their interrelationships and simplification of their structure. In an underdeveloped country, where age-long tradition has built up institutions, which, at present, are at all levels of change, the socio-economic matrix is complicated. Compare, for instance, the American family with the Hindu joint family. The origin, growth, and repercussions as well as the scope for reform in the latter are difficult to understand, as the family is a product of economic, sociological, legal,

psychological, religious and customary influences. A proper assessment of even one of these aspects would generally require the study of some of the others. Similarly, any study of agricultural wages, family planning or even rural credit would have to be multi-faced.

The difficulties of such enquiries into a complex pattern increase because of the ignorance and conservatism of the people. Some of the available techniques, for example, mailed questionnaires and direct and participant observation become almost inapplicable, and even the interview technique, as suggested elsewhere[1] would have to be reoriented to these conditions.

This would suggest that in an 'underdeveloped' setting the application of purely statistical tools would be of lesser value and the case study method or the 'regional' survey more useful. This is partly because the developmental side of these institutions is of greater significance than in advanced countries, but largely because a complicated and age-old social pattern demands a very patient, detailed and close study, if the influences have to be unravelled. In other words, an apparently narrow and simple problem such as unemployment, beggary or mobility of labour — surveyed recently in India — demands an all-sided approach. Otherwise, the experience of the Second Indian Plan starting with the statistical estimate of 11 million jobs and perhaps ending with less than 8 millions — a wide gulf between reality and statistical estimate — may be repeated.

WHAT IS A SOCIO-ECONOMIC SURVEY?

A Social Survey has been defined[2] as "a fact-finding study, dealing chiefly with working class poverty and with the nature and problems of the community". It is not, however, necessary that the survey should deal chiefly or even partially with the working class or with poverty, although a number of surveys such as the famous one by Charles Booth and the resurvey by the London School, of socio-

[1] M. H. Gopal, "The Interview as a Research Tool and the Need for Systematic Training in its Use", *Indian Economic Review*, 1958.

[2] A. F. Wells, *The Local Survey in Great Britain*, Allen & Unwin, London, 1935, p. 13.

economic conditions in London, and the York and Merseyside enquiries had largely poverty and the working classes in view. The primary aim of a social survey is, in fact, to make an accurate and impartial collection and presentation of facts, the results of careful observation and not of hearsay. It is perhaps better to regard it as "a study of social institutions and activities of a group of persons living in a particular locality".

The discovery of facts is the first essential feature of a survey, whether such facts relate to poverty, debt, housing, unemployment or something else. It is not a theoretical dissertation in the air. Charles Booth, for instance, launched his classic enquiry[3] "determined to be satisfied with no superficial results but to probe deeply into problems of London poverty and well-being with no other motive than to discover truth". Often, this fact-finding has a definite purpose in view, although, it is doubtful if the purpose should always be there. In recording the facts and also in interpreting them, there may be a social and not merely an intellectual objective. "A scientific study of its (a community's) conditions and needs", observes Pauline Young,[4] "for the purpose of presenting a constructive programme of social advance" characterizes a social survey. It may be regarded as a method of social inspection, checked by statistical measurements and by the comparative standards of social experts.

Often, a survey is concerned with the condition of a class, as, otherwise, a blanket enquiry may be pointless and imprecise. A survey, further, has certain definite geographical limits and social implications. Thus, it may be restricted to a city or a district, as in the case of the London and York surveys. It may geographically be extended but restricted to the problem enquired into, as in the case of Reserve Bank of India's *Rural Credit Survey* or Gunnar Myrdal's *The American Dilemma — The Negro Problem*. Whether the limitation relates to an area or a problem, it is

3 Charles Booth, *Life and Labour of the People of London*, 1892-97 — 17 vols., Macmillan, London.

4 Pauline Young, *Scientific Social Surveys and Research*, Prentice-Hall, N. Y., 1942, p. 20.

always desirable, and often practised, that these findings are measured and compared with the model; i.e. the definition of the survey in terms of the normal, would make it more valuable. Although the main interest is focussed on the problem, it is always useful to describe in detail the whole structure of the community selected, partly to posit the problem and partly to assess the varied influences on the issues at hand.

A survey, generally, involves enquiry by a number of persons and the first essential requisite, therefore, is an agreement before hand, as to the interpretation of each question and fact. This would mean that the more precise and clear the initial stage of the enquiry, for example, in the construction of the schedule, clarification of concepts and so on, the greater is the possibility of avoiding unnecessary errors. As Cardog Jones puts it, the essence of good surveying consists in sparing no pains to make the first stage of the enquiry as perfect as possible. It is also equally necessary to start with a pilot survey. This would help to build up a good schedule, to know the problems to be enquired into, to appreciate the difficulties that may be encountered, to choose the area and sample to be investigated and, more than all, to anticipate the financial, administrative and personnel burdens that the survey would impose. It may also be necessary to study the people and the environment as closely as possible, which might necessitate participant observation and case study as has been done in the London, York, Pittsburg and other classic enquiries. The extent to which the enquiry should be broadbased depends upon the time and finance factors. It is not every institution that could wait for a decade or two, as Charles Booth did, to complete the survey. Often as in the case of the Indian *Rural Credit Survey,* the investigation has to be completed within a prescribed time limit; and when there is such a limitation, all the necessary facts bearing directly or indirectly on the problem on hand may not be collected and even where collected may not be interpreted. The latter observation is fully borne out by the third volume of the *Rural Credit Survey,* which has collected statistics offering unlimited scope for interpretation.

A socio-economic survey has very close affinity with social work, which offers opportunities for the practical application of the principles and techniques of scientific research. In a way, social work is both the cause and effect of a social survey. It is often the non-technical enthusiast for social reform who raises the problem before the community; for example, that housing conditions are unbearable or that juvenile delinquency is on the increase, and that these should be remedied by the community. A problem like this would, in the initial stages, lead to an unsystematic, over-enthusiastic attempt at a solution that would sooner or later induce the government or a similar organization to assess and understand the nature and depth of the problem, so as to enable planned public action to be taken. The results of the survey would indicate to the social worker what really the problem areas are, and how he could tackle them effectively. If the survey findings are to be dependable, social research techniques and methods must be employed. Thus, social work, social survey and social research are interrelated aspects of the social problem.

THE SOCIO-ECONOMIC SURVEY IN INDIA

Although a few socio-economic surveys can be traced back to the end of the eighteenth century as, for instance, the *Baramahal Records* under the East India Company[5], modern surveys are hardly four decades old. This period falls into two parts: 1916 to 1936, the period of pioneering by individuals or institutions; and 1951 onwards, mostly under the auspices of the Planning Commission or the Government, the years 1937 to 1950 being of practically no significance in the development of the survey movement. Although comparatively late in origin, local socio-economic surveys in India have had a wide range of subject matter, but there has been a marked leaning towards economic problems.

In 1913, Sir Theodore Morison, the author of the famous book, *Economic Transition in India*[6], suggested a sociological

5 *The Baramahal Records,* 21 sections, Government Press, Madras, 1923 etc.

6 Theodore Morison, *Economic Transition in India,* John Murray, London, 1916.

and statistical survey of some Madras villages, while in his book, *Rural Economy in the Bombay Deccan* (1912),[7] published a year earlier, G. Keatinge, Director of Agriculture, Bombay, hoped that his work would serve as a fresh starting point for further investigations for better local enquiry, since he raised a number of questions requiring carefully collected data for their solution.

These suggestions initiated socio-economic surveys in Madras and Bombay Presidencies by Dr. Gilbert Slater and Dr. H. H. Mann respectively. In 1916-17 Dr. Slater, who was Professor at the Madras University, surveyed about a dozen Madras villages.[8] This was one of the earliest objective first hand studies of socio-economic conditions in rural India. From a strictly statistical angle, the study was faulty. For, the villages were not representative of any type nor were they chosen on any statistical sampling basis. Accessibility was the main reason for their choice. The schedule and interview techniques were used, while the former was not as detailed as the one used by Dr. Mann in Bombay. Dr. Slater's approach was wider, demanding an extensive and intensive knowledge of the village.

About the same time (1918) Dr. Mann surveyed Pimpla Soudgar,[9] and later Roth Kurd,[10] villages near Poona. This was a socio-economic inquiry into a single village, viewing the numerous economic and agricultural problems in their interrelatedness. Specialists in geology, public health, soils, irrigation and agriculture co-operated in the investigation. While Slater's approach was of a number of villages, each being surveyed in all its aspects by one investigator, Mann focussed on one village a number of investigators of different technical qualifications. The latter inquiry was more agro-economic than socio-economic in its objective, although data were gathered and presented on the physical

[7] G. Keatinge, *Rural Economy in the Bombay Deccan*, Longmans, London, 1912.

[8] Gilbert Slater, *Some South Indian Villages*, Oxford University Press, 1918.

[9] Harold Mann, *Land and Labour in a Deccan Village*, Bombay University Studies, Oxford University Press, 1917.

[10] Harold Mann and N. V. Kanitkar, *Land and Labour in a Deccan Village*, Bombay University Studies, Oxford University Press, 1921.

and economic characteristics of the village and also of the 'people' — their character, material condition, manner of life etc.

While these efforts were sporadic and pioneering in character, systematic and detailed investigations were initiated in the Punjab by the Board of Economic Enquiry,[11] Beginning with a survey of milk supply in Lahore in 1921, the Board carried out a thorough enquiry into 29 villages, one in each district of the Punjab. No village was selected as being typical of the district. "It would be a mistake to claim", warns one of the survey reports, "that Tehong is typical of a Jullunder Village." *(Survey No. 3,* p. ii). A standardized detailed questionnaire running into 20 closely printed pages was used and it touched upon such topics as cultivation, holdings, tenancy, indebtedness and marketing. There was practically little about the non-economic aspects of rural life. Nor did the Board attempt to consolidate the findings of the various surveys. It believed that the chief value of a survey consisted in the investigation of facts, and "no attempt has been made to adapt facts to theories" and "nothing relevant has been witheld". *(Survey No.* 3, Preface). "It is no part of the object of the Board of Economic Inquiry to draw deductions from the information collected; it seeks to collect as accurate data as possible, and to present them in an orderly manner". *(Survey No. 3,* pp. ii-iii).

In 1928 the Royal Commission on Indian Agriculture stressed the desirability for socio-economic investigations and, wherever possible, for resurveys to assess the nature and degree of economic changes. Efforts in both directions were made very soon after. In 1929-30, an economic survey was conducted on a large scale in Hyderabad by Professor S. Kesava Iyengar.[12] After an intensive 'pilot' survey in 8 villages, a comprehensive inquiry in 4 districts was taken up, with 12 villages in each. The method of inquiry was personal contact with the heads of families and cross-verification

11 W. H. Myles & Others, *Punjab Village Surveys,* The Board of Economic Enquiry, Punjab.

12 S. Kesava Iyengar, *Economic Investigation in Hyderabad State,* 1929-30, 5 vols, Govt. Press, Hyderabad, Dn., 1931.

of data from landlords, money-lenders, village officers and village records. Unlike in the Punjab, a detailed village report as well as an overall report of conditions was presented. The investigation, however, was partial in that its main object was the extent and cause of dispossession of holdings and the ryots' indebtedness.

The suggestion regarding re-survey was taken up at Madras by Professor P. J. Thomas, who succeeded Dr. Slater. In 1936-37, about 20 years after the original inquiry, 8 villages were resurveyed.[13] D. Slater's questionnaire was modified, a few questions on the sociological side and a few of the descriptive type being omitted; more details were sought on economic aspects of village life, e.g. holdings, family budgets, consumption, money-lending, wages, etc. and a census of production was attempted. Improved techniques of investigation, specially in the handling of statistical material, were utilized. After a detailed report on each village, the data for the whole group were analysed and compared with the earlier results.

One of the noteworthy and thorough inquiries of the pre-War period was the urban survey of Poona, by Professor D. R. Gadgil, (Director of the Gokhale Institute of Politics and Economics) in 1937-38 but published in 1945 and 1952. This Institute, which has pioneered in *real* research, conducted a large number of investigations between 1932 and 1952, some purely economic (e.g. fruit marketing in Poona or bus transport in Bombay) and some socio-economic (*Weaving Communities in Sholapur,* or the *Survey of Kolhapur City* by Professor N. V. Sovani, 3 vols., 1948-52);[14] case study inquiries also have been made as, for example, of village panchayats in Bombay and Madras States.

But it is Professor Gadgil's two volume survey of Poona that stands out.[15] The *Social Survey of Merseyside*[16] was taken

[13] P. J. Thomas and K. C. Ramakrishnan, *Some South Indian Villages*, Resurvey, Madras University, 1940.

[14] Gokhale Institute of Politics and Economics Publications, Poona 1948, 51, 52 etc.

[15] D. R. Gadgil, *Poona — A Socio-Economic Survey,* 2 Parts, Gokhale Institute of Economics, Poona, 1945 and 1952.

[16] D. Cardog Jones, *The Social Survey of Merseyside,* 3 vols., Hodder & Stoughton, London, 1934.

as the model. In the first volume published in 1945, Professor Gadgil deals with population, industries, trade, transport, occupations and family incomes, and in the second, (1952) with social aspects such as housing, community organization and education. The household formed the basic unit surveyed, and one part of the inquiry was a direct investigation into economic activities carried on by various classes, while the other was into conditions of households on the lines of the Merseyside inquiry. It was a census as well as a survey of families residing in a selected sample of homes. The ward was adopted for selecting the sample, and the house, not the family, formed the basis of choice. As the School Attendance Officers utilized in the Merseyside Survey were not available, primary school teachers were drafted for the work. The form used closely followed the Merseyside card. The terms in the inquiry were defined and the significance of the inquiry explained to each investigator. A check of a small proportion of the forms filled in was carried out.

In gathering data about poverty, the Poona survey differed from its British counterpart in that data from not merely families below an income line but also from all families in all the selected houses were gathered. Industrial establishments were surveyed but not on a very scientific basis, for, after a not-elaborate inquiry, a few establishments were selected for detailed investigation. The selection of the sample was purposive rather than random, thus making it more a case study. No fixed percentage was adhered to in determining the sample, and to make the sample representative, units of each type and from each locality were incorporated. It was also not possible to cross-check information regarding establishments.

The important features of this survey, however, are: following the modified model of an outstanding Western investigation: gathering detailed quantitative data; awareness of the limitations of the techniques followed; and taking a wide view of the data. It is perhaps the best urban survey of the pre-War period, and in terms of the resurvey of Poona, Professor Gadgil's inquiry has acquired great significance.

The second phase in the conduct of surveys in India began,

broadly speaking, after 1950, although the link between the two phases was maintained by the Indian Statistical Institute, which has been both conducting enquiries and developing statistical techniques. Two of its early studies related to *Consumer Preference in Calcutta* (1935) and the *Bengal Handloom Survey* (1937) and two of the post-War ones were the *Surveys of Rural Indebtedness* (1950) and of *Agricultural Labour* (1950).

The Institute's most noted contribution is the conduct of the *National Sample Survey*.[17] This enquiry, started in 1950 and continuing even today, is perhaps the best known of the post-War investigations in India, and is the biggest and most comprehensive sampling enquiry undertaken in any country. Its objective is to gather reliable statistics relating to production, consumption and other aspects of economic and social life. Geographically, the survey covers both urban and rural areas in the whole country. Equally wide and varied are the problems — consumption and expenditure patterns, industrial establishments, agricultural production, demographic questions like fertility, births and deaths, livestock, transport and trade etc. come within its purview. New items and new areas are being taken up stage by stage. It is a continuous all-India enquiry conducted in successive rounds, year after year; and by 1960 fifteen rounds had been completed.

The report on the first round (General Report No. 1 on the First Round October 1950-March 1951) presents the technique followed in the survey. In this round, 1189 sample villages were surveyed by the Indian Statistical Institute, and 644, by the Gokhale Institute of Poona, although the succeeding rounds have been taken up completely by the former. The Institute used four types of schedules — one for villages and three for households — for collecting a variety of information and at different levels of detail. The interview technique was followed. The difficulties, such as different languages and different weights and measures in the country, of clarifying unforeseen issues as they arose during the investigation, of preparing an efficient design for the survey of training investigators for the new kind of work

[17] *The National Sample Survey*, Ministry of Finance, New Delhi, 1952 etc.

and of definitions and concepts, were solved as they arose. Machine tabulation of the latest type was adopted.

Faced with the alternatives of the local survey approach and the all-India approach, the *National Sample Survey* decided that, though technically the better way would be to follow the former, i.e. to start with small or local approaches before extending the enquiry to the whole country, in the context of the enquiry — as the physical characteristics, language and social and economic patterns of life differed in different parts of India — a local survey had its limitations, specially in view of the overriding consideration of time, i.e. the urgency of data for developmental planning. Therefore, the Institute took the bold step of establishing a general framework of the survey covering the whole country at the very beginning of the enquiry and then gradually improving the operational arrangements. Thus, at one stroke the sample survey was set up all over the country.

Another important investigation of recent years is the All India Agricultural Labour Enquiry.[18] This is one of the largest socio-economic enquiries of its kind conducted in the ECAFE region, along the lines laid down by international bodies like the I. L. O.

As the main handicap in improving agricultural labour conditions was the lack of reliable data on economic conditions of agricultural labour, the inquiry was instituted by the Union Ministry of Labour in 1950-51. A pilot survey in 27 villages in 8 different States showed the value of such preliminary studies. "In the light of the experience of the pilot enquiry, the method of collection of data for the year as a whole as originally proposed was dropped and was replaced by collection of data month after month for all the 12 months of the year 1950-51, and the annual data were compiled therefrom."

The main investigation in 1950-51 was conducted in three stages through three different schedules — the General Village, the General Family and the Intensive Family Schedules and covered a sample of about 800 villages selected on the basis of stratified random sampling. The first stage

18 B. Ramamurthi, *Report of the Agricultural Labour Enquiry*, 10 vols, Ministry of Labour, New Delhi, 1954 etc.

collected broad data from village records, local enquiries and village officers; the second covered all the families numbering about 104,000 in the selected villages. Information collected related to size of family, occupational structure, holdings, housing etc. with a view to delimit agricultural families and finding a background for the third stage.

The third and final stage, the most important one, was the *Intensive Family Survey* of agricultural labour families. About 11,000 families forming 50 per cent of the families in each of the sampled villages were surveyed for data about employment, wages, standard of living, indebtedness and so on. Its findings were of material assistance in drawing up programmes for agricultural workers under the First Five Year Plan.

One of the interesting features of this survey is that it has compared its findings of the level and content of living of *agricultural labour* families with those of the *National Sample Survey* for *all* rural families. The enquiry has also thrown light on the necessary weights for the compilation of agricultural labour cost of living index.

The design of the survey, analysis and presentation of data followed the I.L.O. recommendations. The pilot enquiry was made for testing the suitability of the questionnaires, amplifying the instructions, and obtaining an idea of the time taken and the nature of the field organization required. The schedules were made final in the light of the experience gained in the pilot survey. The stratification for sampling purposes was on broad agricultural and economic considerations and on the basis of judgement of officers since the data collected related to a number of statistical variables on which little all-India data were available. The villages were selected with equal probability and without replacement. The design for the third stage was a stratified two-staged sampling, the village being the primary stage and the agricultural labour family the ultimate one.

A third outstanding enquiry of recent years is the Reserve Bank of India's *All-India Rural Credit Survey*.[19] Though a pure economic enquiry into the credit aspects of rural life,

[19] *All-India Rural Credit Survey*, 3 vols., Reserve Bank of India, Bombay, 1956-57.

it stands out for its size and for the mass of data collected and presented in Volume III, offering unlimited scope for further utilization and interpretation.

The main aim of the Survey was to reveal the broad patterns of agricultural credit in different regions. The enquiry conducted in 1951-52 covered all aspects of rural credit in 75 districts comprising 600 villages and 130,000 families. The district was the unit of investigation and was selected on a random basis. The villages also were chosen on the random sampling basis but with the probability of selection proportional to the population of the village. Various techniques — schedules, questionnaires, interviews, case studies, and records of various kinds — were utilized. For instance, in studying the demand aspect of credit, a sample of eight villages was selected in each district and within each village, all the families were investigated. A mailed questionnaire was used to study the financing of agriculture by commercial banks. For some purposes, e.g. to ascertain assets and farm business, a sample of 15 cultivating families in each village was taken up for detailed study. Case studies were made of selected loans in selected agencies. In studying the "supply" aspect of credit, seven schedules and five questionnaires in addition to a general questionnaire, were issued. A historical review of the trend of indebtedness on the basis of data in earlier enquiries, reports etc. was also made. The survey itself was conducted in two rounds between October 1951 and June 1952 adjusted to seasons and types of farm operations.

This well-organized and extensive enquiry revealed the limitations too; for example, the data were for villages *selected* in a particular manner; and "there was an added restriction that half of the villages had to be those in which co-operative credit societies existed." The magnitude of the survey is revealed by the extensive statistical data collected and by the very limited utilization of the data in the *Report* proper.

Finally, there are the efforts of the Research Programmes Committee of the Planning Commission[20] to encourage, integrate and finance surveys of various kinds. Nearly 75

[20] Government of India, New Delhi.

research schemes all over the country had been approved up to the end of 1957. A variety of investigations have been initiated, e.g. socio-economic surveys of Poona, Hyderabad, Delhi, Madras and Bombay; small scale industries in Moradabad, Salem and Sivakasi; tenancy legislation and so on. Studies of the urban and rural structure of the economy, social dynamics, questions relating to labour-management relations, and employment and land reforms are some of the problems the Research Programmes Committee is interested in its survey schemes.

The latest in the field of surveys are the Techno-economic Surveys undertaken since 1956 by the National Council of Applied Economic Research, New Delhi. These surveys open a new chapter in economic investigations in India. Following the American model, they bring together the findings of different kinds of technical experts such as chemical, metallurgical and electrical engineers, fisheries, forest and transport experts, agronomists, economists and statisticians and so on. Each expert appraises the current situation and the potentialities in his particular field of the area under survey. On the basis of these appraisal reports as well as other data, an economic report is formulated assessing the resources and suggesting lines of possible development.

A number of States in India have been surveyed in this manner. It is essentially a kind of 'action research' intended to be of immediate practical use in formulating State plans of development. As time is the essence of this survey, depth is often sacrificed for speed and width. But its great merit lies in looking at the developmental problem from different angles and in bringing together technical and economic experts.[21]

SOCIAL SURVEYS IN OTHER COUNTRIES

Although the survey movement is comparatively recent, its origin might be traced back to centuries. One of the greatest surveys of olden times was the Doomsday Book in 11th Century England, which was a faithful record of the period and the only existing factual evidence of those con

[21] For more detailed analysis of these surveys, *vide* Part II of the *Introduction*.

ditions. It was a mechanical and non-analytical report meant to serve the limited purposes of the ruler.

One of the early modern surveys was J. Howard's enquiry into prisons (1775).[22] It is an instance of a systematic, objective attempt using a variety of techniques to secure facts direct from prisons. John Howard stressed in this survey the need for exact, minute, and verifiable facts for social reform purposes as well as the role of field observation and detailed note-taking and the study of comparable data. He also attempted to standardize data and use specific schedules.

In the first half of the 19th century Le Play made a concrete study of workers' families.[23] Holding that the aim of social science was the study of contemporary society to discover conditions affecting social prosperity and stability, Le Play advocated social planning through social research. He considered the family as the microcosm of society as a whole and believed that the intensive and careful study of the family would light up the problems of society. He used a combination of social survey and social research methods and largely utilized the technique of participant observation being continuously in contact with the selected units. He attempted to find a method of measuring quantitatively the diversified components of family life, and to this end devised a detailed outline, to enable the uniform observation of family activities and supplemented these direct observations by personal interviews and a questionnaire. The survey took 20 years for completion, and was published about 1855. Naturally, it had its limitations. For example, it overlooked the findings of earlier workers, and, thus, did not benefit from their experience; it also attempted to combine practical aims with scientific research and, thus, was not fully successful in either direction. But, Le Play's efforts stressed the significance of studying particular societies so as to analyse the special forms and interrelations of their institutions. This led to two types of surveys — one concerned with a particular facet or class only e.g. poverty or un-

22 John Howard, *The State of the Prisons in England and Wales,* John Aikin, London, 1792.

23 Frederic Le Play, *Les Ouvriers Eropeans,* 6 vols., Imperimeries Imperiales, 1866.

employment and the other, surveying society as a whole.

UNITED KINGDOM

Probably the most famous of British social surveys and perhaps in the world itself is Charles Booth's great pioneer enquiry into the Life and Labour of the People of London,[24] at the end of the 19th century. This was the first comprehensive study of modern community life, and has been characterized by the *Resurvey of London* as marking an epoch in the science and art of social investigation. It employed trained economists and social workers, who visited individual houses and employed mainly the interview technique. This was supplemented "by conferences, questionnaires, reports, observations, studies of and by trade unions, conversations with welfare officials, teachers, landlords, rent collectors"[25] and so on. It successfully combined the statistical and case study techniques of approach and adopted participant observation too, even Booth himself taking up quarters as a homeless stranger among the people he surveyed. Booth started with a pilot survey. The astounding success of his monumental effort covering 17 volumes was largely traceable to his gifts of sympathy, leadership and scholarship.

This London survey, considered[26] as "the greatest statistical enterprise ever attempted by a private person at his own expense", is indeed, much more than an enquiry into the conditions of the working class. In the words of Sydney and Beatrice Webb,[27] "Here the significant conception — one of very distinct originality — was not that of simple enumeration of every unit of a defined class, but the placing of the results of elaborate personal observations of differing units within a comprehensive statistical framework". The *Resurvey of London* regards the most striking and original features of Booth's survey as being the classification of the London population into an ascending series of social and economic grades, described by letters (from A to H), the estimated, enumerated population belonging to each

[24] *Op. cit.*

[25] Pauline Young, *Op. cit.*, p. 12.

[26] Sydney and Beatrice Webb, *Methods of Social Study*, Longmans, 1932, p. 206.

[27] *Ibid.*

of these grades and the graphic representation of their distribution by streets by means of a set of coloured maps. Booth's efforts are not only a permanent contribution to our knowledge of human nature and of society but, as a sociological study, they have become a historic document by raising the survey to the status of a scientific enquiry both to throw up unknown facts of social life and to point out the direction of social reform and welfare.

Booth's investigation was, however, avowedly static and he himself was fully aware of it:[28] "My principal aim is still confined to the description of things as they are. I have not undertaken to investigate how they came to be so, nor, except incidentally, to indicate whither they are tending, and only to a limited extent or very occasionally has any comparison been made with the past". This perhaps partially explains why at the end of his monumental effort, Booth is stated to have said that he had only learnt the trade by the time he finished his work.[29]

A. L. Bowley and A. R. Burnett-Hurst's *Livelihood and Poverty*[30], which is a study of five middle-sized industrial towns, applied for the first time random sampling and introduced the device of comparable parallel investigations by re-study. Another famous British survey is Rowntree's *Poverty, a study in Town Life*[31], and the resurvey — *Poverty and Progress — a Second Survey* — tested the sampling method. The resurvey in 1936 used improved techniques of measuring objectively primary poverty and discarded a number of old methods employed in the earlier ones. The study of York which formed the subject of the survey compared conditions in a small town with those in a large metropolis.

A famous enquiry of the Great Depression period was the *Social Survey of Merseyside*[32] conducted by the University

28 *Life and Labour, op. cit.*, vol, I, p. 5. 29 *Ibid.*, pp. 24-25.

30 A. L. Bowley and A. R. Burnett-Hurst, *Livelihood and Poverty*, Bell London, 1915; also its sequel, *Has Poverty Diminished?* P. S. King & Son, 1925.

31 B. S. Rowntree, *Poverty — A Study of Town Life*, Macmillan, London, 1901.

32 Cardog Jones, *op. cit.*

of Liverpool in 1929-32 in the urban area on either side of the River Mersey. It is a comprehensive enquiry, whose first volume deals with demographic, housing and income aspects, the second with employment, and the third with public health, education, social services and defectives. Two investigations were made — one into households, general and comprehensive, and the other, a detailed one, into large sections of the population. Both were conducted on a random sample basis, the sampling ratio being 1 : 30. School attendance visitors were employed as investigators in their spare time, because their everyday life gave them exceptional opportunities to know the people. Very careful preparations were made beforehand to make the meaning of questions and terms perfectly clear to the investigators, because statistical results of value are so frequently spoilt by lack of adequate care in definition and in planning the collection of the raw material. The questions asked and the meanings attached to the principal terms were so framed as to yield comparable figures and the results were assessed by similar standards. Another notable feature of this survey was the extensive treatment of the relation between poverty, family composition and overcrowding.

Another comparatively recent survey has been the *New Survey of London Life and Labour* by the London School of Economics (1928-35).[33] Taking the earlier survey by Booth as the base, this investigation had a much wider scope and compared its findings with those of Booth. It attempted to measure population by a poverty standard and to discover the socio-economic changes between the two periods surveyed. It drew upon the experience and techniques of Booth and Bowley, and utilized the reports of school officers as well as the study of households chosen by the random sample method. It introduced for the first time machine tabulation and explained in detail the methods and techniques employed, and the conclusions reached.

UNITED STATES OF AMERICA

While social surveys began in Great Britain earlier their

[33] H. Lewellyn Smith & Others, *The New Survey of London Life and Labour*, 9 vols., P. S. King & Son, 1930.

development in the United States of America has been both rapid and extensive. The American interest in social movements was the result, on the one hand, of the welfare movement and, on the other, of the efficiency movement in the community.

One of the early enquiries, J. Riis' *How the Other Half Lives?*[34] was a realistic, though not fully scientific, first hand account of tenement conditions in New York. The next landmark is associated with the Russel Sage Foundation in 1907, whose efforts to enquire into social conditions spread the survey idea in the United States. In 1909-14 was conducted perhaps the most famous American enquiry, the *Pittsburg Survey*[35] which was an elaborate and painstaking study of the effects of urbanization. It desired to throw light on social and economic forces, not by a theoretical discussion but by presenting the objective facts of life in a particular city. It was taken up by a group of associates taking up particular aspects of the enquiry. Thus, the unit of study was determined on the advice of geological surveyors, the conception of the complexity of the master plan was adopted from the engineers, the case work employed from the charity organisations, and the graphic portrayals of the findings from the journalists. Individual investigators studied and reported on particular topics.

This survey is noted for three things: (1) for the stimulation it gave to other enquiries, (2) for the co-operative efforts of a group of people and (3) for the resort to specialised agencies in the particular fields for advice in their sphere.

The Springfield Survey[36] conducted between 1914-20, was an enquiry into the social conditions of a small city as a complex unit with nine main lines of enquiry such as public schools, charities, industrial conditions and so on. The survey pointed out the role of publicity in a survey both before and during the survey and stressed the necessity of viewing

34 Jocob Riis, *How the Other Half Lives? — Studies among the Tenements of New York*, Scribner, N.Y., 1890.

35 P. K. Kellog, *The Pittsburg Survey*, 6 vols., Russel Sage Foundation, 1914.

36 S. M. Harrison, *Social Conditions in an American City*, Russel Sage Foundation, 1920.

social problems as a net-work of closely interrelated units which must be tackled not as isolated factors but in their entirety.

The stimulus given by the Pittsburg Survey resulted in a number of specialized intensive enquiries, which, by 1928, numbered nearly 2,800. Regional surveys, such as the *New York Planning Commission's Enquiry* in 1927-31 and race relations surveys such as *The Pacific Survey of 1924-29*,[37] were prominent in the pre-Depression period. These investigations used new techniques of social exploration and analysis, for example, the general material was collected from letters, case histories and reports; old employers, labourers, and scientific observers were tapped, case studies of communities were made and the study of attitudes through interviews was taken up. One of the remarkable enquiries of this period was *Middle Town* by Dr. and Mrs. Lynd.[38] It abandoned the aim of programmizing as in the early ones, and contrasted life in a city at two periods separated by 35 years. Covering a varied field, it attempted to give a moving, not static, picture of community life and utilized in the process practically all techniques — observation, interview, casual conversation, formal questionnaires, documentary materials, records, diaries, etc., pointing out that the really creative part of the enquiry consists in combining and utilizing different approaches.

The Great Depression gave rise to a series of unemployment surveys such as the *Unemployment Survey of California*,[39] and the Social Science Research Council Monographs on social aspects of the Depression. The most outstanding of the post-Depression investigation is the *New Survey of Pittsburg* (1934-37)[40] which was a social study of a large industrial city. A substantial part of this report is devoted to the interpretation of social and economic life;

[37] R. E. Park, *The Pacific Race Relations Survey*, 1924-29.

[38] R. S. and H. M. Lynd, *Middle Town*, Harcourt, Brace & Co., N. Y., 1929.

[39] Louis Block, *Report and Recommendations of the Californian State Unemployment Commission*, California, 1932.

[40] P. Klein, *A Social Study of Pittsburg, Community Problems and Social Services of Allegheny Community*, Columbia University, 1938.

statistical, ecological and case study methods were extensively used; and the findings stressed the forces which cause social disorganization and make social work necessary.

In the nineteen-forties the survey movement in the United States slowed down a bit but there was one very outstanding enquiry in 1944, viz. Gunnar Myrdal's *The American Dilemma — The Negro Problem*. This is perhaps the most comprehensive survey of race relations undertaken anywhere. Approaching the problem from many aspects — anthropological, economic, educational and social — the survey tackled the theoretical task of analysing the problem in terms of cause and effect, and the practical task of enquiring in terms of means and aims. From the standpoint of methods, its significance lies in its attempt to purge the investigation of distorting and hidden biases, of determining the statement of problems, and the definition of terms for theoretical analysis and of laying a logical foundation for practical conclusions.

DIFFERENCE BETWEEN U.K. AND U.S.A. APPROACHES

Although social surveys have been prominent in the U.S.A. and U.K., there have been noticeable differences in their role. In U.K., for instance, the survey has played a significant part in national reform but not so, or at least so much, in the United States. Charles Booth's survey, for instance, led to State provision for the children and the aged, helped unemployment insurance and the extension of factory acts — precursors of social security measures. As Beatrice Webb, one of those who participated in Booth's survey, remarks[41]: "It gave an entirely fresh impetus to the general adoption by the British people of...the policy of securing to every individual, as the very base of his life and work, a prescribed national minimum and the requisites for efficient parenthood and citizenship".

The reasons for this difference in the influence of the survey on national policy in the two countries lie, partly, in historical and governmental developments, partly, in the philosophies of life of the two peoples and partly, in the theories of personal freedom prevailing in the two countries.

41 Quoted in Pauline Young, *op. cit.*, p. 47.

There was also a difference in the type of the leaders of the survey and reform movements in the two countries; for example, social reformers like Shaftesbury, Ruskin, and Toynbee were prominent in England, while in the United States, the Survey was essentially a scientist's affair. Until the New Deal in the Thirties, rugged individualism prevailed in the States and social and economic inequity was not associated with social inefficiency. There was also no political party like the British Labour Party which arose from the poor classes and stood out for a policy of increased study, scientific investigation, and deliberate organisation of research so as to make effective a social security policy in the country.

The development of the survey movement in the United Kingdom and specially in the United States has brought out certain significant features which would be useful as guides to underdeveloped countries like India. The first is the shift in the responsibility for the survey from the individual to organizations. Although individuals have been undertaking social surveys, their number has been dwindling. This has led to the growth of research departments either on their own or within social agencies and universities whose main job is the conduct of surveys. Systematic studies are being undertaken by government and its agencies.

The second equally significant development has been the emergence of standardization and the emphasis on scientific procedures. Since the *Pittsburg Survey* in the States, methodological problems and techniques have grown in importance marking certain definite steps. For example, although a particular survey may be interested in a particular problem, the effectiveness of its findings would depend on viewing the community as a whole and its problems as interrelated. At the same time, since these problems are manifold, fields for detailed and separate studies have been differentiated and marked. Moreover, as the usefulness of a scientific survey depends upon making the quantitative data comparable and additive, definition of terms and of units of work is essential. Data collected are now so abundant and complex that new methods of tabulation, particularly through mechanical devices, have been adopted. Finally, the

reports based on the collected data should be as realistic as possible and devoid of all emotional, idealistic and unnecessary verbiage.

Yet another feature that has stood out has been the growing influence of sociologists on the survey movement. Emphasis in investigation is shifting from mere pathological factors to the growing cultural pattern of community life. Formerly, a survey was an inventory rather than an analysis of situations but now social reality is regarded as so complex and the whole array of its problems so multifaced that a proper evaluation in a survey can be only through considering social process as a whole, customs, attitudes, group-relations and so on.

The sociologist has also introduced the concept of a natural area. The social base map has become the starting point of any survey. Basic social data such as density and distribution of population, and births and mortality rates have become a necessary component in understanding a survey. The stress has also been on trends rather than on details. This is because of the social scientist's desire to put prediction and control on a sound scientific basis as against the old objective of immediate *ad hoc* reform.

The emphasis on trends has drawn attention to social causation as a relevant part of the survey. The question now is not only to give a precise account of occurrences or of conditions but also to explain why they occur or are present. "The search for factors of social causation", observes Pauline Young,[42] "introduces not only a new frame of reference but it seriously challenges the popular conception that social inequality and economic inequity had their sole roots in personal than social inefficiency and ineffective governmental administration".

Finally, a set of new and precise criteria to test the methodological procedures has been developed. Thus, any survey has to satisfy the questions — Does the survey furnish typical facts to enable sound generalizations? Does the survey use objective methods? Are the comparative and control techniques used to ascertain conditioning factors? Has the surveyor developed an estimate of quantitative symbols to measure

42 *Ibid.*, p. 54.

and express the findings? and so on. A number of these important developments should be regarded as the contribution of the sociologist to social surveys.

It has been pointed out above that the development in the survey movement led to modifications in the techniques of surveys. In this respect during the last three or four decades, a number of significant changes have been made; the development of sampling devices and the introduction of mechanical tabulation and sorting have led to large - scale surveys and mass production of details. Economies have been achieved by sub-division of labour among the survey staff; the importance of an adequate and proper questionnaire has been realized by emphasizing that drafting a questionnaire is a specialized work needing a lot of imagination since even in factual surveys foresight and pre-coding of different types of answers are necessarily to be provided for. The emphasis on the pilot survey to modify and extend the scheduled questionnaire on the basis of experience has increased. It should be realized that planned agreement on the type of questions to be asked and the type of people to be questioned, test talks before the questionnaire is actually used and the preparation of a scientific sample are necessary even at the start of the enquiry. Sampling has now become a fine art needing experts in theory and practice with a sound mathematical training. Another aspect of survey technique has been in the planning of the interview and the training of the interviewers. The personnel chosen for interviewing people must be trained in manners in such a way that they should be in a position to encourage people to part with information. Nowadays the importance of the employment of women in social surveys is being more and more recognized. Standardization of definitions and classifications, pre-coding specially when the sample is large and the problem is complicated and the constant consultation between the man in the field and the one at the desk so that there might be a continuous co-operation among the investigators themselves and between them and the headquarters staff who will analyse, process and interpret the data, has been realized as essential.

An important lesson was pointed out over six decades

ago by Charles Booth when he stated in the final volume of his Survey:[43] "Comparisons with the past are absolutely necessary to the comprehension of all that exists today; without them we cannot penetrate to the heart of things". While he himself could not benefit much in this direction, his work became the starting point for comparisons to measure the changes in social and economic conditions since his days and laid the firm foundation for forward comparisons with the results of future surveys, such as the *Resurvey of London.* In an underdeveloped country, most enquires will have to be pioneering studies, having little in the past for comparison but it is essential that, since they form the base of comparison in the future, their technique should be modern and correct, their approach comprehensive and detailed and their conclusions meaningful and in terms of the wider socio-economic problems.

The preceding review of the development of the survey movement in India, U.K. and U.S.A. draws attention to the existence in underdeveloped countries of certain limitations associated with techniques, problems and environment: from the first standpoint, the inapplicability, at least to the same extent, of some of the advanced techniques of data collection; from the angle of problems, the intertwining of a multitude of different issues; and from the point of view of environment, the vague, hesitant and slow response arising from an illiterate and conservative tradition.

These limitations suggest a modified course of action for socio-economic surveys in India. The need for an overall survey similar to the one advocated by Patrick Geddes[44] is greater because of the complex matrix dealt with. Although their aim is restricted, many recent and current enquiries, (for instance, into rural credit, agricultural wages and unemployment) are narrow and onesided, so that the problem cannot be visualized in its true perspective, and a solution based on the investigation may not be completely fruitful.

This emphasizes the co-operation of experts in different

43 Booth, *op cit.*, vol. 17, P. 31.

44 Patrick Geddes, *City Deterioration and the Need for a City Survey,* American Academy of Political and Social Service, 1909; also see his *Cities in Evolution,* Williams & Norgate, London, 1915.

aspects of social sciences. For instance, an urban survey requires the co-operation of economists, statisticians, sociologists, social workers and so on, instead of being in the hands of the first two categories only. It is useful to have an overall plan of proposed and possible surveys in the country and to encourage integrated schemes. In spite of there being a central organization like the Research Programmes Committee, the current tendency in the country appears to be, by and large, for individual and unintegrated schemes to be approved and taken up. Again, although economic issues are dominant in a planning context, it may be desirable to give greater encouragement, than at present, to sociological and similar enquiries.

If there is to be an overall plan and integrated effort, broad standardization of the framework and design as well as data collection techniques will be necessary. This is being done now in a few enquiries, e.g. farm management studies and agro-economic surveys, but a large number of surveys into unemployment, small and large industries, migration etc. follow their own ways. The checking of the enquiries, not only at the initial stage but also all along the line, would help the standardization of techniques and results.

Finally, an adaptation of available techniques is highly desirable. The Indian Statistical Institute has been doing much in this line but largely on the statistical side, e.g. sampling, designs, etc. There are the non-statistical tools of enquiry, such as case study, participant observation and interview, where much remains to be done.

IV

SOME METHODOLOGICAL ISSUES

METHODOLOGICAL issues in social science research are many but two are particularly interesting: (1) problem-orientation *versus* method-orientation; and (2) the scientific 'method' or approach.

Problem-orientation versus method-orientation

By and large, science as such lays greater emphasis on method than on results. While this is broadly true of social sciences as well, they are under certain limitations. Being of comparatively recent origin, social science research procedures and, in fact, social sciences themselves, are still not beyond the woods. Methods, techniques and devices are in all sciences, and more particularly in social sciences, relative to problems and to the personnel and facilities available. Many social problems are only partially amenable to current techniques, and some are, perhaps, not amenable at all. To this category belong many which are of the subjective type and also a few which are socio-culturally biassed. The rigorous application of physical science techniques to the social groups is difficult, for, quite a few results of research in social sciences may be largely based on intuition and surmises. This emphasizes that the problem chosen for research should, even to start with, be amenable to the available devices unless the attempt is to discover new techniques themselves which may be tried on the problems not amenable to existing devices. The point stressed here is the very close interdependence of problems and techniques in social research in particular.

Social research problems are, broadly, either those related to behaviour or those which depend on documents. The

behavioural sciences such as psychology, sociology and social anthropology, are concerned *more especially* with content. The documentary sciences such as history, law, and political science deal largely with method and study documents. Each of these has its own problems, defined purposes and characteristics. For instance, the behavioural sciences verify general propositions, use carefully refined concepts and do not attempt prediction. The documentary studies, on the other hand, explain unique events or situations, utilize common language, though in a refined and careful way, and attempt to predict by comparing cases.

In spite of these important differences one group of social sciences can benefit much from the other. The behavioural studies could, for instance, learn how to recognize a significant fact or to synthesize diverse factors or to take the perspective of cultural and historical relationships. The lessons could be very valuable to these studies because of their enthusiasm to generalize even overlooking the fact that most individual and societal problems are partly evolutionary and partly dependent on interaction of different forces and factors. Thus, such an apparently simple sociological problem as the abolition of the caste system in India or a psychological one like family planning is really a complex of tradition, and of economic, cultural, societal and physical factors. It is this complexity which explains why in the study of society and of behaviour greater depth of contact and greater familiarity with the social and environmental influences become essential.

The documentary sciences could learn from the behavioural ones in making their investigations more imaginative and at the same time more accurate. They could become imaginative by recognizing the impact of individual personalities and groups on historical development, political organization and legal institutions, and they could become more accurate by adopting wherever possible the 'survey' approach and the statistical techniques.

While social sciences have a variety of investigational devices, each science, — in fact, each problem — has its own appropriate technique, but there is always an interdependence of the various tools. Methods and techniques are, at

best, mere instruments to comprehend and interpret a problem, and not ends in themselves. Their operative value is related, on the one hand, to the problem and, on the other, to the alternative tools that would be useful in the process of analysis and inference. It has been truly said that there is nothing about research methods that is sacred in itself to justify the somewhat reverential attitude that some researchers sometimes assume towards them. Nor is there any innate superiority of one technique over another justifying the condescension that the votaries of certain techniques, for example the mathematical one, sometimes assume towards those who use others.

The significance of this observation is evident in the context of the current over-emphasis on the quantitative and statistical tools in social sciences. But no social problem can be explained adequately with the help of a single tool or technique. The researcher should be adjustable and imaginative in choosing the right instruments. This requires a knowledge of the entire configuration of the problem and of the different possible research devices that might help the analysis. The second fact to be emphasized is that the broader the purpose and the wider the problem, the more composite should be the tools. Even where one method or technique is mainly applied, others could and should be used at least for verifying the conclusions.

Dangers of over-stressing method: Although the question of problem orientation vs. method orientation may not finally be resolved, some dangers are inherent in over-emphasizing technique and method. That science as such is more concerned with the process of analysis than with the result does not mean that it is interested only in one or the other type of tools. Over-stressing a particular method, especially in social sciences, might yield very distorted results. The undue stress on polish and elegance, as is commonly associated with mere statisticans, may be one such consequence, and the by-passing of the vitality and creativeness which should characterize a research worker might be another. It would also assign a dominating position to the technician rather than to the discoverer. Not infre-

quently discoveries of trends and formulation of theories in social problems depend upon intuition. Quantification for its own sake, which unfortunately characterizes a few economists and econometricians to-day, may mean stressing the form more than the substance. This might lead to adjusting problems to techniques rather than techniques to problems. It is true that every type of social issue does not at present have a corresponding technique of investigation and that, therefore, there will have to be a choice of problems which can be investigated with the available techniques; but this does not mean that it is technicians who should decide what social issues should be taken up for investigation. New problems would give rise to new or improved tools which should be the camp follower of the problem to be analysed. Otherwise, a pernicious hierarchical system of sciences would be created.

The quantitative approach is no doubt the most dependable scientific technique. But quantification is not equally applicable to all sciences, even among the natural sciences. There is, in other words, a descending order in the applicability of quantitative devices; for instance, physics lends itself to quantitative measurement more than biology does. Social sciences as a group are, in the present state of our knowledge, even less amenable, and among them, again, there are varying degrees of amenability; thus, economics lends itself to quantitative techniques more than political science and sociology do; physical anthropology can use more of quantitative devices than cultural anthropology can. A consequence of stressing quantitative techniques is to emphasize differences rather than similarities and complementarity among various, particularly social sciences. Differences do exist, but, so long as every science seeks truth, compartmentalism is pernicious, for, it would create scientific orthodoxy resulting in slowing down the development of methods, and in excluding many vital problems from the purview of science making scientists more safety-minded than daring. Discoveries and solutions even in the social sciences have often been the result of daring surmises, such as the contributions of Sigmund Freud. Finally, method orientation may lead to the neglect of the study of values.

In analysing methodological issues it is essential to distinguish between the broad approach common to all scientific enquiries irrespective of the different methods or techniques followed and the tools themselves. The terms 'approach', 'methods' and 'techniques' are often vaguely defined nor are they consistently used in social research.*

The overall approach to research of any type is what has been called the 'scientific method' comprising the three steps of observation, hypothesis and verification. These steps are true of both physical and social sciences. In view of the more specific methods available for scientific analysis, it is, perhaps, useful to regard the 'scientific method' as less of a 'method' but more of the general philosophy of research.*

The scientific approach becomes the basis of the different methods available to the research worker, for instance, the descriptive, historical, genetic, ecological, experimental and others. Every one of these necessarily adopts the scientific approach but each one has its own specific function and limited area of application. Thus, the experimental method is of little use in the study of the past and the historical one in the study of current problems or in physical sciences. While the scientific approach is universal in its application, the methods analysed below are essentially relative to the particular discipline and to the specific problem on hand.

Techniques, on the other hand, are merely the tools of analysis available for use in any method or for any problem wherever the devices are necessary and appropriate. Some of these are of the statistical variety, some are of the experimental type and others are non-statistical. In a way, therefore, the 'scientific method' is the genus and the different individual methods the species, while the techniques are the instruments available to any researcher. Thus, the approach, the methods and the techniques, though at three different levels, are but concentric circles.

The 'Scientific Method'

IS IT A 'METHOD' OR AN 'APPROACH'?

The 'scientific method' has been regarded as the

* The nature of the scientific method or approach is discussed in detail below

sine qua non of research. Before its characteristics and significance are analysed we may well consider a preliminary issue as to whether it should be regarded as a *method* rather than an approach or general pattern of scientific investigation — i.e. as a generic term common to a number of methods which could be applied for investigational purposes.

This issue arises because there have been doubts as to whether there is any single scientific method as such.[1] Observing that there are as many different scientific methods as there are different kinds of problems, Professor Northrop believes that different stages of enquiry have different scientific methods, and that a method which is scientific for one stage may not be so for another.[2] According to him, scientific methods are, like space and time, relative to the stage of enquiry and the type of problem. "Nothing is more important, therefore, for a clarification of scientific method, empirical logic and philosophy than the clear recognition of the different stages of enquiry."[3]

A similiar view held by Professor Litt is that there is no monism in respect of scientific method:[4] "There exists not only a multiplicity in the sciences themselves but there is, above all, a multiplicity in the different methods of thought which have to be applied to the consideration of different aspects of reality." This view is supported[5] by Professor Caldin when he refers to several types of rational method, natural science having its method, history and theology having theirs and so on.

On the other hand, the term, scientific method, has come into such common use[6] as to make any question regarding the use of the term almost superfluous. Certain broad charac-

1 F. S. G. Northrop, *The Logic of the Sciences and the Humanities*, p. 19. Possibly one view interprets the term in the broad sense of methods used in or by science, while the other considers it in the narrow sense of a particular method.

2 *Ibid.*, p. 30.

3 *Ibid.*, p. 38-39.

4 'Method of Science' *in Science and Freedom: Proceedings of the Hamburg Congress*, 1955, p. 141.

5 *Ibid.*, p. 150.

6 E.g. M. R. Cohen and E. Nagel, *Introduction to Logic and Scientific Method;* Barbara Wootton, *Scientific Method in Social Sciences; Science and Freedom, op. cit., etc.*

teristics as well as detailed steps comprising this method have also been freely suggested and generally accepted.

It may be useful to analyse at this stage whether these features are such that they make the 'scientific method' a particular method in its own right.

Professor Cohen and Nagel regard[7] *this method* as the most assured *technique* man has yet devised for controlling the flux of things and establishing stable beliefs. At once the question arises whether a method and a technique are the same or whether one is not a broader term than the other. In fact, a noted scientist, Professor Hook, stresses[8] the distinction between scientific technique and scientific method as the special method of any one particular science versus the method of verification, inquiry and knowledge.

This apart, the first feature of this method, according to Cohen and Nagel, is the non-imposition of the desires and hopes of men, that is, aiming to discover the actual facts and not the desired ones. Secondly, the method starts with a felt problem which is selected and sifted. "Every enquiry is specific in the sense that it has a definite problem to solve and such solution terminates the enquiry."[9] The scientific method is supposed to pursue the path of systematic doubt and not be satisfied with psychological certitude, and be ready to abandon a theory when the facts so demand. The method also tries to achieve a rational interconnection of facts. It does not desire to prove its propositions in any manner and at any price; that is, it regards method as more important than results. It claims no infallibility and attempts to establish general propositions gathering and weighing evidence and appealing from facts to experience and from experience to facts, thus, being essentially circular. The scientific method suspends judgement and its chief social condition is a widespread desire for truth.

Speaking of methods, Professor Mehlberg observes,[10] "The

7 *Op. cit.*, p. 391. 8 *Science and Freedom, op. cit.*, p. 144.

9 M. R. Cohen and E. Nagel, *op. cit.*, p. 392.

10 'Method of Science' in *Science and Freedom, op. cit.*, pp. 127-28. The use of the word — in singular and in plural forms — is suggestive of the doubt and uncertainty in the usage of the term as such.

gist of the scientific method is, therefore, verification and proof. This method consists essentially of a set of procedures enabling one to ascertain, by appropriately combining observation and logical processing, whether some particular problem is correct, regardless of the way the proponent of the solution caught hold of it." He adds that applying the method to a theoretical problem consists in finding out, by logical inference, what bearing the accumulated observational evidence has on the correctness of some particular solution to this problem. Mehlberg concludes that "problems inaccessible to scientific methods are meaningless problems".

Are these important features not the characteristics of science or research itself and not peculiar to any one method as such? If science is the search for truth on the basis of facts and for generalizations through a process of induction, deduction, verification, non-suppression of evidence, an open mind etc. it represents "a pattern of ideas independent of any kind of ontology, metaphysics or theology".[11] For, in Professor Pearson's words,[12] "The man who classifies facts of any kind whatever, who sees their mutual relation and describes their sequences, is applying the scientific method and is a man of science. The facts may belong to the past history of mankind, to the social statistics of our great cities, to the atmosphere of the more distant stars. . . . It is not the facts themselves which make science but the method by which they are dealt with."

Every researcher in the social, physical or natural sciences must necessarily follow these and other desiderata enumerated by Professors Cohen and Nagel and others as the characteristics of the 'scientific method'. It is true that its three major steps, namely, observation, hypothesis and verification apply in different degrees in different areas of enquiry and in different methods, but basically no scientist can abandon the approach which is the essence of research.

Since a distinction may be useful and even necessary between the approach, methods and techniques in research, it may be desirable to regard the 'scientific method' not as a method in the same sense in which others such as the

11 *Ibid.*, p. 146. 12 *Grammar of Science*, pp. 10-12.

descriptive, historical, genetic and ecological methods are used. It has been well-observed[13] that the scientific method is a highly elastic instrument for the discovery of truth and not an instrument which one could regard as ready-made and established at the outset. "Only by formulating our concept of scientific method as something essentially elastic which adjusts itself to new problems as they arise", adds Professor Marganan,[14] "that we can make it applicable to all domains of human activity". It is significant that the *Encyclopaedia Britannica* defines[15] this method thus: "Scientific method is a collective term denoting the various processes by the aid of which the sciences are built up. In a wide sense any method of investigation by which scientific or other impartial and systematic knowledge is acquired is called a scientific method."

We shall, therefore, regard the features described below as those of the scientific approach applicable *mutatis mutandis* to all methods; i.e. there is a *pattern* of scientific investigation, with a number of investigational methods and techniques, which, as suggested earlier,[16] form concentric circles in research procedure.

The scientific approach has two components: the procedural and the personal.

PROCEDURAL COMPONENTS

The procedural components are observation, hypothesis and verification. Although the relative importance of all or any of these differs in the different methods they are the three essential ingredients.

Observation, on which a hypothesis is built, is itself based on data currently available to the researcher before he begins his investigation. Such knowledge depends on the available literature and personal observation as well as the researcher's hunches, if any. Observation enters into the process of investigation at two different stages: first, when it initiates investigation by giving rise to one or more hypotheses. At this stage only current knowledge is utilized. At

[13] *Science and Freedom, op. cit.*, p. 147.
[14] *Ibid.*, p. 148.
[15] Edition, 1941, vol. XX, p. 127.
[16] *Supra*, pp. 6 and 7.

the second stage[17] it enters more effectively as a technique of collection, aiding the verification and not the initial formulation of the hypothesis.

Observation, particularly while formulating the hypothesis, has certain limitations. For, it depends on sensory experience which is not always accurate, full or dependable. There is also the difficulty of distinguishing between primary perception and secondary inferences regarding the facts or impressions. Finally, there is the limitation associated with defining terms or recording data, both in current literature and in personal observation. Very broadly, the more accurate and detailed the observation and more comprehensive the data, the more meaningful the hypothesis would be.

The second step is the formulation of one or more hypotheses to start and lead the enquiry. The hypothesis, described elsewhere,[18] is a tentative conclusion based on inadequate and necessarily vague observational data. Its main purpose is to guide collection and processing of facts and to indicate the direction of investigation. It is always essential "to learn to hold hypotheses lightly, to admit alternatives and to treasure exceptions... to remember that in most social situations you can easily find what you are looking for.... Do not merely seek answers to specific queries; rather, questions should be considered only as suggestions for investigating a whole social institution or situation".[19] Without hypothesizing, however, no satisfactory investigation can be carried out, and all the succeeding steps in the investigation centre round the verification of the hypothesis. A hypothesis is not *proved* but tested.

Verification, the third step, is most crucial and forms the core of research and of the scientific approach. It comprises four different facets, namely, collection, analysis and interpretation of data leading to hypothesis-testing and the resulting generalization. A negative result in the process of verification is often as significant as a positive one. When Thomas Alva Edison, the great inventor, experimented with 3000 different kinds of material to get a satisfactory filament for the electric lamp but did not get it, one of his co-workers

[17] *Infra* Chapter XIII.

[18] *Infra* Chapter VIII.

[19] Fry, *The Technique of Social Investigation*, pp. 7-8.

referred to the efforts as a failure; Edison retorted that all of it was a success because he had established that these 3000 were *not* the correct ones. Such are the scientific mind and approach. As Professor N. K. Smith puts it in his *Present Situation in Philosophy,* "The history of human thought is the record not of a progressive discovery of truth, but of our gradual emancipation from error".

The process of verification has two major aspects, the tools and the researcher. The tools of collection and analysis are the available techniques and should be used wherever possible as checks and counter-checks. A second aspect of the tools relates to the collection of comprehensive data. Comprehensiveness does not mean a limitless collection or an inventory but a correct, consistent, objective and uniform recording of facts relevant to the enquiry, concrete in detail and not vague or sweeping generalizations. They must be facts as found and not as one would like to see them. Careful definition of the concepts employed in the enquiry is another facet of the tools. A tool which is coming into greater use even in social sciences is the statistical or quantitative technique. It is, however, possible to overdo the statistical approach, for social life is extraordinarily complex, with such complexity tending to increase continually so that in many socio-economic problems orderliness and sequences cannot be easily discovered.

In taking, therefore, these procedural steps associated with the scientific approach, creative imagination and extraordinary care and patience are necessary. There is a growing need for clear and precise concepts, classifications and definitions and simplicity in hypothesis. Finally, the social scientist should not only apply the existing tools but in view of the limitations of research in these sciences must also fashion newer and better tools.

PERSONAL COMPONENTS

More important are the personal components. Just as the machine is less important than the man who runs it, so the researcher is more important than the procedural steps and the technical tools. "The research man", it is well said,[20]

20 Eigelberner, *Investigation of Business Problems,* p.44.

"needs the scientific imagination to construct hypotheses, the analytical ability to devise crucial experiments to test the hypotheses, the resourcefulness, manipulative skill and persistence to carry through the experiment, the perspective which distinguishes the essential from the non-essential, and the reasoning which coordinates individual facts into a principle." Indeed, this formidable list stresses, on the one hand, that not all can become 'researchers' and, on the other, that many of these qualities can be acquired and developed, provided two dangers are avoided — yielding to one's own prejudices and succumbing to external, material temptations. For, "the spirit of independence and the spirit of originality are suppressed and sterilized for a long time... by the enthusiastsa nd the careeists....When it is necessary the experimentalist must be able to say *no* [even] to his [own] imagination. He must possess full and entire self-control."[21]

This assumes great importance in underdeveloped countries. For while in totalitarian States only the State dictates the direction of research, in the others and particularly underdeveloped ones, a new and more subtle influence is showing up its head. The need for finances and work opportunities coupled with the urge for publicity makes researchers —individuals as well as institution—canvass for projects from the public and private 'sectors'; and not infrequently the sponsor indicates not only the problem but also the direction of approach, and indirectly perhaps the findings too! As Professor Raiser of Cologne put it,[22] "Increasing dependence of scientific research on the financial assistance of the state [and of private commercial bodies] is bound to carry major consequences in the sphere of academic freedom". He who pays may not necessarily be a respector of the scientist's independence or of the methods the expert considers appropriate, and at such a juncture where financial backing conflicts with professional conduct, objectivity and courage in the researcher acquire greater significance. Because of such interference quite a few trained researchers in India have recently preferred low salaried academic positions to higher

[21] M. Arthur, *Philosophy of Scientific Investigation*, pp. 23-25.
[22] *Proceedings of the Hamburg Congress op. cit.*, p. 104.

paid 'research' jobs in institutions doing sponsored work.

The degree and variety of personal qualities required of a 'researcher' are, therefore, many. The first of these relates to his *method of approach.* The problem selected by him must be suited to his ability, to the research facilities available and to the environment in which he is to investigate. It has been well said that the most difficult part of research is to select the problem and to initiate the effort to understand and work it up. As Prof. Northrop puts it[23] the capacity to find the heart of the problem to which the well-known methods are to be applied is a part of the enquiry that must precede the actual understanding or application of the methods. The process of choosing a problem is described in detail elsewhere.[24]

A second facet of the personal component relates to the researcher's knowledge of the field he investigates so that he should know broadly where to find the data. A first step in this direction is to review the existing literature so as to provide the insight into the subject, to lead to methods not thought of at the outset, to aid conceptual thinking and testing of hypotheses and to avoid unnecessary duplication of effort. This would also help the researcher to determine the leading factors, phases and steps in his analysis. "The process of research", observes Pauline Young,[25] "may be regarded as a formal matter in which carefully conceived and premeditated planning, intensive study and painstaking procedure are required throughout the scientific voyage." At the start of the investigation itself careful planning and forethought become necessary, but any plan is only tentative except to the extent that the study must be organized round the major purpose of the enquiry.

More important than the researcher's method of approach are his attitude and qualifications. He should develop what has come to be known as the *scientific attitude.* Its first essential is the ability to take an *objective* and *unbiassed view* of the problem, and to keep it up right through — in the collection, analysis and interpretation of data. "The scientific

23 *The Logic of the Sciences and the Humanities, op. cit.,* p. 2.

24 *Infra* Chapter, VI.

25 *Scientific Social Surveys and Research,* p. 158.

attitude", writes Professor Wolfe,[26] "rests upon one and only one fundamental article of faith — faith in the universality of cause and effect." To follow this precept the worker should keep on asking himself whether the objective is concrete and clear, whether the research is keeping it in view and aligning to it, whether the data of the right kind and in adequate volumes to attain the objective are being gathered and whether the interpretation is sound or is capable of a different meaning.

If this attitude is to develop because facts, real facts, do not lie around but must be discovered, the words of Professor E. W. Allen have to be borne in mind: "The student can be helped to some extent by suggestion and stimulation but if he is to do productive study he must be capable of independent work." Hence the fundamental importance of training that is thorough and severe, not only in his special line but also in the research methods themselves and to be trained by productive investigators with depth and experience. Nothing can possibly take the place of such stimulating contacts.

Professional qualities: If these contacts and the training are to be effective certain professional and personal qualifications are required of the researcher. Among the professional qualifications relating to the special requirements for the area of the work, the first is a working knowledge of the subject and of the principles of investigation, as well as the ability to make practical use of the sources and of data. In a way, any trained researcher could take on any piece of research since the techniques are broadly the same;and possibly even an untrained person could muddle through a piece of investigation. But the social and financial costs of putting the round man in a square hole or of engaging an amateur to do the job are always heavy. It is in the experience of the present writer that even avowedly research institutions in India have presumed that any of their men can do any job with the unfortunate consequence of superficial enquiries, vague generalizations and commonplace solutions.

The special requirements and knowledge can be built up only over a period of years of training and devotion to a

[26] *Conservatism, Radicalism and Scientific Method*, p. 203.

particular field. For, the investigator should know where to find the relevant information and how to use the sources, and this depends largely on rigorous training over years. The analytical ability to tear down a proposition to its vital elements and the ability to synthesize the details into a new and meaningful form can be acquired only through *continuous study* and actually working at problems.

A second professional ingredient is the *practical experience* needed to determine the proper emphasis to be placed on the details; and the degree and importance of this experience vary with the type of problem and investigation on hand. Thus, a broad techno-economic survey requires less of specialized experience than an investigation into, say, a particular tax problem. The special qualification depends naturally on the nature of the particular work. Consequently the selection of staff men, the allocation of specific problems to them and retaining the specialists on the staff is indeed a major problem that an organization has always to face. A disheartening feature in certain research institutions in underdeveloped countries is that the turnover of specialists is so rapid as to become almost frightening. And it is well worth repeating that a successful research institution is built of and by men, and true researchers like true poets or true artists are hard to find. Men with promise must diligently be sought and when they are found, their special aptitudes must be developed, the right problems fitted to their aptitudes, and the specialists retained.[27]

Personal qualities: The personal qualifications of the researcher are no less important than knowledge and experience. Among such qualifications is the *ability to assess* the adequacy, relevance and value of the data. For, both in collecting the facts and in interpreting them the researcher will have to take decisions about the further course of action — in collecting more facts, in co-ordinating them and in drawing inferences. Such judgment is partly inborn and partly acquired by training and experience.

The second personal qualification is in a way more important than the first, for, it demands multiple qualities.

27 Eigelberner, *op. cit.*, p. 45.

Integrity, honesty, sincerity of purpose and truthfulness are essentials in a researcher. He should not allow specious reasoning, however brilliant, or external influence, however powerful, to lead him away from facts. It has been well said that facts must be faced, analysis must supplant guesswork, surmise must give place to absolute knowledge; and reason must prevail and natural law must be obeyed. That is, there should be no juggling with facts and figures to suit a particular purpose. Things must be seen as they are and conclusions must be drawn from accurate observation and correct reasoning. These can be assured if objectivity and courage to face fact can be developed. Indeed, quite a few research products in underdeveloped countries in recent years fail to satisfy this criterion of integrity. The writer is aware of institutions and individuals obliging sponsors of research projects by looking at facts as the sponsors would like them to be.

Next to integrity is the *need for balance* between the mental, moral and physical qualities of the researcher — what may be called poise. This is the ability to see things in their true proportions and can be developed by a process of discipline. Poise also requires ability to get a clear picture of the situation in parts and as a whole, whether it is in the process of collecting data or in suggesting a course of action. Such a vision helps considerably in forestalling and overcoming difficulties as well as in developing resourcefulness and originality. Any researcher of even a little experience knows that he has had to face a number of difficulties because of unforeseen situations.

To meet such situations and to carry through the investigation successfully, *a lot of perseverance* in the researcher becomes necessary, that is, he should not get discouraged easily. This demands courage of a high order along with the ambition to reach his goal and an abiding interest in his work. This characteristic has been rightly called "the quality of stick-to-it-iveness".

These and many other similar qualities are essential for research work. A rough value scale of these qualities would probably be as under:

	Per cent
Knowledge	15
Experience	20
Special qualifications	5
Judgement	10
Integrity	15
Poise	5
Vision	10
Perseverance	10
Miscellaneous	10

A true scientist possesses the devotion of a mother, the poise of a judge, the objectivity of a philosopher, the courage of a soldier, the perseverance and patience of a beaver, the fervour of a patriot and the vision of a prophet.

V

THE DESCRIPTIVE AND HISTORICAL METHODS

The Descriptive Method

THE descriptive method is the simplest and is applicable to a number of social problems and especially in underdeveloped countries. It is essentially a fact-finding approach related largely to the present, and abstracting generalizations by the cross-sectional study of the current situation. It comprises mainly collection of data; but since mere collection is not research unless there is adequate interpretation in the form of elaboration and of causal connection, the descriptive method to some extent also interprets the data. As has been well observed, the social scientist will not go far unless he, at least tentatively, generalizes and unless he has ideas as well as data.

ROLE

The descriptive method is extensively used in the physical and natural sciences, for instance, when physics measures, biology classifies, zoology dissects and geology studies the rocks. But its use in social sciences is more common, as in socio-economic surveys and job and activity analyses. A survey attempts to analyse and interpret a social institution, group or area, in order to draw out generalizations of value either for solving practical problems or for guiding other investigators. Job analysis classifies human resources so as to enable their more effective use. It comprises, for example, ascertaining different manipulative processes in an establishment, determining their relative values and trying to fit men to jobs.

Not all social science problems, however, lend themselves to this apparently simple method: for instance, issues which

[1] E. B. Renter, "An Evaluation of the Subjective Methods of Sociological Research", *Journal of Educational Psychology*, 1935.

are philosophical or theoretical in character. The applicability of the descriptive method depends on the criteria to be satisfied by the problem. First, the problem must lend itself to being described and not merely argued about. Thus, a study of population or of the Indian Five Year Plans – their objectives, structure, technique, achievements and so on—can be descriptive. But the question whether one or the other explanation of the trade cycle is acceptable is largely one of reasoning and, therefore, not amenable to the descriptive method except in so far as what actually happened during a 'cycle' is being analysed. R. G. Hawtrey's *A Century of Bank Rate* uses the descriptive method whereas J. M. Keynes' *General Theory* or J. R. Hicks' *Value and Capital* does not. Most of the current problems of underdeveloped countries lend themselves easily to description and, in fact, it might even be claimed that this approach is an essential preliminary, in the present state of our knowledge, of the conditions and problems in those countries.

The second criterion to be satisfied is that the data should be amenable to accurate, objective and, if possible, quantitative assemblage for reliability, relevance and significance. (2) The description should be adequate and detailed enough to present a true and full picture of the particular situation. Often, all situations do not lend themselves to the collection of quantitative information. Thus, while a rural credit survey provides such data, an enquiry into the structure and working of Indian social institutions cannot satisfy the criterion of quantitativeness. All descriptions may not be quantitative but they must necessarily be both accurate and objective if they are to be regarded as scientific or as research. Accuracy does not mean that every detail of the problem must or can be discovered; for instance, the facts regarding savings, personal relationships or public opinion may not be very accurate or even full. But accuracy does mean that the researcher would try to get as much of the details as possible under the given circumstances and present them in an unbiassed way.[2]

2 *Vide Techno-Economic Survey of Himachal Pradesh* directed by the author for the National Council of Applied Economic Research, New Delhi, 1961.

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Another (3) criterion is situational comparability i.e. the necessity to have valid standards of comparison between one situation and another and between the different facets of the same situation. For effective and meaningful comparability the situations must themselves be similar, and as the descriptive method is not merely collecting facts but also relating them causally, the scope and necessity for comparison becomes important. This enjoins the researcher to keep his eyes open and look around for facts a little beyond his nose, using imagination and judgment and viewing the situation from a wide angle. In making comparisons facts must be related to time and place, if the significance of even a single fact is not to be lost and if the research is not to become a catalogue of information but to present a continuity of ideas helping to understand a situation and to indicate a solution. After facts have been gathered, their interpretation requires pertinence and adequacy.

Finally, since no research is complete and no gathering of facts could be full and final, the researcher must provide the scope and direction for checking his own method of work and his facts and also suggest in what direction further research is necessary and possible. This part of the descriptive method demands at least three things — firstly, a full and accurate bibliography relating to the problem on hand and the area around it; secondly, an explanation of the techniques of collection and analysis; and finally, a list of the many related but unsolved problems that the researcher has come across.

LIMITATIONS

The descriptive method has certain limitations, because all problems cannot satisfy each of the required criteria. One limitation is that the researcher may make description an end in itself. Research is essentially creative and demands the discovery of facts in order to lead to a solution of the problem. Although problems in social sciences are continuous and have a past and a future, the researcher may lose himself in current conditions or, at best, look into the past and develop an unprogressive conservatism. Perhaps, if such

conservatism related only to the solutions suggested, there may not be much harm since there may be other researchers to come across alternative solutions. But such conservatism might develop in the researcher a restricted outlook even in the gathering of facts themselves, leading to complacency and absorption in the facts that have been gathered. A second limitation lies in going to the other extreme, and generally is associated where the statistical technique dominates. The desire to over-emphasize central tendencies and to present the facts in terms of averages, correlation, co-efficients, means and dispersions may not always be either necessary or welcome. This limitation arises because statistics which is partly a descriptive tool of analysis can aid but not always explain causal relations.

The Historical Method

SIGNIFICANCE

No less than the descriptive method, the historical method seems to have great significance for social research in underdeveloped countries. The past has a great role to play in all societies but in backward economies, the impact of tradition and social institutions on development is all the more important. In a country like India the past is often the key to the present for the simple reason that institutions, like life, are a growth and not a series of disjointed events and the longer the history, the greater is the influence of the past. As has been rightly pointed out, nothing happens in a social vacuum. So far as anything has an anticipated history and a natural development, the past has a causal relation to the present. Moreover, it is true that situations change over time, but underlying these changes and even defying them are certain regularities and rhythmic cycles in social problems almost similar to the trends in statistical analyses. These regularities have often been referred to by sociologists as the process-series, sequence-patterns, cycles and periodicities. The assessment of even such a largely economic problem, as the savings pattern and potential in

India, requires an appreciation not merely of the quantitative aspects of income and consumption but also of social institutional structure and behaviour. Without an understanding of these basic influences any suggestion as to how to increase savings from 8 to 12 per cent would be an unconnected superstructure, doubtful of successful operation.

A proper assessment of these social influences and regularities requires the resort to the historical method. This method has been aptly described as "the induction of principles through research into the past and social forces which have shaped the present".[3] Its aim is to apply reflective thinking to unsolved social problems by discovering past trends of events, facts and attitudes, and by tracing lines of development in human thought and action. In order to reach some basis of social activity its method is genetic.

In a way it is correct to say that history and sociology are only different ways of looking at the same problem. "When our attention", writes Professor F. M. Fling[4] "is directed towards the uniqueness, the individuality of past social facts, when they interest us because of their importance for the unique evolution of man in his activities as a social being, in selecting the facts and in grouping them into a complex, evolving whole, we employ the historical method ....We select our facts, not for their individuality or for the importance of their individuality for a complex whole but for what each fact has in common with others and the synthesis is not a complex unique whole but a generalization in which no trace of the individuality of the past social fact remains....Thus the work of the historian supplements that of the sociologist. The historian is interested in quantity, in generalizations, in repetition." In other words, so long as the aim of the social scientist is to discover facts and establish their relationships the growth aspect assumes significance. Any social researcher who neglects the past in analysing the present does so at great risk.

DESIDERATA

The historical method demands a great many things of

3 Pauline Young, *Scientific Social Surveys*, p. 207.

4 *The Writing of Historys An Introduction to Historical Method.*

the researcher if its application is to be useful and correct. To start with, a great deal of social insight and historical orientation is necessary. Events, opinions and institutions are products of a particular environment at a particular point of time. Without understanding the environment to which a certain set of data relates, a researcher will be at sea in his findings if not completely out of tune with the facts. It is this that constitutes social insight which, in fact, means studying data in terms of their environment. This would be necessary particularly to realize and bring out their causal relations and consequences. A look at some of the great works on economic history such as those of Clapham and Cunningham bears out this point.

This is true of social, political or any other type of historical study. The researcher, therefore, who delves into the past and thus applies the historical method, should be able to work out accurately how, when and why the events occurred or the opinion evolved, or the institution grew up. That is, he must describe the conditions leading up to the event, opinion or institution as well as the conditions growing out of it. Although the historical method appears to be simple of application, it is in a way much more complicated than some of the other methods, for, it demands experience not only in assembling data but also in relating them to the major influencing conditions and in assessing their significance in the particular context. Since the environment is always a complex of social, political, economic and other considerations, the researcher would have to have a knowledge of the related social sciences although his particular purpose is in a specialized direction.

A second desideratum for the application of the historical method is to take both an analytical and a synthetic view of the facts. History is not a mere record of facts or of disjointed chronological happenings. It is essentially a particular phase of societal life. It is no more possible to understand the events in the days of the great Indian Mutiny by recording the fights and troop movements than it is to understand human emotions by concentrating on the immediate outbursts of feeling. The researcher must get at the complex of the causal factors giving rise to the broad sweep

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of change. He must take two distinct and apparently divergent steps: first, in order to get control of all the facts, he must take up an analytical view even as the chemist analyses a sample in his laboratory. But since mere analysis, particularly where human history is concerned, is neither adequate nor the true perspective, the researcher must synthesize the data with the contemporary situation. He should take an overall view to assess the true relationship between the events themselves and between the events and the environment.

To facilitate this view, it is essential to make an objective approach as much in discovering facts as in interpreting them. A researcher, whatever the method of investigation, should, no doubt, be objective, but the emphasis on objectivity becomes all the more necessary while using the historical method; thus, for instance, Karl Marx's interpretation of history and economic events is, no doubt, brilliant but is not objective. He was not a social scientist but a political propagandist. To that extent, therefore, his misuse of the historical method may be overlooked. But if such an attitude were to be adopted by a social scientist not only would his conclusions be out of tune with facts but also he would soon cease to be a research worker. Similarly the recent attempts, patriotic and purposeful though they are, at interpreting the Indian Mutiny of 1857 as the first Indian War of Independence is an instance, in my judgement, of the misuse of the historical method.

If the approach is to be objective, it is essential that the data are reliable, relevant and adequate. These criteria would provide a sound base for understanding the phenomenon and would enable effective evaluation of the past, if necessary, in terms of the present. Many factors limit the operation of these criteria; for instance, the deeper the past, the greater is the difficulty of getting the data, and consequently, the more is the patience and industry needed to collect them. Often the sources themselves would be unknown and the researcher would be like an explorer cutting through the impenetrable growth of the Brazilian forests. Any person familiar with the National Archives of India or the records section of the British Museum or of the ex-India

Office would understand the volume of patience and industry necessary. In writing one of his books[5] the writer had to wade through nearly 2500 volumes of manuscript records before he could get adequate data. Moreover, it is not only the quantum of data that matters but also their relevance and reliability.

A fifth desideratum in the application of the historical method is the researcher's familiarity with the general field of his topic and his clarity regarding his own objective. He should be fully conversant with the work already done in the field and also the fringe areas. The more familiar he is with these the greater would be his advantage; for instance, he could avoid duplicating the effort and get direction as to the line of his approach. He would know broadly the particular problems that have to be faced both in searching for the data and in evaluating them. An effective use of the historical method needs a very wide educational background.

The researcher should also be fully aware of his own limitations in understanding and interpreting the events as well as in the sources he has been able to tap. As is well known, there is no finality for knowledge and the more one knows the more he finds there is to know. Consequently even the most thorough search for information is likely to keep a few sources out of the reach of the researcher. Similarly, even the most experienced of workers has his own personal or professional limitations in the process of correlating and interpreting the data he has collected. While this limitation should not discourage the researcher from pursuing the work it must caution him against undue confidence and even conceit in his work and ability.

Finally, a great deal of imagination is necessary in using the historical method. It is true that data are the foundation of the work but as has been well said, a past event cannot be built with no other source than imagination, but without imagination it becomes a mere collection of the obvious or the meaningless.

[5] M. H. Gopal, *The Finances of the Mysore State*, (1799-1831). Orient Longmans Ltd., 1960.

LIMITATIONS

As evident above, the historical method has certain limitations, the first of which is related to the dearth of reliable and adequate data. The more distant the past, the greater is the difficulty of getting at relevant facts, unless, and perhaps even if, contemporary records have been carefully preserved as, for instance, in the record sections of the ex-India Office and of the British Museum.

The second limitation relates to the method of keeping the record. The records contain information useful to many types of work and the researcher, interested in a particular aspect of the events, will have to delve into innumerable documents to fish out what he wants, and further, not always are the records kept in the order and with the precision that he expects. Unless, therefore, a very great deal of patience and perseverance is shown by the researcher, his facts and inferences would not be full or accurate.

Yet another facet of this limitation is the dispersal of documents. It is very rare to find even in an institution like the National Archives of India, all the records necessary to purse an enquiry, for, the necessary source may be spread out among various institutions, making the pursuit of documents themselves a necessary part of the research effort, for, unless most of the data is available, the enquiry may tend to become one-sided.

The next limitation relates to the fact that the available data have to be taken into the frame of the conditioning phenomena. Otherwise, their real import both with regard to the accuracy and significance would be missed. The follow-up of the conditioning phenomena becomes, however, difficult largely because of the time lapse between the situation studied and the time of the present analysis. Even with very full and material knowledge of the phenomena it is not easy to envisage correctly what the situation was.

A further limitation is that neither the data nor the inferences are capable of verification and repetition. A *sine qua non* of any scientific analysis generally is such verification and, if necessary, the scope for repeating the experiment or re-creating the situation, but this is not possible in historical studies. The limitation, however, is not peculiar

to this method, because even where the descriptive approach, for example a survey, is followed, repetition becomes impossible because of time lapse since the survey was first undertaken.

Similarly, calculation and measurement as in statistical studies are not possible in this method. This feature stresses the need for great caution in the collection and interpretation of data, for, working backward from the available records to the past events demands utmost care in accumulating and assessing the information and also unlimited knowledge of the period under study. There is also the danger that the available records may, even though contemporary, be selective, containing the subjective interpretation of events or omitting significant data. They may even overemphasize events of secondary importance, partly because of their immediate impress on the chronicler and partly because a contemporary event looks more important at the time of happening than it would years or decades later, as in the writings of Magasthenes or Yuan-chwang. The danger of selectivity is increased since the observations are frequently made by persons untrained in research.

These limitations are, no doubt, formidable and make analysis more difficult; but they emphasize the need for more experience on the part of the researcher when using the historical method. In a way, therefore, what looks like merely a pedestrian method of research is more demanding of objectivity, patience and perseverance.

STEPS IN APPLYING THE METHOD

With these limitations in mind the method could be invaluable to the researcher, provided certain steps are taken by him.

First comes the choice of the problem. It is not all problems that lend themselves to historical analysis. Whether a problem is one of tracing and describing the past as in pure economic history, or whether it relates to the recent past to draw out its significance for the present and the future, as in W. W. Rostow's work relating to economic

growth,[6] the problem should be worthy of investigation in itself in addition to being feasible in terms of research ability, time and cost. For instance, an experienced scholar like Professor Clapham or Professor Toynbee could handle the method more effectively than a raw post-graduate doctoral student could. Moreover, as the collection of data often involves very considerable time and, in fact, even to know the sources to be tapped may itself become a matter of research, the subject of investigation must be related to the time at the disposal of the researcher.

Cost is another factor. It is not everywhere that facilities are available to consult the records, and this is true of most research centres in a vast underdeveloped country like India. Every researcher into the recent past, say, the British period of Indian history, cannot spend his time either in the National Archives in Delhi or the National Library in Calcutta, much less could he pursue the records available outside the country.

After the subject has been chosen, the next step is the collection of data. It is necessary first to find out where the relevant information may be found. It is not always that indices are found for the thousands of volumes of records to be looked into. What sources are published and what are only in manuscript form becomes the first problem to be faced. Next is to ascertain which are official documents and which are not. Often this preliminary stage in collecting data is so trying as to become almost forbidding. But a way of simplifying this stage of work is to study carefully the published secondary literature connected with the field of investigation. This would give the lead in following up the sources.

With a knowledge of the likely sources, the next step is well-nigh to exhaust all the material on the subject. In a way, such a full collection of data is almost impossible partly because of the time factor and partly because new data will be found as research proceeds. But it is essential that in terms of time and cost, a near full collection of inform-

[6] W. W. Rostow, *The Stages of Economic Growth — A Non-Communist Manifesto*, Cambridge University Press, 1961; *The Process of Economic Growth*, Oxford, 1953.

ation is made. Otherwise, the research becomes a prejudiced and partial assessment of facts.

While collecting the sources of data two further steps are desirable: the first being classifying them into primary, secondary and tertiary sources, and the second to weigh and evaluate the sources and data in terms of their genuineness, localization and independence.

Sources are broadly of two types: (1) Documents, official and non-official, and (2) personal records of contemporary observers such as Fa-hien or Ibn Batuta. Documents are useful in verifying directly certain events and in supplying missing links in the social situation. This would help in understanding the contemporary situation, providing facts, and also in aiding the building up of a trend. But its value in explaining the past as well as the present depends on the time span of the documents and their independence and genuineness. The questions to be answered at this stage relate to the origin of the contemporary documents and the chronicler's awareness of the facts, his objectivity and fullness in recording them and so on. It is, therefore, necessary to subject documents to external and internal examination such as origin, author, occasion of writing, accuracy and bias.

HOW TO USE DOCUMENTS

Certain broad principles to assess and utilize the documents may be suggested.[7] There is, first, the fact that the nearer in time a document is to the period which it refers to, the more trustworthy it is likely to be, because, in general, there would be greater opportunities for obtaining correct information immediately after a certain event. But one drawback is the temptation to distort information to suit a particular purpose, specially when it relates to a matter which is quite fresh. Likewise, it may be presumed that the more detailed the information the more reliable it is, for the simple reason that it is easier to tamper with a small number of events than with a larger one where the fraud can more easily be discovered. Thus, official data should be preferred to those from private sources, as a private person has little access to the official records

[7] *Vide* for a detailed discussion, the author's book, *op. cit.*, *appendix B*

and accounts. The greater the personal interest of a man in giving the information the less accurate it tends to be. Lastly, the greater the agreement between different records the greater the probability of the data being correct. In other words, if a set of events is corroborated by more than one source, the presumption is that it is more trustworthy than one which agrees with a less number. But different sets may come from the same source, and a concurrence between them is not so valuable as an agreement between figures from different sources.

A second type of primary documents relates to personal records of contemporary observers, whether the period relates to the recent past of a few decades as, for instance, in tracing the Indian freedom movement or to events millenniums old, such as Magasthenes's accounts. The limitations of such sources are those of partial observation and of considerable subjective bias. They should, therefore, be used with greater caution and sieved thoroughly for facts, but even then, they might be more useful for checking data from other sources and as supporting evidence.

Secondly, sources may be either contemporaneous of the situation studied or of a later period the distinguishing feature of the former being direct knowledge of the events described. To this category belong official and non-official reports, most books and almost all newspapers. Their value as sources involves a careful assessment of their dependability, for, the mere fact of contemporaneity does not entitle acceptance. It is also essential to ascertain if the recorder had a broad enough perspective of the situation to know what was what. That is, a degree of selectivity becomes desirable even with regard to contemporary sources, and selectivity becomes more important in the case of non-contemporary ones.

Whatever the kind of source that has to be tapped it is essential to check and cross-check data from as many independent sources as possible. For, in the words of a classic statement: "It is easier to believe than to discuss, to admit than to criticise, to accumulate documents than to weigh them. It is pleasanter; he who criticises documents must sacrifice some of them, and such a sacrifice seems a dead loss

to the man who has discovered or acquired the document".[8] A broad rule for establishing facts is to use a variety of sources and, wherever possible, to verify the facts from at least two independent witnesses.

No less important is it to arrange material into a logical sequence. Although this step is not peculiar to the historical method, it is of greater significance in it, for, it is easy to gather more material than can be easily put into a pattern. This arrangement of the data and the reconstruction of the situation are similar to a Byzantine excavator putting together the pottery shreds. Effective reconstruction assumes a knowledge of the history of the area and an understanding of the traditions, attitudes and practices of the community. The rebuilding of the situation is the first step in the synthesis of facts, and to be useful and meaningful the interpretation must be adequate and logical, and also, at the same time, make further research possible.

More than all, a successful application of the historical method requires the conscious development of a tolerant, sympathetic but critical outlook on old and new ideas alike. As Pauline Young puts it:[9] "Historical data drawn from a variety of sources, judicially chosen, critically examined and discriminatingly used, may constitute a fund of knowledge indispensable in understanding and generalising on community phenomena, the social milieu and social institutions". The finale of the synthesis comprises the exposition of the research results. The questions to be faced at this stage by the investigator are: Is the narrative logical and organized? and, Has it been the result of a process of reflective thinking?

8 L. Anglois, C. V. and Signo Vos, C., *Introduction to the Study of History*, p. 70.

9 *Scientific Social Surveys*, p. 224.

VI

PLANNING A RESEARCH PROJECT AND SELECTING A RESEARCH PROBLEM

The Research Project Defined

A RESEARCH project may be defined as an investigation into a problem sufficiently homogeneous, though it may have many facets, to be brought under a single administrative and technical unit with reference to its objectives, hypotheses, procedure, personnel and cost. The project itself may be built around a single or several interrelated problems and the techniques applicable and applied may be of more than one kind; but if these problems and techniques relate to a central purpose and act not as conflicting but as complementary devices, all the problems together go to form one research project. For instance, a techno-economic survey, such as those undertaken by the National Council of Applied Economic Research, or even an early socio-economic survey such as Harold Mann's *Studies of Deccan Villages*,[1] is necessarily something more than merely economic, often involving various social and natural scientists. Thus the techno-economic survey is carried out by "the combined expertise of economists, statisticans and sociologists, engineers and other specialists like agronomists and geologists".[2] Perhaps the two most important characteristics that make any investigation a single project are: (1) the enquiry should revolve round a central theme; and (2) it must be looked upon as such by the technicians and the administrators.

The problem that an individual investigator takes up, for

[1] *Land and Labour in a Deccan Village* (1917 & 1921).

[2] P. S. Lokanathan, Methods and Problems in different research enquiries undertaken by the National Council of Applied Economic Research. (*Papers prepared for the Seminar on Techniques of Social Research*, December, 1958, p. IX. &. UNESCO Conference, Calcutta.)

instance in the academic world, is not basically different from a project. It has the same features, and the minor differences probably relate to the smaller size of the problem, fewer facets and perhaps fewer procedural complications. Thus, for instance, while a project can afford the employment and co-operation of different kinds of experts to work it up, an individual must necessarily be a specialist of one kind only, for example, either an economist or a sociologist or a psychologist. Because of the limited capacities of any particular individual, there is a limit to the extent to which he can be an economist-*cum*-sociologist-*cum*-geologist and so on. These differences, however, are not of kind but only of degree so that the planning of a project described below would largely be true of an investigation by a single researcher also.

SELECTION OF A PROBLEM — CONSIDERATIONS

Naturally, except where an administration, (e.g. the State Governments) or an outside body (e.g. a Chamber of Commerce), which sponsors the investigation sets a problem to be enquired into by the research body, the first issue that is faced in planning a project is the definition of the problem. "Scientific genius reveals itself in the choice of problems that it makes as well as in the technical brilliance which it shows in tackling them. And this ability to see and to formulate a meaningful scientific problem is an artistic gift."[3] The art is that of having original insight into "important" issues. This is, of course, partly a matter of being well informed regarding the facts and theories of the field. Insight into insignificant issues is not of great value. Investigation of important issues without insight probably will not be successful. A great deal of patient thinking and planning becomes necessary even in the initial process of selection.

Practicability: In such a process, certain considerations should be borne in mind; first, the question of practicability in carrying out various steps in the procedure of investigating the problem. The important question to be answered is: Do other projects offer greater opportunities for work

[3] A. M. Rose, *Theory and Method of Sciences*, p. 165.

and success in terms of results and cost? Often, the time and energy spent on thinking about and planning a non-activated project is worthwhile, because its negative results, viz. that a particular project is not worthwhile, focusses research on useful problems by a process of elimination.

Urgency: A second consideration is the urgency of the issue. All problems needing investigation are, no doubt, important but some are more so than others. The project director must assess the relative urgency of alternative projects. Naturally, the choice in such a situation is a matter of the director's individual judgment. One facet of urgency that aids judgment is the timeliness of the problem. For instance, in India, today, an enquiry into the potentialities of developing and locating industries in different regions, such as a techno-economic survey, is both important and timely. Sometimes, the current situation itself helps in focussing attention on the timeliness of a problem by throwing it up, as in the case of the foreign exchange crisis or devaluation or deficit financing.

Anticipation: What is perhaps more interesting to a researcher, though a little venturesome, is the anticipation of problems needing solution and which fit into the immediate future. Anticipation of this type requires a great deal of experience in judging the current situation and its possible repercussions, and also the imaginative assessment of how one problem would give rise to another; for example, changes in the tax structure and their likely effects on investment in the near future. This experience need not be personal experience, but certainly the investigator should be well informed regarding the knowledge that has resulted from the experiences of those who have gone before him. Most of the imagination results from a thorough and critical exposure to existing theory and empirical knowledge. Proper assessment of the urgency of a problem requires a thorough knowledge of research already done or under way in that line. Such a knowledge would reduce duplication of efforts, aid capitalization of experience and, more than all, help the follow-through of the different aspects of the

problem. It is, therefore, necessary, before a project is actually decided upon, to confer with fellow workers in the same or allied fields at home or outside, or at least to size up the situation through correspondence.

RESOURCES

In addition to urgency, another consideration influencing the choice of a project is the availability of research resources. Certainly the allocation of research resources is but one part of the general problem of resource allocation, though some would try to make of it a separate issue. In a way, many problems, if not all, can be investigated, provided the resources are both adequate and appropriate. Just as a plan of economic development is limited by the availability of physical, financial and organizational resources, so also a research project is conditioned by the types of facilities available.

The first facet of these resources relates to the tools and techniques. For instance, for advanced investigations in psychology, apparatus to measure emotions, intelligence and other reactions may be necessary; or, while in an educated community an enquiry through a mailed questionnaire is feasible, this tool is ineffective in an undeveloped, illiterate environment. Consequently, while it is possible and also necessary for the investigator to develop new methods to suit new problems or the existing environment, it is not always easy, specially, where the problem is indefinite, personnel is limited and the finances are not plentiful, to develop new techniques or even to adopt techniques prevalent in advanced countries. Therefore, the project to be chosen should fit into the readily available techniques and tools of research.

Available information: Another facet of resources relates to the evidence or information that can be found. All investigations start with hypotheses which are verified with the data collected. Without such verification the investigation cannot be complete, and without adequate and relevant data verification would be incomplete. Consequently, while every effort should be made to collect necessary evidence and,

perhaps, even where facts are inadequate or not fully dependable the broad trend of conclusions may be suggested, the difficulty and delay in the collection of sufficient data will have to be faced when the project is complex. It might, therefore, be wisdom to take up problems which are of less importance but for which adequate and relevant data are available more readily.

The crucial aspect of resources is the availability of personnel having the technical and general training needed for a particular project. While it is broadly true that trained research workers, for example investigators and computors, are generally capable of handling problems of different types in related areas, often projects demand specialized training experience. Thus, if double taxation, depreciation and similar facets of tax structure are to be enquired into, the researchers need specialization in the legal and economic aspects of the tax system of the country. Or, again, if an investigation is very largely of the statistical and field variety, its successful execution demands a great deal of statistical experience in the personnel. While it is always possible to draft temporarily the required specialist ability whenever a project is taken up, the basic consideration for the project should be the optimum utilization of the personnel at one's command. Although such an optimum adjustment of personnel and opportunity seldom exists, yet it is a consideration always to be borne in mind.

Field of specialization: Another side of resources is the field of specialization of the particular research organization. By and large, a research organization can be compared to a factory or even a technical institute. Just as these organizations specializing in the production or training of a particular type find it difficult to produce 'goods' of a different order, similarly a research institute, if its efforts are to be effective and its findings accurate, comprehensive and meaningful, must largely be a specialized institution, concentrating on a particular, though broad, area of knowledge. It is certainly possible to have different types of specialists on a research agency's staff, and it may also be argued that research technique being a kind of tool, similar to those in

any chemical testing laboratory, the agency should be able to divert its technique for the analysis of any research problem. But this is true only to a limited extent. For one thing, no research agency can afford to maintain a staff which can serve all purposes, because of the cost factor unless, of course, it has funds to investigate many different types of problems. For another, while techniques are, no doubt, general tools of application, their effectiveness in particular areas may be limited by the need for a special type of mind and training. Consequently, if maximum results in terms of accuracy are to be obtained in any project, research agencies should, like an individual, specialize in particular areas of work, and the director of the institution should, in choosing a project, think in terms of his institute's broad field of specialization. Few directors are technically competent to direct different types of research.

Administrative considerations: Yet another facet of the personnel problem is administrative. In a research project the more important aspect is the technical side of the men and equipment, but an aspect, perhaps only of slightly less significance for the success of the enquiry, is the administrative side of the institution comprising those who look after the routine administrative duties, assessment of the cost of the project and so on. The incidence of administrative work depends on the size and nature of the project. Consequently, a research organization, which should have a minimum of administrative staff but a large component of technical personnel must balance the administrative burden of the enquiry and the available staff if the success of a project is to be ensured.

Equipment: Another type of resource relates to mechanical and other equipment needed, for instance, for sorting, tabulating, processing etc. The recent trend has been for the machine to replace human labour in undertaking these mechanical processes. The extent to which such equipment is required and is available is an important consideration; for, some projects, such as the *Rural Credit Survey*, deal in the aggregate with thousands of returns and

hundreds of thousands of individual items in the schedules. Such an enquiry, therefore, requires more mechanical aids than a smaller and less complicated problem. Broadly put, the larger the number of statistical items in a project and the larger the number of schedules filled in, the more equipment is needed; and the more modern and complex the equipment, the bigger is the project that can be undertaken for investigation. If such mechanical facilities are limited and the project director takes up a problem very largely statistical in character and tries to employ human labour for analysing the data, inaccuracies in processing, delayed results and wrong inferences may be the consequences.

Operational funds: A final factor relating to resources that the project director should bear in mind is the working capital necessary for operational purposes. Although, ultimately, finances may be forthcoming to see the inquiry through, initially and in the course of investigation much finance would be necessary for various purposes such as salaries, travelling expenses, printing charges and so on. Without, therefore, substantial resources as operating capital, it may be risky for a research organization to launch on a particularly large project.

MISCELLANEOUS CONSIDERATIONS

In addition to the urgency and resource aspects influencing the selection of a research project, another set of considerations may be put down as miscellaneous in character. Thus, the size of the problem to be investigated becomes an important consideration in terms of the resources as well as of time and effective conclusion of the research effort. The size refers to the sample or the universe to be approached, the nature and details of the issue to be analysed, the territorial area and the dispersal or concentration of, for example, the respondents to be interviewed. A two per cent sample means a smaller size than a five per cent one. A techno-economic survey in the large Andhra Pradesh means more effort than in smaller Kerala. An enquiry into rural conditions in Kerala where the 'villages' or

households are widely dispersed increases the 'size' as compared with the concentrated households and villages in rural Madras. The tendency some years ago, particularly before the Second World War and certainly before the World Depression, was to take up broad problems of a more or less descriptive nature. Such a project served an important purpose in social analysis by providing a background for appraising specific issues and for throwing up important problems in the community. But such a broad appraisal does not serve the more specific and detailed purpose of thorough investigation of particular issues. Consequently, the recent tendency in social research has been to direct the effort towards small but definite problems and to study them as thoroughly as possible, and here the size counts.

A consideration[4] which might be brought under the 'miscellaneous' head as much as under the administrative factors is the vertical research personnel integration. All projects, particularly those collecting and interpreting primary data, have personnel at different levels — field survey, analysis, computation and reporting. These levels are interdependent and are built up like a pyramid. In the size of the personnel at different levels as well as the timing of each process, there is a very close interlinking. That is, the number of workers at one level bears a relationship to that at the others, although the relative proportion may vary with different types of investigation, the volume and variety of data and the details and nature of the analysis and reporting expected. If, therefore, there are more workers at one level and fewer at the others, imbalance in the personnel would result, the cost of the project would increase and waste would follow. Further, there is a time relationship between the levels. Thus, unless the field investigators collect data or at least pass on some facts already collected, the higher levels of workers will be without work. Similarly, once the data are fully collected, the field workers have no place in the investigation, as the work now shifts to other levels.

This raises the problem of planning the strata of work in personnel and timing to keep the optimum number of

4 I thank Dr. G. Parthasarathy, Deputy Director, Agro-Economic Research Centre, Madras University for drawing my attention to this consideration.

workers and provide them with continuous work so that morale may be kept up, costs reduced and output hastened.

Another miscellaneous consideration is the preference of projects of regional interest. This growing emphasis on particular territorial areas contrasted with problem-areas referred to above is partly traceable to the growing interest in studying regions in detail and partly to the greater utilization of researchers in particular areas and giving scope for co-operation of different types of social workers in analysing common problems. It would, therefore, be more desirable for a project director to take up problems which are limited in scope or in territory.

Yet another facet is the inter-disciplinary interest that a particular problem generates or demands. Many problems which are mainly of economic or sociological interest have their repercussions on, or roots in, other departments of knowledge. Thus, a farm management study may need the help of economists, agronomists and livestock experts for rounding off the investigation. Or, the study of a community project — its structure, working and future — would require an economist as much as a statistician, a sociologist and a social worker. This feature characterizing a number of research problems suggests that in selecting projects the extent to which inter-disciplinary interest is aroused and inter-departmental co-operation can be made available is an important consideration. In other words, the extent of the co-ordinated attack that is possible will have to be borne in mind.

Finally, there is the pull of external influence. Some projects might originate from within the research organization itself and on its own initiative. But the general tendency in developing countries, like India, has been for outside agencies such as Governments, industrial organizations and even individual firms, to suggest taking up a particular project for investigation. Thus, the State Governments in India might desire techno-economic surveys within their boundaries or a chamber of commerce might ask for an enquiry into the effect of excise duties on the textile market. In such cases, the research director's choice is restricted except to the extent that he may review the suggestion in terms

of the technical possibilities.

While all these considerations enter into the selection of a project, one important aspect of research must always be before the director's eye. The research organization is partly a supplier of 'goods made to order' and partly a contributor of knowledge. The latter aspect demands consideration of long term research projects which may, on the one hand, add actually to existing knowledge, and on the other, induce and facilitate separate investigations of smaller dimensions but more detailed in character. In other words, a judicious combination of long-term problems which are of more permanent importance along with short-term ones which are of immediate and limited importance should always be among the guiding factors in the choice of a project.

THE INDIVIDUAL RESEARCHER

What has been said above in connection with the planning of a project is very largely true of an individual researcher with an investigation of his own. In fact, the question of the selection of a problem may be of greater importance in his case. For, often, the individual, unlike an organization, carries on research on his own and has largely a scientific rather than a commercial interest in the work, and so the choice of a topic for investigation becomes to him more important than in the case of a research organization with vaster resources and which often gets a project entrusted to it for enquiry.

The Three Determinants

1. Subject: In the process of selecting a problem, the individual researcher is guided by three determinants. First, there are considerations relating to the subject itself. The problem must have a purpose, i.e. must be meaningful either theoretically in the sense of adding to knowledge as such, or significant as a current problem in the sense of clarifying or/and resolving an issue facing the community. Otherwise, the effort at investigating the problem may, no doubt, be research but may really result in a waste of resources and talent. A second facet of the subject is its practicability.

After all, the aim of research is successfully to analyse a problem and the extent of success depends upon the degree to which the particular problem — however meaningful it might be academically or scientifically, and, *in the ultimate analysis,* even practically — depends on the scope for carrying on the investigation. Thus, difficulties might arise with regard to the availability, sufficiency and accuracy of the data or with regard to the application of certain techniques or methods.

The facility with which adequate data can be collected differs in different environments. For instance, the remarkable enquiry which Dr. Kinsey and his associates conducted at the Indiana University into certain problems of sex may be possible in the United States but practically impossible in an oriental country like India. Or, again, in an advanced country, the mailed questionnaire technique can be successfully utilized and, thus, in terms of cost, time and effort great economies can be effected. But where, as in India, the interview and observation devices are the only practicable tools of data collection, the scope for many projects is restricted, because of the prevailing illiteracy and the extensiveness of the country, to problems which available time and personnel can justify. From the angle of practicability, it might be desirable for an individual to prefer action research in a limited area where the interview technique or the bibliographical approach is possible.

Yet another facet is the contemporary social importance of the problem. Basic research is, no doubt, as important as applied research and perhaps more so from the point of view of pure science. But even in basic research it may be preferable to choose one which is of current theoretical interest, such as terms of trade between developed and underdeveloped countries, or interest rate structure in developing economies, instead of choosing a very highly theoretical subject such as the theory of consumers' demand. Similarly, on the applied side, such problems as Indian industrial policy, investment priorities and tax structure would be preferable because of their contemporary importance. What is suggested here is that, because of the limitations imposed on him by resources and opportunities and because the social

value of contemporary problems is very high, particularly in developing economies, the individual researcher had better direct his energies towards the latter.

Another reason for this choice is that a highly abstract subject, say, any aspect of advanced economic theory, would need a training, tradition and quality of mind, generally not found in backward economies. It is in the experience of the present writer than in some Indian universities highly theoretical subjects have been taken up for research by university teachers or under their guidance with not very satisfactory results. A developing economy and a single individual cannot in the course of their development afford the luxury of research on these lines on any large scale.

A further consideration that comes under the criterion of the subject relates to the issue of policy problems *versus* factual problems. The former relate to an analysis and evaluation of steps taken by government, such as the financial and industrial policy of the Government of India, and, are, no doubt, desirable subjects for research, even as much as the factual analysis of any particular situation would be, such as the structure of interest rates in India, the trend of public expenditure and the working of the Community Projects. But, policy issues involve more value judgments which, by their nature, need experience to assess, and even then, are open to serious differences of judgment. By and large, therefore it appears advisable, particularly in the initial years of research by an individual, to prefer subjects which are more factual in character than philosophical or related to policy. Finally, since the characteristic of scientific investigation is reproducibility of the method as well as the conclusion for purposes of verification by a different investigator, it is desirable to choose a problem which lends itself to verification rather than one which does not. This does not mean that all socio-economic problems can be verified. For instance, an enquiry into the working conditions in a factory or a socio-economic survey at a point of time or during a particular period, such as the surveys that have been undertaken, for example, by Professor Gadgil with regard to Poona[5], can simply not be verified at all because they relate

[5] D. R. Gadgil, *Poona — A Socio-Economic Survey*, (1945 and 1952).

to a point of time, which cannot be reproduced. Therefore, all that this criterion implies is that, by and large, the problem analysed, the methods applied and the conclusions drawn must not be unique but be representative of similar situations.

2. *The Investigators:* The nature of the subject is, no doubt, a very important criterion in selecting a problem. But the extent to which this criterion effectively applies depends upon the second determinant, namely, the investigator himself. A problem is investigated by an individual who, therefore, becomes a crucial factor in the conduct of the enquiry. His experience, resources and technical ability count a great deal in selecting the problem. What an individual or organization with a couple of decades of experience in terms of research work — for example, the National Bureau of Economic Research in the United States — can do, cannot normally be done by a younger and less experienced researcher or organization. Similarly, the time, money and energy that one can spend on a project restricts both the type and scope. Thus, what the Reserve Bank of India may do with regard to the *Rural Credit Survey* cannot be taken up by an individual and, perhaps, even by a private organization in the country. Finally, there is the technical ability that any individual possesses and any organization can mobilize.

3. *Extensive vs. intensive coverage:* A final criterion of selection is the coverage of the subject. One of the common faults in research in underdeveloped countries, particularly at the university level, has been the choice of wide subjects for research; for example, unemployment in India, the Second Five Year Plan and fiscal policy for India. Generally speaking, the wider the subject, the less the depth of work, but the essence of research is depth rather than breadth. If his efforts are to be fruitful, the investigator should go into the sources as deeply as possible. When a subject is extensive, there is not only vagueness and, therefore, scope for hasty generalizations but also there is hardly any time to do intensive data collection or to analyse and pro-

cess the data accurately. It is desirable, therefore, that investigators, whether individuals or organizations, should concentrate upon narrow problems — narrow in area or period or aspect of a problem — and the scope for intensive rather than extensive work should be an important criterion for selecting a problem. If a number of individuals or investigations enquire into small but related areas, it may be possible to integrate the different enquiries and present a mosaic of a wider dimension.

The Determination of the Starting Point

Once a subject has been chosen for investigation, the next important step is to decide on the starting point. For, just as the significance of the enquiry depends on the problem that is chosen, so the success of the investigation depends on starting at the right point of enquiry.

First essential: The first essential, therefore, is to analyse the problem from all sides and to spend some time in carefully planning the succeeding stages — in fact, every stage of the investigation from the formulation of the working hypothesis to the finalization of the report — before actually beginning the investigation itself. Such planning prevents running off at a tangent in the collection of facts and then getting into difficulties at the later stages of analysis and inference.

Even at the preliminary stage of planning an enquiry three distinct steps may be distinguished. The first one relates to the broad perspective. Collection of facts is, no doubt, essential but it is a work of detailed and patient enquiry and once a researcher gets into details he may lose all sense of perspective. In order to understand the various issues involved, it is, therefore, necessary to note the resemblances to similar work; and to get guidance for developing the plan later, it is useful to take a broad general view of the problem even at the start. This initial plan of approach may profitably be put down in writing so as to be clear about its own structure and the broad lead necessary in the follow-up. Naturally, such a vision of the problem is tentative and

may have to be modified in the course of the investigation.

The second step to take in initial planning is to determine the real objective of the enquiry: the clear and precise statement of the problem so as to disclose that what the researcher is after is really significant. Sometimes, this may be in the form of a number of hypotheses and sometimes, it may be merely a brief indication of the main and the subsidiary objectives in view. This definite statement would help the researcher in different ways. It reduces waste of time and effort in collecting data not very material to the problem; and by focussing attention on the real issues involved, it indicates not only the direction of subsequent work but also the implications of the work in terms of newer problems.

This step in analysis may be divided into two. First, define the problem in as precise, clear and comprehensive a way as possible. This may make necessary the splitting up of the apparently single problem into minor related ones, which would necessitate a further classification of those facets of the problem in the order of their importance and interrelationships, as, for example, the central theme, the major problems, the minor ones and the fringe areas. When such a break-down of the issues and the assessment of their importance are completed, problems looming large in the beginning shrink to their proper size and often suggest solutions themselves in this process.

The other facet of the first step is the anticipation of the issues influencing the utilization of the work. A research project has some purpose — may be just the discovery of truth or resolving a practical, urgent issue. In either case the results of the enquiry are important in building up further knowledge or in leading to certain policy changes in the community. If this purpose is to be achieved and the anticipation of the issues that follow the investigation is to be successful, isolation of the issues becomes very desirable. These issues are those of fact or of policy or of theory. Issues of fact, such as the degree and pattern of over-crowding or the burden of a particular tax, can and should be settled through a process of investigation by the collection of accurate data and a close and unprejudiced analysis of the

facts. Issues of policy, such as to whether a particular tax in terms of its incidence is advisable, are largely matters of individual judgment and require greater experience, patience and balance in analysis. Finally, issues of theory which may arise — for instance, is a particular tax shiftable and if so how? — fall largely within the province of definition and logic.

PLANNING THE PROCEDURE

The next stage in building up an initial plan relates to the procedure of work. Any work has to be carried out in relation to the time and cost factors. How best can time and cost be allocated among the major and minor issues that the problem gives rise to? If the preliminary analysis of the problem, particularly the second step described above, has been done with care, the procedural steps should not be difficult to plan, since the earlier analysis will have shown the relative importance of the various issues. Only those issues which are of any value might be retained. As a natural scientist observes: "Science has derived very little or no benefit from the miscellaneous collecting or grouping of facts without any previous notion of what they are likely to reveal. An investigation is usually made for the purpose of answering a definite question or of verifying an anticipation. With some such end in view, and with some principle by which the classification is guided, the result usually reveals not only what is looked for, but frequently a still more fundamental characteristic; for, it is impossible to throw facts in any order which reveals the truth when dragging others into the light with it."[6]

Guiding considerations: In planning the procedure, it might be useful to bear in mind some guiding considerations. First, determine the type of investigation, i.e. how the facts should be collected. Some projects depend largely on experiments. Others may be bibliographical, calling for the utilization of already collected facts. In some others, personal enquiries may be necessary, while a few more may need participant observation. The broad determination of

[6] F. Cramer, *The Method of Darwin — A Study in Scientific Method.*

the technique to be used helps in assessing the cost and time factors. It is also necessary to determine how intensive the investigation should be at the preliminary or even later stages: whether the enquiry should be complete with elaborate details or only partial, touching merely the major issues and in a rather superficial way. The determination of the intensity of the investigation is largely influenced by the available resources as well as the urgency of the problem. Often, where action research is undertaken both an initial superficial analysis to set the solutions on the move and a detailed investigation to get at more details may become necessary.

At the stage of planning the procedure, perhaps the most important decision to take is selecting the point of starting the work, because the start, as in a short distance race, vitally influences the subsequent stages of work. There are three influences on the selection of the starting point. First, what the problem itself requires; second, the relation of the present project to the work done by others and, third, the needs and desires of the project sponsors. Thus, when a Pay Commission is appointed, some kind of relief may be needed in view of the pressing public demand and so, an *ad hoc* report making tentative suggestions will have to be issued. This step would shift naturally the emphasis on the starting point from what is demanded by the long term enquiry to one which is demanded by the *ad hoc* solution. And as the enquiry proceeds an attempt will have to be made to bridge the gap between the two starting points which the long and short term solutions necessitate.

The importance of these influences on the selection of the starting point varies in different problems, and which of the three should be the more important determinant is largely decided by experience. There is, however, a danger that too much dependence on experience may make the assessment of the influences of these factors rigid and result in set methods of starting an enquiry. While experience, therefore, is an important factor to count, careful and thoughtful consideration of the individual problems in terms of the resources would be a better guide to facilitate the selection.

Approaches to a start: Very broadly, an enquiry into a problem may be started in different ways. First, there is the *expediency approach.* When a project is sponsored by an outside body, for example, a State government or a chamber of commerce, the sponsor may indicate, at least broadly, the nature and purpose as well as the direction of the enquiry. Such an indication would guide the researcher to a particular starting point of the problem though there is the risk of bias even at the start, and particularly, in order to satisfy the sponsor. Technically this is not the best start, but often, institutions which commercialize research, will have to adapt themselves to the suggestions of the sponsors.

There is next the *bottle-neck approach* to selection. An investigation has different facets or stages, and not all of them are of the same degree of significance in the final solution of the problem nor are they all of equal ease in being taken up. Thus, an investigation might involve both bibliographical and field studies, and all the needed bibliographical literature might be available at an earlier and not at a later stage, and, therefore, one could begin with an analysis of the published literature and later on go to field studies; or if field studies are more important and urgent lest the situation should change, one might begin with them. After all, what the bottle-neck approach emphasizes is that the start should be made at the point which will have the most beneficial influence on the work as a whole or which will resolve the most tangled knot of the problem. In fact, it would often be wise to attack the most difficult and apparently unsolvable side of the problem first, so that the succeeding breakthrough may be easier. Often, a phase occupies a position of special importance in the problem and this may even be merely clarifying concepts. First, therefore, clear the bottle-neck and then the progress of the investigation will be comparatively easy.

A third approach is *related to opportunity.* An enquiry is meant to serve some purpose and often in the case of action research and of an enquiry into current problems the need for getting quick results is paramount. Therefore,

a beginning where the opportunity for either getting the facts or arriving at the results is greatest may often be taken. This is sometimes known as 'hitting the high spots'. In taking up this approach as the starting point there is a risk of unevenness and imbalance in building up the whole project. This, however, is a situation that only experience can suggest whether to follow the particular procedure or not.

Finally, there is, what may be called, the *logical approach* to the starting point. In a way, any particular problem may be regarded as a coherent unit with a beginning and an end and as having a logical sequence in the interrelationships of the major and minor issues and in the data to be gathered, analysed and processed. Where such definite sequence can be established — one step depending upon the preceding one and controlling the succeeding steps — the starting point may well be the logical beginning of the problem. The adoption of this approach presupposes that the problem is simple and logical and that the investigator can envisage the full gamut of the problem. But seldom is either of these found. Problems are more complex than we would like them to be and the researcher has less of vision than is necessary. In such a situation one might begin at some point in the problem so long as he keeps in sight the possible sequences. This might necessitate frequent come-backs and moving-forwards, to pick up the thread so as to have a complete picture in the end.

Once the starting point has been selected the subsequent steps are comparatively easy. For, all of them can be related to one another and co-ordinated with the main objective and the starting point. As has been remarked: "An investigation is like a mosaic; it is complete only when everything is in its proper place". This, however, does not mean that patience, imagination and hard work so essential at the planning stage can be dispensed with at the subsequent stages.

In the process of planning a project one of the many points that should be considered is the restrictions placed on that work. In a way a research investigation is like a cross country race with anticipated and unanticipated obstacles and difficulties met with successively. These obstacles — for

example, in the collection of data, slackness of response, inadequacy of data and so on — necessarily modify the direction of investigation and, consequently, the original procedural plan with which the investigation started. What these difficulties may be is hard to generalize, for they are peculiar to each problem, area and research project. There can be no general solution for overcoming the obstacles except to say that they must be met as they arise and a great deal of imagination, judgment and tact is necessary.

It has been suggested above that the procedural plan should be in a sequence of steps. And it is essential that each of these steps is co-ordinated with the others, particularly in terms of time and cost, for, research projects are rarely limitless in time and finance. Therefore, it becomes necessary, even before the investigation begins, to estimate as accurately as possible the resources in time and money that each major step would demand. Even the most careful estimate is likely to be beside the actual mark, being either insufficient or excessive. But an estimate would broadly indicate a central point along which modifications will have to be made.

Two more procedural steps: Two more steps may also be referred to here. When a project has been selected, the starting point determined and the procedure planned, it is always best to prepare the programme in writing to attain definiteness and precision. This does not mean that meticulous details should and can be written out at the beginning of an enquiry. It suggests only that the broad factors relating to aim, steps, duration, expense and anticipated results should be made definite. When once a problem is written down, it is important to assess how far the plan has been adhered to in execution. A periodical record, therefore, will be necessary to check the progress made in terms of the plan. In some cases, as in that of an individual investigator, the record may have to be a daily one; in others, as in the case of an organization itself, it may be weekly, but a record must be kept of the actual accomplishments so as to measure the effectiveness of work.

A record has also other advantages. It should enable a successor to pick up the thread of work where it was left

by his predecessor and complete the job without wasting resources in going back to the starting point; and secondly, if the progress is slower than anticipated, the record would act as an incentive to get results more promptly, and if the progress is more rapid it would encourage the investigator to keep up the pace.

Although the foregoing are some of the broad indications as to how and why a research project has to be planned, the actual process of planning any particular investigation will have to be in terms of the situation, and modifications in the initial plan may be necessary if the project so demands. It need hardly be emphasized that while planning a research project is absolutely essential, it is equally essential that the pattern of the plan should be flexible.

VII

CONCEPTS

THE researcher studies bits of reality in order to understand the situation and to further knowledge by widening or deepening it or by making it more precise and exact. This requires unbiassed and objective observation and systematic abstraction of ideas, fitting them into an already existing framework since knowledge is continuously expanding. Such a process demands a set of data and a pack of tools as well as a mind and an approach to serve the desired end. One of the tools of analysis is the 'concept', which forms the basic tool of the scientist. The very process of systematic abstraction from reality necessitates the use of concepts.

MEANING

A concept is a word or a phrase symbolizing the phenomena studied and helping to communicate the findings; for example, land, rent, acceleration, multiplier, income-elasticity, indifference curve, net reproductive rate, marginal efficiency of capital, propensity to consume, money, full employment, household, social class, socialistic pattern, mean, mode, median, etc. Although it is based upon a study of reality and facts and is abstracted from sense perceptions, the concept is a mere symbol having meaning only with reference to a theoretical system. Thus, 'land', 'multiplier', and 'full employment' symbolize a great deal to the economist.

The purpose of formulating a concept is to facilitate the study, organization and isolation of facts or the properties of objects, and to attempt to relate and integrate different phenomena, by abstracting and generalizing sense impressions. Such formulation is basic to all thought processes and

scientific technique, because it gives precision and meaning to communications, at the same time economizing language.

CONCEPT CATEGORIES

From a purely theoretical angle, concepts may be grouped, according to their origin, into two classes: those by postulation and those by intuition. The former have their meanings designated by the postulates of some deductively postulated theory in which they occur. That is, they have no meaning apart from the specific theory, and therefore, when used in relation to two different theories, they have two different meanings. For example, the concept, 'electron' has one meaning in electro-magnetism and another in quantum mechanics. "No concept", observes Professor F.S.G. Northrop,[1] "carries its meaning ever intact from philosopher to philosopher or from philosophical theory to philosophical theory; each word is relative to the postulates of the system of the scientist or philosopher who uses it."

A concept by intuition denotes something which is immediately apprehended, e.g. 'blue' as colour. Its meaning is abstracted from a wider and empirical context, and as such the meaning is constant, whoever uses it. Theoretical logic divides these concepts by intuition into those by sensation and those by introspection, while the concepts by postulation are grouped into those by imagination and those by intellection. Whatever the importance of these classifications and subclassifications in philosophic theory, they are of equal significance in practical social science research.

FEATURES

Each field of study develops its own concepts or symbols, thereby giving rise to a new language not easily intelligible to others. Thus, an economist is unable to understand the concepts in Chemistry or Biology and in his ignorance would dub them "resurrections of words from dead languages". Different scientific vocabularies have come into existence, wherein the concept, like a multivitamin tablet, contains a lot of compressed ideas. "Each concept, in short, communicates to the specialist a vast amount of experience,

[1] *The Logic of the Sciences and the Humanities*, p. 64.

abstracted and clarified for those who understand the term." A knowledge of the basic scientific vocabulary, adequate to understand the conceptual development in his field, thus becomes a *sine qua non* to the research worker.

This demands, on the one hand, a clear and precise definition of the contents of the concept and, on the other, a full and precise appreciation of the terms by the researcher. Precision, comprehensiveness and clarity in formulating as in understanding them become important, especially because of the way concepts come into being. Often, the scientist adopts common words in ordinary use; gives them occasionally a different meaning; and certainly always clothes them with a scientific connotation; for example, land, the multiplier, acceleration, indifference curve, underdeveloped regions and so on, are all common words but how different their conceptual significance is!

A scientific concept must avoid multiple meanings; but the same term may have different connotations in different sciences. Look at such an ordinary word as function. In Social Anthropology, for instance, it denotes the contribution which a practice makes towards the existence of society; in Mathematics we say x (say, divorce rate) is a *function* of y (say, economic position); in socio-economic analysis it refers to occupational phenomena. It is also possible that sometimes different concepts may refer to the same phenomena and there may be overlapping of words and meanings, as for example, *marginal* utility and *final* utility. Occasionally, a concept may have no immediate application in tangible experience; for, science often conceives in the abstract or theorizes over *relationships* between concepts themselves. For instance, 'social structure' stands for something which is not physically measurable or weighable, for, it denotes a relationship within a 'group'.

HOW TO USE THE TOOL

The primary duty of a research worker, therefore, is to clarify his thoughts, to choose relevant concepts for literary, institutional or historical reasons and finally to explain their usage and define their meaning. With the accumulation of knowledge, a concept may change its meaning; may be

narrowed a little, refined further or defined more precisely; for example, *status, role, position, rank,* etc. indicate different shades. In course of time, concepts may even become irrelevant and outmoded, and may have to be discarded.

One way of reducing ambiguity in the use of concepts is through joint research and discussion. Even a single researcher can bring about conceptual clarity through precise and patient thinking. He should select concepts describing the same process or object, carefully ascertain their meaning, discard those that he does not need or finds contradictory. He might then bring together phenomena described by the *same* term. Finally, he should relate the particular phenomenon he is dealing with, with similar ones described by other terms and often in other fields.

This is the process of re-conceptualization. A great deal of patience and care is necessary for such refinement, and the trouble is worthwhile, as it will show up the many complex facets of the problem. It also leads to more fruitful hypotheses. It should not be regarded as a mere demonstration of the researcher's cleverness in conceptual manipulation or as an exhibition of one's learning. It is only an attempt to isolate and collate behaviour in many fields and interpret different kinds of observation and theory. Creation of new concepts, at least giving new names to old ones, often as a matter of exhibitionism, may sometimes be observed in superficial research and of those just entering the research field. The social scientist who is after truth and not after words should avoid such a tendency.

If this is to be done, it is best to begin by getting as complete a control of concepts in the researcher's special field as one can. Next their connotation and significance should be understood clearly, precisely and fully in the context of their use. Sometimes concepts may be vague and ambiguous, for example, the term 'Socialist Pattern of Society', as used in India to-day. It is desirable, both from the scientific point of view and from that of practical application of such concepts in the process of analysis, that the vagueness and ambiguity are recognised by the research worker. Such a recognition would save the investigator from many a pitfall.

The temptation to use highly general concepts such as

'function', 'modern society' and 'nationalisation' should be avoided, and wherever possible, these 'general' concepts should be translated into concrete ones related to the context. A little patient search amidst the fringe area of research and connected literature as well as a little of reflective thinking before either accepting or using the concept would help concretization. Thus, it is essential to understand the concepts in the related and outlying fields of study. Where concepts, concrete or vague, are selected for use, a clear definition of their connotation as used by the researcher is always desirable.

The risk of using in one context concepts developed altogether in another is considerable, specially when the concepts are made the basis of practical policies. Instances can be cited from the Indian Five Year Plans and the Budgetary documents, e.g. 'Full employment' as used by Keynes and Beveridge, and as in the Indian Plans. So also the concepts, 'capital' and 'revenue' budgets; 'Socialist Pattern of Society'; 'balanced development'; 'incremental capital-output ratio'; 'terms of trade'; 'marginal rate of saving' etc. as used in Indian official publications raises doubts about the clarity, consistency, simplicity and precision in usage. The employment of these even in the Plans themselves appears to differ sometimes. Perhaps, this is partly traceable to the bodily grafting of concepts developed in other contexts, e.g. of a developed economy to an underdeveloped one, partly to the temptation to use high-sounding and advanced concepts, and partly to the reluctance to develop and clarify concepts particularly relevant to the environment.

It may be useful for a researcher to bear the following in mind:

1. Get as complete a control of concepts in his special field as he can.
2. Understand their connotation and significance clearly, precisely and fully in the context of their use.
3. If concepts are ambiguous, realize they are so.
4. Avoid highly general and vague concepts, such as 'function', 'modern society' 'socialisation', etc. Try to translate general concepts into more concrete ones.

5. Understand the concepts in the related and outlying fields of his study.
6. Select concepts that he wants to use and to define them.

VIII

THE HYPOTHESIS

What is a Hypothesis?

DISCOVERING facts, establishing relationships between them and explaining situations and events so as finally to lead to rational generalizations and wherever possible to help to predict, constitute the process and purpose of research. The process itself is broadly in four successive stages, namely, the formulation of a *hypothesis,* of a *theory* and of a *law* culminating, if possible, in an *axiom.* These four stages are mere developments from the initial stage of a hypothesis to the final one of an axiom.

When a researcher observes known facts and takes up a problem for analysis, he first has to start somewhere and this point of start is the hypothesis. It has been defined as a tentative solution posed on a cursory observation of known and available data and adopted provisionally to explain certain events and to guide in the investigation of others. It is, in fact, a possible solution to the problem. A hypothesis, therefore, is essentially tentative, likely to be modified during the investigation if the facts discovered in the course of the enquiry demand it. It is an explanation that needs to be established before it can be accepted; and the very process of investigation is directed towards testing the hypothesis the investigation started with.

If the hypothesis has been tested and established at least to some extent and if such a conclusion on further testing is established over a number of investigations, perhaps over years of work, it becomes a theory. "In practice a theory is an elaborate hypothesis which deals with more types of facts than does the simple hypothesis."[1] That is, the distinction between a theory and a hypothesis is one of degree more

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than of kind, for, when the hypothesis is verified and established, it becomes a part of a theory. In a way one grows out of the other. The logical relationship between facts is stated by a theory and from this theory other propositions can be deduced that should be true if the first relationship holds. These deduced propositions become hypotheses.

A theory verified on a large scale more firmly establishing a regular relationship which may be believed as true and adopted as the basis of further inferences becomes a law. Thus, for instance, Malthus started with the hypothesis that population increases faster than food supply, and on the basis of the study of contemporary conditions formulated the famous theory of population. During the century that succeeded Malthus this theory was further tested and established, becoming the Malthusian law of population. It is true that the law has, in the 20th century, been questioned as to its universal validity, but with regard to underdeveloped countries the Malthusian law still holds good.

If the law is so basic that it becomes the foundation of the belief that other ideas in the particular science can be organized around it and make other ideas deducible from it, the law becomes an axiom. The axiom, therefore, is "a principle so well grounded that only persistent facts quite irreconcilable with it could compel its abandonment or radical modification".[2] Thus,[3] the doctrine of the moon's gravitation, when it first occurred to Newton's mind was a hypothesis; the idea of universal gravitation, when confirmed by evidence from the moon's orbit, a theory; when the latter became verified by a study of the motions of many kinds of bodies, it stood as a law; and when seen to be so central in astronomy and mechanics that other knowledge in them could be fruitfully organized about it, an axiom. In social sciences partly because of their infancy and partly because of the relative crudity of their tools and techniques there are few axioms. Even laws are not as many or as binding as in the physical sciences but there are plenty of theories and hypotheses.

THE ROLE OF THE HYPOTHESIS

It has been stated above that the hypothesis, with which

[2] Burtt, *Right Thinking*, p. 94. [3] The example is from *ibid.*

this chapter is concerned, is a suggested explanation on the basis of existing knowledge but with a mind open to a change of view if the facts gathered at the enquiry suggest a different explanation. Its defined purpose is to indicate the direction of the investigation and to suggest what facts are to be collected. Without it research becomes unfocussed and merely a pointless empirical wandering. "The function of a hypothesis", observes Professor Northrop,[4] "is to direct our search for order among facts. The suggestions formulated in any hypothesis *may be* solutions to the problem. Whether they *are* is the task of the enquiry." The hypothesis, therefore, gives point to the enquiry; without it the investigator may collect non-essential and even useless data and may also overlook really significant and useful ones. Such unplanned gathering of data results in waste of time and effort and rarely leads to the discovery of unexpected relations between facts. As the gathering of data is, in many cases, the most expensive and trying part of the entire research process, how the data can be gathered most advantageously depends on the evidence needed in the same way as a compass helps the navigator; and it is this purpose that the hypothesis serves in an investigation.

IS THE HYPOTHESIS ALWAYS NECESSARY?

While a hypothesis is useful it is not always indispensable. In physical sciences, which are very highly developed, the hypothesis is most often necessary and obvious, though in fundamental research, even in these sciences, it, no doubt, exists but may be so general as not to be obvious. In social sciences useful facts may be discovered, organized and presented purposefully even without a hypothesis other than the one which might incidentally be suggested in the course of the investigation. In fact, many well-known social investigations have been successfully carried out without any particular hypothesis as, for example, *Middle Town* by R.S. and H. M. Lynd.[5] But, though there may be no working hypothesis apparent, there have always been definitely formulated objectives and basic assumptions upon which the study has

[4] *The Logic of the Sciences and the Humanities*, p. 12.

[5] *Middle Town*, Harcourt, Brace & Co., New York, p. 29.

been or should be built. But the major part of research effort in social sciences could be more useful and purposefully handled with a clear and precise hypothesis at the start of the investigation.

In a way, descriptive research projects, such as an enquiry into rural credit, are not so dependent on hypotheses and their verification as problem-solving enquiries. In the merely fact-finding investigations few problems are raised and fewer solutions are to be tested, and the hypothesis thus becomes relatively unimportant. But even in this kind of research certain guide lines are necessary and, therefore, hypotheses, however simple they may be, are found somewhere so as to enable a logical and relevant follow-up of facts.

With the rapid growth of social sciences and research techniques as well as the increasing complexity of social problems the need for hypotheses is being felt more. It has been truly observed that in general, hypothesis-making is an essential of scientific agricultural economic enquiry in its most useful form. "In agricultural economics research it is more difficult to isolate a single defined factor, control other factors and test the effects of the single factor. When it is done, however,...testing usually has necessitated the accumulation of data that are useful for testing other relationships. Thus, agricultural economics research projects are likely to be built around a number of hypotheses rather than around just one."[6] Sometimes the very infancy of social sciences and the vagueness or complexity of social problems make more than one hypothesis desirable in the investigation.

TYPES OF HYPOTHESES

In social as in physical sciences hypotheses are of different kinds, depending upon the level of their refinement — from common sense statements to complex abstract ones. Very broadly, there are two types: the crude and the refined. The former is of a very low order of abstraction, and largely, perhaps even only, indicates the kind of data to be gathered and does not very often lead to any higher theoretical re-

[6] L. S. Robertson and K. T. Wright, *Research Procedure in Agricultural Economics*, p. 60.

search in the nature of a law or a theory. The descriptive method of research is very largely of this type. The crude type of hypothesis can be formulated by repeating the previous piece of work and duplicating those conditions exactly, in order to establish more firmly known conclusions.

The refined type, on the other hand, is more significant in research, the degree of significance depending on the level of abstraction underlying the hypothesis. This type is of three kinds: The simple level hypothesis, which merely states the existence of empirical uniformity, may be formulated by objectively examining commonsense and commonplace propositions; for example, the distribution of business establishments in an urban area or the size of a family, or the volume and distribution of unemployment relief; or it may describe the pattern of certain age groups or social communities, for example, students of a particular age group and educational level behave in a particular way. Thus, simple level hypotheses merely indicate uniformity in social behaviour. They do not involve much of verification; they only help to build up facts putting in precise terms what perhaps every one knows, and occasionally they may lead to observations of a simple degree of relationship between two events or facts. Quite a number of surveys of rural indebtedness are of this category. But even the mere discovery of facts or of establishing a known conclusion helps the growth of knowledge.

A second refined type of hypothesis and at a higher level of abstraction is the "complex ideal" one. These hypotheses test logically derived relationships between the empirical uniformities creating a complex referent in society leading to particular coincidences of observation. For example, in Bombay, industrial concentration is of a particular pattern, or land values are of a particular order and distributed in a particular way over the metropolis; and these may be related to specific income groups, educational levels, social influences and so on; such an effort may even lead to a theory of concentric growth characterizing a city. If such a conclusion based upon an investigation here and there is not borne out by the structure of other cities, it will continue to remain a hypothesis. Even where it is not established

fully, the complex ideal type is useful in developing tools of analysis and throwing up problems for further research in other and complex areas of investigation. Its main function is to provide constructs for further hypothesizing.

Perhaps the most complicated type of hypothesis is that which is concerned with the interrelation of multiple variables. The number of variables being theoretically unlimited, innumerable opportunities for new research and new hypotheses are created; for example, in studying family planning and human fertility, particularly in underdeveloped countries, wealth, religion, region, custom, tradition, nutrition and many others constitute the influencing variables. The more numerous the variables, the more complex the measurements of the relationship between fertility and any one or more of the variables; that is, the more complex and abstract becomes the hypothesis.

HOW A HYPOTHESIS ORIGINATES

A hypothesis may originate in different ways. A particular cultural environment may give rise to it. In India, for example, religion and custom dominate the way of life. This has had its reaction on economic values and individual initiative in various walks of life. Such a situation could give rise to any number of hypotheses — sociological, cultural, political and economic. Similarly the American emphasis on personal happiness appears to have had considerable effect on the study of social sciences in U.S.A., where happiness in one way or the other has been correlated with income, education, gadgets etc. This cultural emphasis upon happiness has been productive of an almost limitless range of hypotheses for American social science.[7] This close relationship between a cultural feature and hypothesizing emphasizes the importance of a knowledge of sociology to researchers in other social sciences.

A second source of hypotheses is folk wisdom or current popular beliefs and practices suggesting both the problem and the hypothesis; for instance, the Indian grandmother's remedy of *sarpagandhi* root for hypertension, or family

[7] W. J. Goode and P. K. Hatt, *Methods of Social Research*, p. 63.

planning as practised in Hindu society through marriage restrictions or the adoption of the rhythm system in an apparently unscientific way. Thus, it is possible to formulate a hypothesis even without recourse to highly advanced scientific knowledge and terminology.

The most common source of a hypothesis is the particular science itself. Existing knowledge in the science points to problems still unsolved, and a logical deduction from these leads to new hypotheses, whose range and variety are limited only by the extent of the researcher's own understanding and knowledge of his subject and particularly of the interconnections between current theories. This emphasizes the need for a good knowledge of one's own discipline, of the inter-connections between different social sciences and of continuous thought and observation on the part of the researcher. Constant and free discussion among co-workers would suggest important problems and relevant hypotheses.

Analogy is another source of hypothesizing. The casual observation and study of another, particularly a sister, science may suggest ideas in one's own. Thus, the study of multiplication and improvement of seed in agronomy might indicate important hypotheses in animal husbandry. The concept of segregation in plant ecology has suggested to the sociologist that similar types of activities may be concentrated in his own area. It is said that Malthus' population theory indicated to Charles Darwin the problem of the struggle for the survival of the species. To benefit from analogy in hypothesis formulation requires wide study and great care in applying the analogy unless the parallel circumstances have been carefully examined.

Yet another source for hypothesis formulation is cases which are exceptions to accepted theory. A *patient* analysis of these deviations is essential to suggest new lines of investigation. The theory of imperfect competition *vis-a-vis* the earlier theories of perfect competition and perfect monopoly is an instance in point.

Finally, personal experience and individual reaction may give rise to hypotheses. Some investigators have the unique capacity of perceiving interesting patterns in apparently jumbled facts. Thus, Thorstein Veblen's theories of the leis-

ure class can be traced to an alien, that he was, coming into contact with a rich capitalist environment. The scientist, though not seeking the particular hypothesis, may run into it accidentally and then his training and experience would help him to understand and follow up the fact.

CRITERIA OF USEFUL HYPOTHESES

All hypotheses are not equally helpful to the enquiry and some are perhaps not at all. The researcher, therefore, has to separate the more from the less useful ones. In this process some important considerations would help him:

1. *Conceptual clarity:* Since concepts have a particular significance in a particular science and in a particular context they should be clearly defined in a communicable form, and with reference to usage in current research; otherwise, evaluation of previous ideas and continuity of scientific work become difficult. This requires discussing concepts with coworkers. For instance, if the hypothesis is that rapid urbanization in underdeveloped countries leads to a sudden change in moral values, it is essential to define urbanization, underdeveloped countries, moral values etc. and also the segments of the community and the conditions being studied.

2. *Amoral empirical referents:* Science has no place for moral judgments and, therefore, no usable hypotheses can embody percepts. As far as possible, words which convey a moral judgment, such as, *should, ought, bad, good* etc., have to be avoided. Even where attitudes and opinions are under investigation the researcher should be interested in facts and not in his own *oughts* and *shoulds*.

3. The hypothesis must be *specific and precise,* that is, it must help to detail all operations and predictions connected with it in the process of investigation. Specificity helps to avoid the use of selective evidence, thus increasing the validity of the findings. Precision demands that the hypothesis is not in general terms. This can be achieved by breaking up a single hypothesis into its component sub-hypotheses. Although this is a laborious process, it enables the clarification

of the relationship between data and the conclusion, in addition to making the task of the researcher more manageable.

4. *Relevant techniques:* An investigation to be practical should relate the hypotheses to the investigational techniques feasible in the particular science; for instance, while the experimental technique is not only feasible but necessary in physical sciences, it would not be equally so in social sciences, and any hypothesis which very largely has to depend upon experimentation would be out of place until the technique itself has been developed adequately. This requires in the researcher a sound knowledge of techniques to test the hypothesis and, thus, to formulate practical questions. Not that techniques are always the final determinants, for, as in the case of the Marxian socio-economic hypotheses, an important purpose may be served by the assumptions and the theories in that, because techniques are not available for testing the sweeping statements, new tools of analysis will have to be forged to meet the challenge.

5. *Relation to a body of theory:* Science grows and is cumulative, and each researcher adds his little quota to this process of growth. When, therefore, a hypothesis is based on a body of existing theories it is likely to make a better contribution to knowledge. It has been well said that "To be worth doing the hypothesis must not only be carefully stated but it should possess theoretical relevance".

WHEN TO MAKE A HYPOTHESIS

The logical way to begin an investigation is to start with a hypothesis and then collect appropriate and adequate data in order to test the implications of the hypothesis. This procedure would not prejudge the result if the initial step is not allowed to bias our observations or warp our judgments.

The first hypothesis, perhaps of the working type, will have to be made even in the planning stage of the research project. As the investigation proceeds the original hypothesis may undergo numerous changes, and perhaps be even substantially different, because new ones may be suggested by the accumulating evidence not anticipated at the commence-

ment. In some research projects of the pioneering type, hypotheses regarding relationships may be made in the stage of analysis, that is, very much later than the initial stage of planning the investigation. "Even in the most carefully planned research projects, some hypotheses are not likely to be formed until the evidence, obtained to test other hypotheses, is being analysed. Development of hypothesis in this late stage carries no connotation of insufficient advance planning; in fact, continued failure to develop some hypothesis in the later stages of research might indicate lack of imagination necessary for the greatest success in research. Sometimes hypothesis developed in the course of analysing evidence necessitates the collection of additional data."[8]

Whenever the hypothesis is formed — at the planning or a later stage — it is essential to keep the hypothesis and also the researcher's mind open and flexible. The researcher accumulates relevant data, perhaps formulates different explanations and deduces implications in the process of forming hypotheses, but in the very same process he might have to retrace his steps, revise his hypothesis making it more precise, collect further data, draw different implications and perhaps conduct new experiments; in fact, it may even be necessary to abandon the original hypothesis altogether, for, it is very rare for any important hypothesis to be confirmed or denied exactly as it was formulated. Often the very problem itself may take its definitive form only at the end of the enquiry. It is worth remembering "the pathetic spectacle of people who started as scientists and have become evangelists and missionaries employing the techniques of other fanatics in their attempt to bolster up an hypothesis which is no longer suggested by facts."[9] This situation should at all costs be avoided.

FORMULATION

To have good, precise and testable hypotheses a great deal of thought and time has to be devoted. The more carefully the hypothesis is formulated the easier will be the further investigation and the more accurate the verification. Sometimes the researcher has to start with tentative statements,

[8] L. S. Robertson and K. T. Wright, *Op. cit,* p. 60.
[9] Lundberg, *Social Research,* p. 85.

and sometimes a number of possible hypotheses have to be considered and discarded either in the very beginning of the enquiry or in the course of it. As Professor Northrop puts it:[10] "The analysis of the problem which initiates an enquiry is quite a different methodological procedure from the act of the imagination which proposes a hypothesis to solve the problem after it has been fully analysed and the relevant facts with respect to it have been thereby located and then deduced." The researcher must bear in mind that a hypothesis is not formed merely when an area of study; either territorial or of a problem, for example, juvenile delinquency, is selected; nor does the mere repetition of previous studies help to formulate it. These may indicate the type of problem but what exactly the specific issue is that the hypothesis should relate to needs greater care and effort to discover. The formulation of a hypothesis is sometimes termed a creative art.

It is, however, possible to get at the workable hypothesis if some important desiderata are borne in mind. First, the researcher should clear up his mind of accepted beliefs and solutions. For, the existence of a problem automatically means that it has not been satisfactorily answered. He should next concentrate on the nature of the problem to enable him to reach relevant facts. This demands adequate knowledge of the theoretical framework in the context of which he has to formulate and verify the hypothesis. Such knowledge must be utilized in a logical, consistent way. The researcher must also be familiar with the techniques of phrasing the hypothesis properly so as to avoid vague terms and concepts. He should further specify the validity test to be applied to the hypothesis. He should avoid, as already stated, value judgments and keep his mind open. Often he has to familiarize himself with alternative ways of collecting the facts and verifying them and carefully select which of these he would follow. He could get a great deal of help by closely studying any earlier attempts to meet the problem. This requires reading and re-reading the literature on the subject. The researcher should also consider if any major inferences are possible and also test the hypothesis itself by some other

[10] *Op. cit.*

theoretical model, for, by and large, a hypothesis can be derived from related propositions. A temptation to select only interesting matter or an isolated enquiry should be avoided, because the former prejudices the enquiry and the latter makes checking by another researcher difficult. Finally, it is useful generally to choose problems helping to refute, qualify or support existing theories.

The analysis of a problem from the initiation of the enquiry to its solution is well illustrated by Galilei's experience.[11] His problem was to know how and why a projectile moved. He first analysed in detail what exactly force was, and found that the traditional explanation was inadequate. He therefore tried to discover and formulate a new definition in terms of the motion of any object whatever. This led Galilei to the constituents of the situation, that is, to the factors which governed motion, namely, the weight of the ball, distance of its fall and time taken to fall. These factors led to three hypotheses – that force is proportional to weight, to distance and to the time taken by the force to act. Thus, the initial problem itself took the enquiry to its roots; Galilei next put each of the hypotheses to empirical tests and found two of them not established. The proof of the third resulted in a new definition of force as that which produces change of velocity or acceleration. Next the implications of the definitions were worked out.

This experience of Galilei indicates the following steps generally to be associated with analysing a problem:

Getting to the basic theoretical root; next, selecting the simplest phenomena exhibiting the factors involved; and third, inductive and intensive observation of the relevant facts. This would be followed by formulating relevant hypotheses suggested by the facts. The next step is deducing the consequences so as to permit an experimental test. The further step would be to clarify the initial problem the researcher started with and in the light of the verified hypothesis; and finally to pursue the logical implications of the new concepts in theory in their application to other subject matters so as to result in a generalization of the solution.

[11] This illustration is based on Burtt, *Right Thinking*, *op. cit.*

IX

BIBLIOGRAPHICAL DATA *

Primary and Secondary Sources

THE researcher's primary objective is to gather evidence either for verifying a *new* hypothesis or for purposes of checking current conclusions. The sources for these data are varied and can be grouped differently: e.g. available material and original data,[1] primary and secondary data; bibliographical and field data, etc. The most commonly used classification is into 'primary' and 'secondary' sources to which might be added a third type, namely, the tertiary one. "Primary data", observe Professors Robertson and Wright,[2] "are those assembled for the specific purpose of solving a particular research problem. Secondary data are those already recorded for some other purpose but used in the research project." Another writer has defined[3] primary data as those gathered at first hand, the responsibility for their compilation and promulgation remaining under the same authority that originally gathered them, and secondary data as those compiled from original sources and of which the promulgating authority is different from that which controlled the collection of data at first hand. To the statistician, data collected at first hand are primary but the same data after processing would become secondary.

These definitions, particularly the first two, are open to

* Although strictly speaking the term 'bibliography' means the science of *books*, it is used in this chapter to include books, pamphlets, reports, newspapers, manuscripts and all other non-field data.

1 Chapters VI and VII in *Social Work Research*, edited by N. A. Polansky, Chicago, 1960.

2 L. S. Robertson and K. T. Wright, *Research Procedure in Agricultural Economics*.

3 Pauline Young, *Scientific Social Surveys and Research*, p. 101.

question. Under the first interpretation, even avowedly tertiary sources could become 'primary' if the researcher has, as he always does, the specific purpose of solving the problem. It would thus introduce a classification which serves little purpose and may lead to much confusion. For instance, the voluminous population census statistics are, no doubt, primary but if the department which collected them makes a summary for interpretation purposes it is doubtful if the latter still continues to be primary data *simply because* the same authority compiled the summary also.

The second definition by emphasizing different authorities as the demarcating factor, would make even a popular presentation of facts by the original authority, a primary source, while the statistician's viewpoint, would consider only the raw unprocessed *field data* as primary, which may have validity in some cases of the statistical or field survey type, but is not fair to historical and similar research, which have no field data except those of the archaeological kind.

The terms, primary and secondary, are essentially relative to the purpose of the research. Thus, if the enquiry is related to the ideas and activities of Mahatma Gandhi, his letters and writings are definitely primary sources — though not field data —, but so far as contemporary activities and his comments on other persons go they become secondary. Similarly, Jawaharlal Nehru's *Autobiography* is primary with reference to his own philosophy but secondary with regard to the Indian National Congress and contemporary events. What is a primary source or a secondary source must, therefore, depend upon the purpose for which the data are wanted as much as on the authority compiling them. For instance, in an enquiry into joint stock banking in India, the primary sources would be the books, annual reports, balance sheets, etc. of the banks themselves, and the detailed annual summaries[4] and accounts by the Reserve Bank of India, however authoritative they may be, must be regarded as secondary sources. Not that a secondary source in itself is to be discarded but only it is secondary. The form in which the sources are found — printed or manuscript — and the

[4] E.g. *Statistical Tables relating to Banks in India* and *Trend and Progress of Banking in India.*

originating authority — official or private — are not material. A manuscript source, however old or official, cannot become primary merely because it is in manuscript form or is old or official.

To some extent the lack of a precise distinction between primary and secondary sources exists even regarding manuscript data. Thus, it was the present writer's experience, while going through the East India Company's manuscript records at the India Office Library in London[5], that the British Resident's reports on Mysore, though often in the original and in manuscript form, contemporary in character, and perhaps the only source of data, were none the less secondary in that the information obtained by the Resident and transmitted was gathered by him from other sources. Regarding his own opinions and actions they are, no doubt, primary, but as a statement of the situation in the State they become secondary data. The same would be true of field data. For example, in an enquiry into rural indebtedness by the use of schedules, the facts relating to each individual respondent as given by him — their trustworthiness apart — are, no doubt, primary, but the respondent's observations on his neighbours' transactions or similar situations — facts which must be collected for purposes of cross verification — are secondary in character.

What is important to remember is that, by and large, there is no basic difference between primary and secondary sources, that their role in research is essentially dependent upon the type of enquiry and that one source need not always be more reliable than the other, provided the secondary data are based on a more authoritative and knowledgeable source.

THE ROLE OF PRIMARY, SECONDARY AND TERTIARY SOURCES

As pointed out above, there are from one angle three, not two, tiers in the sources: primary, secondary and tertiary. The Indian census documents are primary sources; the United Nations demographic year books are secondary, while books by individual authors — X, Y or Z — on India's population problems are tertiary. Similarly, for statistical and factual data on banking problems bank records are primary,

[5] *Vide*, M. H. Gopal, *The Finances of the Mysore State, op. cit.*, Appendix G.

the Reserve Bank's statistics secondary; and books on joint stock banking in India are tertiary sources.

Each of these has its own place in a scheme of research. Primary sources are the final resort for all facts, opinions, policies, etc., secondary sources are the first working base for outlining the problems, for analysis and comparative study and even for much information in some cases. Very broadly, where research consists more in interpretation than in the discovery of new raw facts, a recognized secondary source, such as the Reserve Bank publications, would be more than adequate. If the investigation is about Indian joint stock banks data relating to *other* types of banks in India or commercial banks in *other* countries, secondary sources should be adequate because what is sought is only for comparison. Tertiary sources are useful mainly for raising issues and suggesting problems relating to the subject under study. For, although the researcher starts with a hypothesis he may not be aware of the different viewpoints that will have to be considered or all the problems that might arise, and tertiary source may help to amplify his hypothesis and also could possibly lead to new sources of information. But tertiary sources should never be depended upon for data on which to build up research.

To begin with, therefore, it is desirable to avoid controversial literature except the barest minimum. It may also be prudent to concentrate on secondary sources to get the hang of the problem and the initial data. This would perhaps facilitate working out the broad plan of research indicating where and which primary sources are to be tapped, and also enable checking and verification as well as indicate new perspectives in the enquiry. It is not always either necessary or desirable to go fully to primary sources, for, many secondary sources such as the Reserve Bank of India publications are no less adequate and dependable. The extent to which primary sources will have to be delved into — for example, the bank books in studying a banking problem or the voluminous budgetary *Demands for Grants* presented to Parliament in a public finance problem — depends on the problem on hand, the purpose in view and the time at the researcher's disposal.

Merely because a document is official it does not become primary. For example, a number of publications by the Indian Union Ministry of Information meant for popular consumption is tertiary in character, even with regard to policy matters.

Prima facie, primary sources are less open to error than secondary ones and, therefore, tend to be more reliable. The scope for error in secondary sources lies partly in the process of transcription and partly in that the subjective factor in selecting data from the primary sources may be greater. Broadly, therefore, closer and more careful scrutiny is necessary while utilizing secondary sources, but with adequate precautions they may profitably be utilized by a researcher who is not pioneering in his line but is simply building upon existing knowledge.

The first step in such utilization is to avoid duplication of effort by locating and consulting available literature, secondary and tertiary though it may be.

BIBLIOGRAPHICAL AND FIELD DATA

A different approach to classification of sources into bibliographical and field sources may be more meaningful. Bibliographical sources may be taken to include all that is recorded and available — printed or manuscript, official or non-official. It is these data that are commonly and largely utilized in most research —, basic and operational —, in social sciences, and may be primary, secondary or tertiary in character. They would be available in libraries, offices, archives and even with private individuals. Their basic feature is that no field work is required to gather them but only an effort to get at the records.

Field sources may be either of the experimental type or from field surveys such as those undertaken by the Reserve Bank, the Indian Statistical Institute and other organizations. These are described in detail in the succeeding chapter.

BIBLIOGRAPHICAL SOURCES

To revert to bibliographical sources: The first point to remember is that the researcher should make the maximum

use of experience by drawing upon previous works and available records. Knowledge so gained may be largely secondary, none the less, extremely important to set the investigation on the move. Thomas Alva Edison, one of the greatest inventors of all times, observed:[6] "When I want to discover something, I begin by reading everything that has been done along the line in the past; I see what has been accomplished by great labour and expense in the past; I gather the data of many thousands of experiments and then make many thousands more." The more of literature and facilities there are to know the past in the particular line the easier it is to pursue the research on hand. Even for an experienced investigator, looking up the available material may suggest a new problem or point of view.

Consulting available material is useful in different ways. It enables relating the contemplated investigation to earlier efforts, thus preventing atomistic research projects. It helps to avoid treading old ground or resorting to discarded techniques and tools. It would not only provide a background but also facilitate identification and clarification of study which would guide hypothesis-formulation and suggest new avenues of approach. No less would be the advantage of getting at data for comparing the new techniques and conclusions, and in providing at the same time a frame of reference for testing the earlier research. Further, field work often demands much time and cost and where funds and manpower are limited or where the project is of the 'action research' variety as, for example, techno-economic surveys, with time, not depth, as the determining factor, analysis of available material may be adequate. Finally, some types of research such as historical ones are necessarily bibliographical. There is, thus, a great deal to be gained by looking up existing records.

How to use a library or archives is a problem the young researcher has to face,[7] and currently a number of guide books are available, such as the *Uses of Libraries* edited by E. A. Baker, and *How to use a Large Library* by E. J. Ding-

[6] Quoted in Eigelberner, *Investigation of Business Problems*, p. 116.,

[7] For an interesting introduction to the use of libraries etc. see W. A. Bagley, *Facts and How to Find them*, London, 1956.

wak. When exactly the material should be looked up depends upon the problem selected, the type of investigation, the researcher's own experience and the availability of the material. For instance, facilities for consulting records are greater in Delhi and Calcutta and to a lesser extent in Bombay than elsewhere in the country. Because of this an investigator should not postpone the enquiry until he can go to Delhi or Calcutta to read all the material available nor is such fuller knowledge necessary.

If the investigation is, as the *Rural Credit Survey* is, based largely on field work or on experimentation, studying the bibliographical sources need not be extensive. By and large, a consultation of bibliographical sources may be any time between the beginning and the end of the enquiry, but should usefully be made before final inferences are drawn. Such a study would not only limit the scope of the problem and guide the researcher to sources but also would lead him into more useful channels.

Bibliographical data are broadly of two kinds: statistical compilations and narrative material. Both these may be official (e.g. Indian Government publications), non-official (e.g. those of the Federation of the Indian Chamber of Commerce and Industry) or of voluntary agencies (e.g. Gokhale Institute of Politics and Economics). While all sources should be looked up, as far as possible, which exactly is to be used depends mainly on the problem being enquired into. By and large, official documents are more abundant, easily available and easy to use and to cite, but really valuable information could be unearthed by delving into the less obvious documents and unassembled data, such as the *evidence* tendered e.g. before the Indian Railway Freight Structure Committee, rather than the report itself or comments thereon, and non-official sources.

The initial issues regarding bibliographical data are where to find the source material and how to determine its dependability i.e. the twin problems of 'consistent availability' and 'reliability and validity'.

STEPS IN UTILIZING THEM

The first step to take is to accumulate a bibliography of

the related literature. The tracking down of relevant literature is a very skilled task. There are a number of aids to get at the sources, such as, the *Reference Catalogue of Current Literature, The Indian National Bibliography, Guide to Current Official Statistics in India, The International Index to Periodicals, The Cumulative Book Index, Tax-Institute Book-Shelf,* the American Economic Association's classified *Index to Articles in Economic Periodicals* and so on. Some of these like the *Bookshelf* are highly specialized but a large number of them contain references to a variety of topics and subjects. First, therefore, to know what indices exist and the extent to which the initial bibliography should be formed depends on the field of investigation and the researcher's own familiarity with these sources. It is worth remembering that a number of these bibliographies, voluminous and detailed as they are, are not exhaustive and that, therefore, it is necessary to supplement the published indices. One should, however, stop accumulating indefinitely the references unless he is preparing a bibliography for its own sake, as for instance, Professor Batson's *Bibliography of Economic Theory.*

After an initial list of sources is prepared, their study forms the second step to take. Effective and full use of the bibliography should be made. As one goes on studying the literature additions to the original list should be made by adopting the snowball process i.e. noting cross references, although some of the titles may not be available. A card index would facilitate easy reference, alterations and additions and also save duplication. Classify the sources into general and specialized data, reports, proceedings, official and non-official publications as well as articles in newspapers and periodicals. It will be useful distinctly to mark out unpublished and manuscript sources even at the initial stage of the enquiry. These initial steps would, no doubt, demand considerable patience and great industry, but would pay ultimately in locating the data and seeking sources not available easily.

DOCUMENTS AND THEIR SIGNIFICANCE

Making a mere bibliography is, however, not research. The first step in utilizing this source is evaluating the

'documents'. * Official documents are generally more dependable but not necessarily so. So far as bare facts are concerned such documents suffer from three defects. They may gloss over or distort facts, as for example, the *Bengal Famine Enquiry Report,* partly because the facts may not be clearly known, partly because the issuing authority may try to cover up certain information and partly because, being too near the event, an objective and full assessment may be difficult. Further, as official publications are not research products they do not go deep into the problem, for example, the *Masani Committee Report on Road Transportation* in India. Finally, they have a particular purpose to serve and the body which makes the report need not necessarily be an expert one. These remarks are true of a large number of official reports particularly in underdeveloped countries with infant democracies or even autocracies where objectivity and depth in assessment are not common. The researcher, therefore, should accept these fully only with regard to the *policy* statements but not equally fully with regard to the facts themselves.

Personal documents are often very valuable sources but suffer from possible distortion by the writer in that there may be an attempt at self-justification, for example, the writings by Generals Eisenhower and Montgomery on the Second World War, or from exhibitionism as in Rousseau's *Confessions,* or a literary flourish wherein facts are subordinated to language, or a personal perspective such as Prince Bismark's *Reflections and Reminiscences.* Similarly, diaries (e.g. Samuel Pepys' or Ananda Rangam Pillai's) and letters (e.g. Roosevelt's *Letters*) could be most revealing but tend to exaggerate. These instances caution the researcher that he must weigh the evidence before he accepts it.

Some of the questions that he should bear in mind are: Are the quantitative data comparable in time and content? Are the base years, concepts, methods of calculation, items included, weightage given, etc. similar? Are the data what they seem? How precise are the measurements? How de-

* The term 'document' is used here in the very broad sense of all bibliographical sources — published and unpublished, official and non-official etc.

pendable is the narrative of what it records? What is the degree of distortion? etc. These questions acquire particular importance when collating or comparing data from several sources.[8]

THE ART OF NOTES-TAKING

One important point to bear in mind is the method of taking down notes. "An indispensable instrument in the technique of social enquiry — seeing that without it any of the methods of acquiring facts can seldom be used effectively — is quite an exceptional system of making notes".[9] Notes-taking has been aptly compared to the blow pipe and the test tube in chemistry or the prism and the electroscope in physics.

Notes-taking is by no means an easy job. Method, adequacy and accuracy are the three important ingredients of notes. Good notes should help analysis by isolating facts and synthesis by combining them. Such is the importance that is placed on this process that the Webbs[10] observe that "the mechanical perfection of notes-taking may become an instrument of actual discovery. It is difficult to convince students, especially those with a literary rather than a scientific training, that it is just by this use of a mechanical device as the shuffling of sheets of notes, and just at this stage that the process of investigation often becomes fertile in actual discoveries". For enabling discovery, the stage of making observations is considered not more important than the method of taking down notes. "We have found this game with reality, this building up of a new hypothesis and knocking it down in favour of others that had been revealed or verified with a new shuffle of notes, a most stimulating experience".[11]

Since time and energy are important considerations in research projects, the investigator should learn — and this can be done only from experience — which 'book' to study, which to skip through and which to refer only to the relevant portion with the aid of the contents and the index.

[8] *Vide* the appendix on the 'Available Statistical Material', in M. H. Gopal, *op. cit.*

[9] Sidney and Beatrice Webb, *Methods of Social Study*, p. 83.

[10] *Ibid.*, p. 88.

[11] *Ibid.*, p. 93.

The more careful the researcher is in notes-taking the greater will he benefit from his effort. Although there are no standardized rules certain guide lines may be indicated. Firstly, since frequent and necessary rearrangement of notes is necessary in the course of analysis and interpretation, take down notes on separate sheets of paper, preferably of a uniform size. This would help the classification of facts to test various tentative hypotheses, and also free the researcher from a particular placement of facts in time or sequence or co-existence. Next, each separate fact or idea should be on a separate sheet. This step might mean a little more of paper than writing down continuously in one sheet or in a large notebook but such an investment would pay. Further, since the sources tapped are different and verification of the sources would be required at a later stage, different sheets should be used for facts from different books, reports, etc. This would help the problem of identification and verification. Each of these sheets should contain either fully or in a recognizable symbol the sources of information, page, paragraph, etc. A colour scheme may be used to designate different types of references such as official reports, articles and books. A wide margin in each sheet would facilitate noting cross references and help the researcher to write down comments as and when ideas suggest themselves to him.

X

FIELD DATA

THE term 'field data' as used below comprises the facts gathered by a direct survey in the field as in the *National Sample Survey* or through experimentation as in a psychological laboratory or with regard to some social problems such as family planning. The scope for experiments in the social sciences being limited, field data, by and large, relate to the information of the former kind.

FEATURES

Field data might lead to the collection of currently unknown or unavailable facts; or may relate to facets of a problem which have not been adequately enquired into; or often, they might be merely in the nature of verification of known facts and conclusions. The facts are *not* gathered from available published or unpublished sources. The field data always involve direct contact between the researcher and the investigated 'subject' or 'field' either through a schedule or a mailed questionnaire or in other ways described below. This direct contact results in the data being raw and mixed in that, in spite of the most carefully formulated schedule or questionnaire or experiment, a lot of extraneous, though perhaps valuable, material will be gathered necessitating sifting and processing and very careful selection of facts, as evidenced by the *National Sample Survey*.

Collecting facts from the field is expensive and time-consuming. Sometimes, as in the case of the Reserve Bank's *Rural Credit Survey*, months and years may elapse between the initiation of the enquiry and final analysis and reporting. The amount of expense and the extent of time required depend naturally upon the size of the sample, the nature of the problem, the details desired, the quality and number of the personnel employed and similar factors. The consider-

able time and expense associated with a voluminous fact-collecting effort like that of the Reserve Bank's *Rural Credit Survey* may be compared with those of the village surveys by Dr. Harold Mann decades ago in the Bombay Presidency. A final feature of such data is that gathering and processing them needs a special kind of research ability and qualities such as patience, tact, perseverance and so on.

ROLE

Field data have a definite and important role to play in research. They help us to understand complex and interwoven relationships and to study the total situation in a problem — approaches which are particularly useful in social investigations. Because of the direct contact with the 'subjects' of investigation and the probability of gathering unanticipated facts, field work often leads to fresh points of view and to new points of departure in the study.

One of the familiar features of research in underdeveloped countries is the frequent resort to surveys for collecting data. While it is true that a great deal even of basic information needs to be gathered in countries like India even on very familiar problems such as rural indebtedness, social structure or unemployment, it looks as though field work, and often of the scrappy variety, is becoming all too common and slipshod, as for instance, in traffic surveys. For, considerable material is available in published and unpublished sources and, therefore, needs only patient and intelligent analysis rather than the institution of a new field enquiry involving time and expense. How existing data can be utilized meaningfully without resorting to field work is illustrated by the *Techno-Economic Surveys* of the National Council of Applied Economic Research although these surveys are not research of the first order.

WHEN TO COLLECT FIELD DATA

When exactly to collect completely new or field data is not easy to determine, as a number of circumstances influence the decision. The first of these is the current availability of facts in terms of adequacy, accuracy, relevance, and accessibility. For instance, the *National Sample Survey*

in one or the other of its 'rounds' has gathered data (e.g. expenditure patterns) relevant to the study of tax incidence. But if the thousands of schedules are still unprocessed and it requires Herculean effort to unearth the information, it may be wiser to collect the relevant facts afresh and particularly as the *N.S.S.* data may be outdated. Again, techniques of collection—e.g. newer and more scientific schedules—may have so advanced as to suggest a fresh collection. A third factor is the large number of follow-up studies in the related field making collected facts antiquated or limited in value. Further, where the problem area is not clearly known, rushing to collect field data may be inadvisable; but where the question studied has become more pointed, available material may become inadequate.

Sometimes for purposes of checking and verification of existing knowledge, field information may be useful. Often the necessity for more facts or for newer ones, at least from a different angle, suggests the resort to field data. What, however, should be avoided is indiscriminate and unnecessary survey work just for the sake of field work, except as research training process. The plethora of field surveys under the Research Programmes Committee schemes, and conducted independently in the Universities and other learned bodies suggests that sometimes they are being overdone in India where problems but not trained personnel are plentiful.

LIMITATIONS

In gathering such data there are some inevitable limitations, the first of which is the dearth of qualified investigators. Field work involves largely direct contact except where the mailed questionnaire technique is used. Such direct contact requires particular qualities and special training; for instance, not all can persuade a respondent, even if he is educated, to unburden himself of the facts sought, say, regarding his indebtedness and savings. There is often the risk of creating public relations problems such as being misunderstood of treating citizens as 'guinea pigs' e.g. in family planning studies. In multi-racial societies (e.g. U.S.A.) or multi-caste or multi-community regions (e.g.

India), a variety of complications arises, particularly where depth in research is attempted: for example, political and social bias, semantic problems, difficulties of inter-race/caste/community interviewing, inadequate knowledge of local culture and sociology, and so on, but more than all, the difficulty of the investigator and/or respondent not being objective, i.e., "the danger, never wholly avoidable, of not being completely objective in viewing a culture in which one's own life is embedded, of falling into the old error of starting out, despite oneself, with emotionally weighted presuppositions and consequently failing ever to get outside the field one set out so bravely to objectify and study".[1]

TOOLS OF COLLECTION

These and other limitations, ever present, will have to be solved by developing a research mind, by using one or more of the current techniques of data collection and by constant effort to improve the tools and to fashion new ones. Some of the commonly used techniques, discussed in detail in later chapters, are the schedule, the questionnaire, interview, observation, experimentation, and case study. These are not mutually exclusive; for example, the interview is an essential part of utilising the schedule; observation is part of the experimental tool; and the case study is only an enquiry in depth and detail of a small sample and using one or more of the other techniques. What is important for the field investigator to bear in mind is the relativity of the tools — their relevance and effectiveness depending on the type of problem, the 'field' or respondent to be tackled, the personnel employed and so on.

1 S. L. Lynd, *Middle Town*, p. 3.

XI

THE SCHEDULE AND THE QUESTIONNAIRE

A DEVICE that is most frequently used in gathering field data especially where the survey technique is employed is the schedule or its counterpart, the questionnaire. This tool is very extensively used in the United States partly because it enables an easier and more convenient way of studying a representative sample, specially where elaborate studies in different areas are undertaken. There have been in India innumerable examples of the use of this tool in recent years, for instance, the *National Sample Survey Reports* and the Reserve Bank's *Rural Credit Surveys,* while the questionnaire, has been used in a number of Government enquiries such as that by the Indian Taxation Enquiry Commission.

The schedule in a sense is a detailed, classified, planned and seriated list of items on which information is required. Its main use is to obtain concrete, quantitative and objective data from the sources direct. Sometimes, as in the case of a pilot survey, it might be used to initiate a piece of research. It helps the collection of standardized and measurable data, such as, population, indebtedness and savings. It is an inventory which the enumerator fills up when he contacts the respondent. The field investigator is thus an essential component of the schedule and the interview technique. Personal contact between the enumerator and the interviewee becomes a *sine qua non* of the schedule. On the other hand, the questionnaire, though similar to the schedule, does not envisage any such personal contact. It comprises a series of questions to persons who can give the information required and very often the questionnaire is mailed. It is always filled in by the respondent and not the investigator. "The most typical use of the questionnaire is in an attempt to gather, rapidly and inexpensively, information regarding

attitudes, opinions or the factual situation in a given field".[1] It is particularly useful where the area of investigation is so clearly determined that the questions could be precise and where the respondents are literate. Whereas in underdeveloped countries with a predominantly illiterate population, the schedule and the interview are preferable.

The basic difference in the method of getting the information introduces certain peculiarities in structuring the questions. An example of the schedule that was used by the Applied Social Science Research Unit, with which the author was connected, is appended.

HOW TO CONSTRUCT A SCHEDULE

The structure and length of a schedule as well as the details depend upon the objective of the enquiry. But in all schedules the structure attempts to classify the different data even initially. The extent to which these details are fully and correctly recorded, i.e. the validity of the data, depends on the skill and imagination in constructing it and the investigator's efficiency in filling it out. While there is no standardized form for schedule some broad principles might be borne in mind.

The data should be objective and quantitative, easily observable or suppliable, for example, the size of the family, nature of all employment, the languages spoken etc. The data must be such as cannot be secured in any other and easier way, or when secured should be such as can be corroborated. This is to save both time and avoid the inconvenience of interviewing. The investigator has necessarily to talk to the interviewee for the information, and even the simplest bit of information demands great patience and perseverance on the part of the investigator. The data must also be such as can be compared within the investigated groups, as otherwise analysis and inference would become difficult.

Wording: The items in the schedule must be clearly and precisely worded so that both the investigator and the interviewee might easily know what is wanted. It is true that

1 N. A. Polansky (ed.), *Social Work Research*, p. 150.

the investigator goes through an orientation in the use of the particular schedule, but this is no substitute for precision and clarity in the schedule itself. As far as possible both the items should be capable of being answered with a direct 'yes' or 'no'. Since all enquiries are a sort of interference in the personal affairs of the respondent and, therefore, may lead to bias in the answers, the wording must not be inquisitorial. A schedule in tabular form would be convenient for comparing and coding purposes. Since the respondent's own replies are wanted, leading questions suggesting the answers should be avoided. It is also necessary to clarify what the concepts and terms really stand for. Supposing an enquiry is into the effect of a price-rise on the rural community, define which category of prices is intended. It is best to avoid subjective evaluation because it is not easily and quantitatively measurable.

To facilitate the use of a schedule by the investigator, generally detailed but definite, accurate and simple instructions about its use should be provided (*See Appendix*). Every item must be separately and specifically explained at least to the enumerator so that ambiguity is minimized.

Mechanical aids: In larger and more detailed enquiries some mechanical aids are employed: for instance, standardizing the size of the schedule cards to facilitate handling both in the field and at the analysis stage. It is useful to leave one side of the sheet blank for purposes of comment. Coding (*See Appendix*) would save time and ensure greater standardization in the answers.

While a long schedule is inconvenient and awkward a long questionnaire is much worse. A questionnaire, therefore, should be relatively shorter than a schedule, largely because the initiative in filling it is with the respondent, and even for a well constructed short questionnaire a response of 20 per cent would be highly satisfactory.

STRUCTURE OF A QUESTIONNAIRE

A significant feature of the questionnaire is in the design

of the questions whose form and content depend on the research objectives and hypothesis. The questions should be such as to translate fully the objective, minimize the distortion of the response and elicit accurate replies, as there is little opportunity to seek further clarification.

Maximizing respondent orientation depends on the number, sequence and language of the questions as well as on the kind, quality and volume of information required. Therefore, to ensure the attention of the respondent the questions should be few, limited to facts and of interest to the informant. The sequence or frame of reference should be such that one question leads to another and makes its relevance self-obvious. The 'funnel approach' or the flow from general to specific questions is often advocated, while 'transition questions' may be useful. Leading and loaded questions which, however unintended, suggest the required answer should be avoided. Questions which give scope for rationalized answers as well as vague ones should be discarded. The wording must be in familiar language and unequivocal and straightforward. Each question should be strictly limited to a single idea, and global questions should be avoided. The information sought must be appropriate to the respondent's level, as otherwise he might be so embarrassed that he would either not respond at all or, if he did, might pretend to a competence alien to him. The scope for answers must be such as to demand of the respondent the minimum of time and effort and to provide maximum scope for checking. Questions answerable only through personal interviews should be avoided. Where very personal questions are asked and answered, assurance of their being treated confidential must be given. It is best to test the questionnaire for likely reactions before it is released. It is useful to make a personal appeal in a letter explaining the purpose of the enquiry and appealing for the respondent's co-operation. If properly framed, the questionnaire has the added advantage of ensuring anonymity to the respondent and, therefore, of scope for more reliable answers; but it also affords the opportunity to read the questions ahead and thus to 'adjust' the answers. On the whole, however, it makes possible a great variety and number of alternative questions, which may be lost

sight of in the schedule and by the interviewer as well.

DEGREE AND RELIABILITY OF THE RESPONSE

The degree and dependability of response are related to three main factors: (1) The subject of enquiry; (2) the class of respondents; and (3) the structure of the questionnaire. In underdeveloped countries where even such simple questions as saving are treated as highly personal, the response will be both poor and not very accurate. The schedule would be a better device in such an environment. Where the respondents are not civic conscious the replies will be few and far between. But where, as in U.S.A., there is a high degree of education and social consciousness even an enquiry into the very intimate problem of sex behaviour could be successfully tackled as was done in the Kinsey reports. Very broadly, a high reliability could be expected in answers to objective and factual questions and low reliability regarding attitudes. If the questionnaire is short and simple and attractively worded without too many details, reliability is greater. The tendency, not uncommon in India as in the Indian Taxation Enquiry Commission questionnaire, to send out elaborate and vague questionnaires, should be avoided.

APPENDIX

SPECIMEN OF A SCHEDULE OF AN ENQUIRY INTO EMPLOYMENT, INCOME AND SAVINGS USED BY THE TRAINEES OF THE FORD FOUNDATION (APPLIED SOCIAL SCIENCE RESEARCH) UNIT, UNIVERSITY OF MADRAS

NAME OF INVESTIGATOR

Record of Calls	
Calls made	
Date	
Time and duration	

1. *Household*

	1	2	3	4	5	6
1. 1 Name						
1. 2 Age						
1. 3 Sex						
1. 4 Marital status						
1. 5 Address						
1. 6 Mother tongue						
1. 7 Religion						
1. 8 Caste						

2. *Education*

	1	2	3	4	5	6
2. 1 General						
2. 2 Technical						

3. *Employment Status*

	1	2	3	4	5	6
3. 1 Employer						
3. 2 Employee						
3. 3 Own account worker						
3. 4 Family helper						
3. 5 No gainful employment						

4. *Nature of Employment*

	1	2	3	4	5	6
4. 1 Industry						
4. 2 Occupation						
4. 3 Public or private						
4. 4 Secure or insecure						
4. 5 Regular (permanent) or casual						

5. *Present Jobs* *

	1	2	3	4	5	6
5. 1 Working hours: normal for week days and Saturdays						
5. 2 Working hours: overtime						
5. 3 No. of days of work in the week						
5. 4 Duration of present employment						

* For rural areas see Appendix.

6. *Previous Jobs*

	1	2	3	4	5	6
6. 1 No. held						
6. 2 Causes for leaving previous job						
6. 3 Salary in previous job						

7. Desire for Improvement in Conditions of Service

	1	2	3	4	5	6
In respect of						
7. 1 Salary						
7. 2 Hours of work						
7. 3 Relationship with employer						
7. 4 Relationship with co-workers						
7. 5 Prospects						

8. Present Income

	1	2	3	4	5	6
8. 1 Income from job (*total*)						
8. 2 Basic salary						
8. 3 D. A.						
8. 4 Other allowances						
8. 5 Income from independent employment						
8. 6 Mode of payment: daily, weekly or monthly Perquisites: kind or cash						

	1	2	3	4	5	6
8. 7 Subsidiary employment* Nature						
8. 8 Income						
8. 9 Days of work in the week						
8. 10 Hours of work in a day						
8. 11 Overtime work — nature						
8. 12 Overtime work — hours						
8. 13 Overtime work — earnings						
Other incomes						
8. 14 Lands						
8. 15 House						
8. 16 Investments						
8. 17 Remittances						
8. 18 Others						

* Special attention of rural investigators is drawn to this. Detailed information is to be collected.

9. *Present Unemployed*

	1	2	3	4	5	6
9. 1 Duration of unemployment since 1951						
9. 2 Duration of present unemployment						
9. 3 Sources of income, savings						
9. 4 Loans (*interest free*)						
9. 5 Loans on interest						
9. 6 Interest on above						
9. 7 Duration of above						
9. 8 Pledging movables						
9. 9 Mortgage of immovable property						
9. 10 Sale of jewels						
9. 11 Sale of house						
9. 12 Sale of land						
9. 13 Sale of other property						
9. 14 Job sought industry						
9. 15 Occupation						
9. 16 Salary expected						

		1	2	3	4	5	6
9. 17	Willing to move to other parts in city						
9. 18	Willing to move to other districts						
9. 19	Willing to move to other States						
9. 20	Prepared or not prepared to train for a new job.						

10. *Casual Labour*

		1	2	3	4	5	6
10. 1	Days of employment per month						
10. 2	Wages per day						

11. *Assets* *

		1	2	3	4	5	6
11. 1	House: Value						
11. 2	— Income						
11. 3	Land: Value						
11. 4	— Income						
11. 5	Stocks & shares: Value						
11. 6	— Income						
11. 7	Others: Value						
11. 8	— Income						

*Mark *H* for hereditary and *A* for self-acquired.

	1	2	3	4	5	6
11. 9 Deposits: Value						
11. 10 — Income						
11. 11 Insurance: Value						
11. 12 — Premium						

12. *General Reactions to the Different Avenues of Investment*

1	2	3	4	5	6

13. *Savings*

	1	2	3	4	5	6
13. 1 Total amount						
13. 2 Post office savings bank						
13. 3 Nidhis etc.						
13. 4 Loans to others						
13. 5 Monthly rate of savings in 1955						
13. 6 do 1956						

			1	2	3	4	5	6
13. 7	do	1957						
13. 8	do	1958						
13. 9	Are savings a regular and planned percentage of income?							
13. 10	Why not larger savings: due to low margin?							
13. 11	Due to security?							

APPENDIX

Additional Information to be Collected by Investigators in Rural Areas — Vide Block No. 5 in Schedule)

	Status of the Agriculturist 5.5	*Season when employed* 5.6	*Employment for how many days in each season* 5.7
	1	2	3
1			
2			
3			
4			
5			
6			

	Employment for how many hours each day 5.8	*What kind of work is done in the off-season* 5.9	*How many days of employment in the off-season* 5.10
	4	5	6
1			
2			
3			
4			
5			
6			

ENQUIRY INTO EMPLOYMENT, INCOME AND SAVINGS (MAY, 1959) GUIDANCE NOTE

BLOCK 1 — HOUSEHOLD:

Household means a group of persons, males and females, related or otherwise, having a common kitchen and pooling all or part of their earnings and incomes.

1. 1 Begin with the head of the household. Head of the household is the person accepted as such by members of the household. (*Give each member a Serial No. and follow this number throughout the Questionnaire.*)

1. 2 Age means age at last birthday.

1. 3 M — Male; F — Female

1. 4 *Marital Status:*
M — Married
W — Widowed
D — Divorced
S — Separated
NM — Not married
(*Indicate also the number of times by adding the relevant number.*)

BLOCK 2 — EDUCATION:

2. 1 General: Up to VI Form; write the standard or form completed; beyond that indicate S.S.L.C., Inter, Degree (*Specify*).

2. 2 Technical: Technical and professional degrees and diplomas. Also include technical training, recognized or otherwise, with years of experience after training.

BLOCK 3 — EMPLOYMENT STATUS

3. 1 Employer is one who is in business assisted by hired labour, part-time or full-time.

3. 2 Employee is one who works for a wage or salary, in kind or cash.

3. 3 Own account worker is an independent worker not in regular wage employment under any one and unassisted by paid labour.

3. 4 Family helper is a person assisting the Head or any earner in the household in the performance of his craft, trade or professional work for which he is not paid.
3. 1 to 3. 4 — Tick off the relevant column.

3. 5 No gainful employment: Indicate code number in classification below:

Household worker	1	No desire to work	6
Children and Students	2	Unemployed for the first time	7
Old age and sickness	3	Unemployed not for the first time	8
Unearned income	4		
Remittance holders	5		

BLOCK 4 — NATURE OF EMPLOYMENT:

4. 1 & 4. 2 Write the actual occupation and place where employed (*to be coded later*).

4. 3 Public means employment by the State or a Statutory Corporation or a local board.

4. 4 Security is with reference to tenure of employment.

4. 5 Regular means assured employment for the month. (*Rural trainees may use the term permanent.*)

BLOCK 5 — APPENDIX: MEANT FOR RURAL TRAINEES

Status of the Agriculturist: Indicate Code Number:

Mainly owner-cultivator	1
Mainly tenant	2
Non-owning labourer	3
Non-cultivating owner	4

Season:

Ploughing	1
Sowing and transplanting	2
Weeding	3
Harvesting	4

Off-Season:

The interval between any two seasons.

BLOCK 6 — PREVIOUS JOBS:

6. 2 & 6. 3 Refer to the job held immediately previous to the present one.

BLOCK 7 — DESIRE FOR IMPROVEMENT IN CONDITIONS OF SERVICE:

Tick off the relevant columns; if possible give details.

BLOCK 8 — PRESENT INCOME:

8. 1 to 8. 4 Apply to members figuring in 3.2.

8. 5 Applies to members figuring in 3.1 and 3.3.

8. 6 & Below Apply to all persons having income.

BLOCK 9 — PRESENT UNEMPLOYED: (*Applies only to those currently unemployed.*)

9. 3 & onwards Should indicate sources of maintenance during the present unemployed period. Answer giving amounts drawn from each source for the previous month.

BLOCK 10 — CASUAL LABOUR:

10. 1 Number of days employed during the last month.

10. 2 Wage obtained on the last day of employment.

BLOCK 11 — ASSETS:

All figures to be rounded off to the nearest hundred. Figures less than Rs. 50, record the exact amount.

11. 7 Others: Items to be specified. Omit consumer goods, durable or otherwise.

BLOCK 12 — GENERAL REACTIONS TO AVENUES OF INVESTMENT:

Select from the following and arrange according to priority of preference:

Building	Insurance, National Savings
Agricultural Land	Others (*specify*)
Cattle	Business (*Specify*)
Bank Deposit	Moneylending
Chit Fund	

XII

THE INTERVIEW

VARIOUS devices are used by the social scientist in the collection of primary data — schedule, questionnaire, participant observation, interview, case study and so on. Although these are not mutually exclusive and independent of one another, the interview is the most important and all-pervasive tool. It is the implement *par excellence* of the field worker, particularly in an underdeveloped country both because of the types of problems tackled and the environment from which data are to be collected.

The Underdeveloped Setting

The typical problems are either the comprehensive socio-economic surveys or particular ones such as slums, unemployment, migration, rural debt, income and family planning. Let us look at the features of the environment of an underdeveloped country. If a questionnaire, specially of the mailed variety, is to be utilized successfully an educated community capable of understanding the questions and realizing its own responsibilities to respond truly and fully becomes necessary — a condition difficult to expect in illiterate India. Illiteracy hampers comprehension of the questions and the correct and relevant response. There is, further, an inborn conservatism which reduces the fullness and accuracy of the response. Isolation of the village adds to these difficulties, while the pattern of life is interwoven with economic, social, religious, customary and other myriad influences. These features demand great skill and experience in the investigators — developing a *rapport,* in leading the initial questions, in probing, in recording and so on — if the interview is to succeed in gathering adequate, all-sided

and reliable data. For, reliability of data depends not only on the design — wording, construction and sequence — of the questionnaire but also on the administration and technique of asking questions and eliciting answers in interviewing. Training, thus, becomes essential; and it must be related to the particular purpose, area and type of person interviewed.

THE INTERVIEW AS A TOOL

The interview is conversation with a purpose and, therefore, is more than a mere oral exchange of information. Its importance arises from the necessity to come into contact with individuals to get access to facts and opinions and to receive them directly from the persons. Where the source is accessible to the investigator, the interview is the device to tap it; and if it is not easily reachable, the questionnaire is the means. Apart from accessibility, the controlling factor in the success of the interview is the reaction of the personalities involved — the investigator and the respondent.

The interview, as a research tool, has certain advantages, which become more important in an underdeveloped country. Being always direct, it is the only way by which certain types of information can be obtained. It is as trustworthy a means of getting facts as participant observation is. Being highly flexible, it permits of maximum variation in directing the inquiry and herein scores over the questionnaire. People unable or unwilling to answer even the shortest questionnaire will talk, and freely too, owing to the informality of the occasion. The interview helps to supplement personal information and check on experience and ideas. The interviewer uses his tool in the same way as does a physician when he talks to a patient to describe how he feels and what he thinks is the matter with him. As Eigelberner remarks, "The contact of minds, a hint here, a suggestion there, leads to the birth of ideas which might not have been conceived but for the stimulation of the discussion". An offhand remark may suggest a new angle of approach or a solution. The flexibility and other advantages of the interview depend largely on the approach and experience of the person conducting it. If he can control the interview tact-

fully, lots of information and attitudes can be drawn out, specially if the direction of enquiry can be imperceptibly changed.

ITS LIMITATIONS

Apart from the fact that the usefulness of the device depends on the quality of the interviewer, other limiting factors are time, space and expense. In average investigations, especially those conducted in underdeveloped areas, there is time only for a limited use of the interview and so the opportunity for errors is increased. The interview is also limited in its use to a particular locality; and since personal contact is essential, a lot more of expense than in the questionnaire is involved. More than all, a great weakness is the tendency towards the inaccuracy and offhand character of many of the statements, often perhaps with a good doze of exaggeration.

These limitations of the tool resolve themselves into two types: (1) those associated with the respondent: his inability or unwillingness to provide certain types of information, e.g. his income and expenditure, direct judgment on himself etc., his bias in reporting, i.e. the more personal the data, the greater is this bias; and memory bias. These limitations can be neutralized by a patient, skilful and sympathetic interview — which means *understanding* of the psychological basis of interviewing and systematic *training* in questioning. (2) Those associated with the limitations and bias of the interviewer himself — his preconceptions, method of recording, follow-up questions and so on. Careful selection of the interviewer and his proper and *practical* training could overcome these drawbacks. The risk of letting loose new and raw investigators or even unsystematically or partially trained ones to gather data is indeed formidable.

The kind of data to be collected and the procedure of collecting them, which determine the type of training for the interviewer, are broadly of three types: (1) *diagnostic,* i.e. to obtain information regarding the life or attitudes of the respondent or to clear up the general picture for determining some focal point; (2) *therapeutic,* i.e. to obtain data for working over a programme or to help the develop-

ment of the personality of the respondent or aiding him in social adjustment; (3) *research,* i.e. to collect data not objectively stated but necessary to understand a social situation for scientific analysis and interpretation. Many of the investigations being undertaken in India to-day are of the first and second varieties.

THE RESPONDENTS

The interview may be confined to one type or class of persons or more than one type, and the technique varies according to the type. Broadly, there are three types of interviewees: (1) the man in a position of authority, sometimes called the potentate; (2) the one with special knowledge, i.e. the expert; (3) the man in the street, i.e. the masses. For example, in investigating industrial labour, the boss or manager of a factory is the potentate, the trade union chiefs and the labour officers are the experts, and the actual workers in all their hierarchies, the people. In community projects, the chiefs or sub-chiefs are the potentates; the consultants, the experts; and the villagers, the masses. By and large, the potentate helps with permission, the expert with his specialized knowledge, and the masses with facts and feelings. Although the technique described below applies to all the three types, a few special hints may be noted.

The essential thing in interviewing the boss is to avoid friction with him and try to convert the investigation into a joint effort. To do this, it is advisable to begin with a regular series of motivating interviews, first explaining the purpose and the project so as to gain the understanding and sympathy of the potentate; next, explain the details so as to arouse the curiosity of the boss; sometimes in this process, the details will have to be modified; and finally, in later interviews, test facts and secure corroboration so as to act as a corrective to arm-chair planning.

The experts, specially on social problems, tend to differ among themselves and so their examination reveals areas of conflict and obscurity. The expert is the starting point of scientific enquiry and, as he feels he is an authority, avoid giving him the impression that his opinion is *only one* of the many aspects to be considered in arriving at the truth.

It is interviewing the masses that really forms the principal application of the tool. Most of the enquiries taken up in India to-day are related to the masses, especially in the rural areas. A knowledge of the individual and individual behaviour is essential to build up confidence and insight. Richness of impressions and precision in data should be the objective. In a mass interview, richness is often sacrificed for quantitative data, while in the therapeutic one the opposite is true. One should essentially be a good listener. Recording one of his experiences in an urban area, an investigator observed: "In certain cases, the informants in their over-enthusiasm would narrate their tales to the interviewer and the latter had to listen to them patiently". But even a casual visit to many of the investigators at their work would show how difficult it is to be a good listener. This is so partly because of the limited time factor, speed often conflicting with depth or penetration, i.e. close relationship, but largely because of the lack of systematic training in the interviewing technique.

Not all techniques in interviewing are equally useful in all cases. Thus, in counselling interviews, where collection of data is not the objective, the non-directive type of interview is ideal. This consists in a friendly, receptive and non-didactic attitude, requiring a lot of restraint on the part of the interviewer. The interviewer's primary duty is to help the informant to unburden himself. Patient listening, non-display of authority, absence of advice and argument and ability to adopt temporarily the beliefs and attitudes of each of the informants characterize this technique. So great is the skill needed in this therapeutic approach that interviewers sometimes undergo a course in personal psycho-analysis.

A technique more useful to the social scientist is the *framed interview* where interview is directed to particular aspects, e.g. in urban surveys. Range and depth become the tests of the quality of the interview, range indicated by the data confirming or refuting the hypothesis, and depth by the intensity of personal feeling brought out.

A different approach becomes necessary when life-histories are to be elicited and here the *free association technique* is more handy. This consists in regarding the infor-

mant as representing a group, emphasizing configuration i.e. regarding experience from childhood through to adulthood as a related continuous process, and conceptualizing the life history material. This approach gives not only valuable biographical material but also direct insight into the social situation.

A more interesting technique employed in economic investigation is that of the *informal interview,* i.e. indirect conversation as opposed to the quicker question-and-answer method. This approach is specially suited to enquiries about, for example, unemployment, which can be best assessed through the eyes of the unemployed himself. In a recent enquiry into employment, income and savings in an urban centre, an interviewer summed up thus: "In many cases, the investigator had to talk to the informants about things in general so that they would not feel that they had disclosed their personal affairs".

Of late, the informal interview has been resurrected as an independent and dependable tool for scientific enquiry. Relying on this approach in his *Labour, Life and Poverty,* Professor Zweig remarks: "I dropped the idea of a questionnaire or formal verbal questions put forward in the course of speech; instead, I had casual talks with working class men on an absolutely equal footing and in friendly intercourse.... The enquiry became to me one of my greatest experiences of life. I learned more about life in the course of a few months than I had in many years before, sitting in libraries and teaching at universities." In the numerous enquiries into unemployment in India, the less useful question-and-answer method appears to be freely employed. The informal technique is associated with indirect questioning characterized by a roundabout approach and detailed questioning. It was experienced that in rural areas and among the poorer and illiterate sections in urban regions and where the investigation related to complex problems like income, savings and investment, indirect questioning was perhaps the only successful device.

The informal technique demands the study and observation of people *before* starting to interview them. It avoids the crudities of the mass interview technique and ensures greater

truthfulness than the questionnaire survey. To get a true sample of information, great skill and time in interviewing in order to penetrate into the informant's mind are necessary.

Yet another approach is that of the *mass interview*. It is marked by speed but not depth. It is of such a routine nature that it can be carried out by not-necessarily-creative workers and can even be mechanized. It simplifies procedure at the expense of enrichment. It is applicable to subjects which lend themselves to an objective approach, with minimum information, requiring a simple, definite and precise answer without bias, with questions put in precise form. The form of the question, therefore, becomes important—not too vague or obscure in meaning, not having stereotyped answers or with technical or unfamiliar words, etc. Multiple questioning, the adoption of a scaling device, and scalogram analysis are supporting devices of this technique. Sometimes a pilot survey designed primarily as an exercise in methods of asking questions and in recording answers would be of use. It is important to record all types of observation recorded in the interview, to leave factual questions to the end of the interview, to have coding devices for fixing categories of information and to present results in sociometric diagrams.

The great danger in the mass interview is bias which should be minimized by using a second source of information for verification, by assessing the plausibility of answers (e.g. through personal competence, direct knowledge, interest etc. of the informant), by minimizing the interception between the interviewer and the interviewee, etc.

As these are the role and the problems of interviewing, the importance of systematic training in the technique of interviewing needs no emphasis.

TWO FACTS OF TRAINING

Successful interviewing has, two facets — the personnel and the training. The personnel aspect lies in the selection of the investigators. Not every one can be a successful interviewer, for, success demands certain personal and social traits. If a person is too rigid, impatient and overbearing, he would not go far. Inside, personal or confidential information may often not be secured simply because the investi-

gator has no flair for the proper manner of approach. "The primary requisite of the seeker for personal documents", observes Professor Burgess, in *Sociology and Social Research,* "is a sense of the dramatic in all human life, a sympathy broad enough to encompass the manifold diverse manifestations of human nature, even those that are commonly regarded as shocking or outrageous. Both this dramatic sense and this sympathetic attitude indispensable for success in securing personal documents naturally develop under favourable conditions but are also susceptible to special training for research work." Some of the qualities needed in the investigator are sensitivity to social proprieties, such as good manners, mental alertness to deal with changing situations and to take quick decisions, ability to attract people, smartness in anticipating the succeeding stages in response and in controlling the direction of the interview, adaptation of manners and dress to suit the particular situation and so on.

The personal qualities of the investigator have a particular importance in the very first essential step in interviewing viz. building *rapport* i.e. ensuring the co-operation of the respondent. This requires the investigator not to make himself unwelcome but, on the other hand, develop the respondent's active interest in the investigation. Apart from the physical appearance and manners of the interviewer, it would be useful to impress on the respondent that the goals which interest him also interest the inquiry on hand. This may be achieved by a near suggestion of the interviewer's interest in bringing about a change in the situation; for example, in a slum and housing enquiry, by the accurate and proper presentation of the slum dwellers' difficulties to the concerned authorities and to the public. It may also be achieved by exploiting the respondent's path-goal motive, developing in him qualities of receptivity and understanding and by the removal of any specific barriers to free communication. This necessitates the interviewer freely mixing with the villagers to win their confidence and allay their suspicions, which demands the development of a friendly and not a matter-of-fact official way of approach. For, once confidence is gained, the interviewing work becomes easy.

The building up of *rapport* as of the succeeding stages of

interviewing, such as probing, is mainly a matter of cultivation and training, which is the second and more important facet of interviewing. One part of it is of a general nature and can be standardized, while the other is related to particular problems, areas and types of respondents.

Psychological insight: The general aspect has a psychological as well as a practical side. As the interview is essentially an inter-personal relationship, a knowledge of the major psychological dimensions behind this relationship is essential. The defences, varying motivations, and diverse perceptions of the respondent have to be understood and neutralized. In order to do this successfully the interviewer must place himself, as far as possible, in the place of the other person — to participate in his experience, to see life as he sees it, to enter into his hopes and plans, and to be sympathetic with their realization. This implies an insight into and adjustment to socio-psychological manifestations. To some extent these manifestations vary in different areas with different groups of respondents and with types of problems; but basically, the psychological background is, by and large, common, and hence standardization of this aspect of training is not difficult.

The first step in this direction is to get at the initial motivation in the respondent, though the first reaction of an enquiry would generally be a mixture of curiosity and, sometimes, of apparent politeness, sometimes, of indifference, and occasionally even of hostility, the exact reaction varying with different segments of population. In a casual survey into employment, income and savings in an important city of India, with which the writer was connected, the best response was from the poorer sections and the greatest reluctance to co-operate was found in the upper income sectors. "From the way of response", records one rural investigator, "we observed that people in the lower income groups volunteered to give us information more freely than people in the upper income groups." While supporting this observation, one urban investigator observed that "The middle class people responded more freely than the rich", while another found that Government officials were more respon-

sive than businessmen. Similarly, strangers were more responsive and communicative than acquaintances.

Often a therapeutic type of relationship has to be developed. The interviewer would have to cultivate warmth and responsiveness, encourage free expression of feeling, and avoid initially intruding on the respondent's biases and wishes. He should, therefore, start by relating the interview to the respondent's goals and interests. Even where the goals are in conflict with the purpose of the interview, latitude in allowing the respondent to "let out steam", i.e. talk freely, is necessary. The main emphasis of the interviewer should be to maximize the respondent's motivation to communicate and to avoid the inhibiting and distorting factors.

This approach, mainly psychological in character, has been filtered down into a few practical steps to be taken by the investigator at the very outset of the interview. He should, for instance, begin by explaining the purpose and objectives of the project, next describe how the respondent was selected for enquiry, then impress upon the respondent the nature and role of the project-sponsoring organization and, finally, assure him of the confidential nature of the interview. Putting these across in the most persuasive manner, requires a great deal of tact, experience and sensitivity on the part of the interviewer. These may be developed partly by a psychological orientation and partly by practice.

The importance of such orientation is all the greater in a developing, rural and illiterate environment as in India, not accustomed to outsiders enquiring into their personal or socio-economic problems. The fact that generally an interviewer, who is educated, comes from a different class and section of society and from the urban area makes this side of training more urgent and essential. An added reason is that indirect questioning is a more fruitful approach in backward areas, and such questioning requires more of skill and training than direct interrogation does.

The psychological orientation is no less important at a later — the probing — stage of the interview. Probing becomes necessary, where additional information has to be elicited and doubtful points clarified. This has sometimes been termed "increasing the intensity of the stimulus". In

so stimulating, the interviewer should not sacrifice the standardized approach of the interview. Balancing standardization and stimulation may require a show of greater interest in and understanding of the respondent and the acceptance of the response, however bitterly it may have been put. A great deal of receptivity, warmth and good humour should be developed.

Equally important is standardized training in the art of questioning. Apart from perfecting the structure of the questionnaire, asking questions is similar to handling a scientific measuring instrument. If response is to be full and correct, and from all the respondents, the wording and sequence of questions, as well as the tone and manner of putting them are important. Standardizing wording, sequence and tone would standardize the stimulus. This would require careful and simple wording, in such a way as to be understandable to all respondents and asking questions in a similar, though not identical, fashion. Putting questions across in an agreeable way depends partly on practice, but largely on the interviewer's personal qualities.

Training in motivation technique: Motivating the interviewer plays here a significant part, in making him feel that his role is important and demands exquisite craftsmanship. If this part of the training is to be successful, some broad directives must be borne in mind by the interviewer, the most important of which, is to be a good listener. He should convince himself that he is doing the informant a real service and that his project carries real meaning to the informant. While the interview is not a social visit, where the investigator may dawdle, it is not also a cross-examination as in a court of law. Consequently, impertinence and haste should be avoided, and so also the role of a teacher. In fact, the interviewer should let the informant be the teacher. This should be done by establishing a pleasant association and gaining and deserving the informant's confidence. Help the informant to feel at ease and ready to talk. Neither harry nor hurry him. Let him get accustomed to his surroundings and gain a little confidence. Aim to make him feel that he is an equal, who can exchange ideas and opin-

ions with the interviewer. Begin with pleasant topics. Ask some questions which enable the informant to show pride in his knowledge, for, everyone likes to feel he is important. It is necessary, always, to keep on to the subject and to keep the question on hand, until adequate information is obtained to each point and then to proceed to the next question. The informant should be given the opportunity to qualify his answers, for, the investigator is not out like an opposing counsel to trap the respondent and make him contradict himself. This would demand adjusting the speed of the interview to the mental alertness of the respondent and avoiding implying answers to the questions asked. Pains taken to accent the questions and to simplify them, so that they are easily understood, are well worthwhile. A great deal of patience, therefore, is necessary and questions should not be asked directly and immediately on meeting the respondent. It is worthwhile waiting until the informant is ready to give the desired information and give it accurately. The truth which the interviewer wants should also be the truth that the informant himself wants. Being straightforward and frank, rather than shrewd and clever, is very helpful in getting at facts. At all times, the real control of the interview must be in the hands of the investigator. Without being domineering, the interviewer should not allow the informant to run away with the interview but tactfully keep him aware of the definite purpose which should be accomplished in a limited time.

PRACTICAL ASPECTS OF TRAINING

A great deal of the foregoing qualities which make a person an adequate interviewer is largely practical in aspect. Such "conceptualisation of interviewing", as it is sometimes called, is simply a method of acquainting persons as to how to handle situations. Actual practice in the conduct of the interview, though a laborious process, would be very helpful. An easier way of getting practical training is the holding of informal discussions and the conduct of "make-believe-interviews". As in the training of teachers and lawyers, "role-acting" with investigators grouping themselves into respondents and interviewers, would be very valuable; and

such refresher courses may be followed periodically, at least before the investigators go out on their field work. Often looking back to the interview either in a group or by each investigator by himself would be very helpful. "Thus, it pays after an interview", observe Bingham and Moore in *How to Interview?*, "to review it critically, to note its excellent features so that they may be readily used again as occasion requires, and to select one or two weak spots to be corrected. Was time wasted on preliminaries? If so, plan your next approach with care and get down to business more promptly. Did the interview get out of hand? Think of the ways in which to hold the next one on to the line without loss of necessary spontaneity: before each interview it is well to think of some one way in which to improve your earlier performance."

Thus the success of the interview depends on the training of the interviewer and the training should be given a bias. It is necessary to plan the interview adequately and carefully, to assess the experience of the interviewers and to build up finer and more advanced techniques of understanding and recording. Perhaps in the process of such training, a good knowledge of the background of the area, social life etc. and the probable interacting factors in the problem of being interviewed upon will be necessary. As one of the investigators in a recent enquiry into income, savings and employment put it: "One who wishes to conduct an economic investigation in a rural area should possess a basic knowledge of rural sociology and rural set up and a knowledge of rural economy".

What, certainly, is of utmost importance for social researchers to realize is that interviewing is a complicated and technical job. But a few tips may be useful to the fresh investigator.

A successful interviewer should try to gain and deserve the informant's confidence and establish a pleasant association. This can be done if he convinces himself that his project is in the interests of the informant. To be straightforward and frank rather than trying to be shrewd and clever is very necessary. He should be a good listener and not a pretentious teacher, however ignorant the informant might

be. He should avoid direct questions and put the questions as pleasantly as possible without suggesting an answer. This is to keep the informant at ease and make him ready to talk. Make the latter feel he is important, and humour the man for his knowledge of what the interviewer wants, for, there is nothing that creates a better *rapproachement* than the feeling that the person is recognized.

The questions should always be kept in hand by directing them to the subject of enquiry and concentrating on each until adequate information is obtained. It is useful to give the informant an opportunity to modify his answers on second thoughts. But since an interview is not a social visit the enumerator should not prolong the interview unnecessarily. As all informants may not be mentally alert the speed of the interview must be adjusted to the intellectual response of the interviewee. To keep control of the interview the interviewer should not allow the informant to run away with the interview.

These qualities can be picked up mostly from experience. It is essential to develop sensitivity to the social proprieties of the area where the interview is being conducted and adopt the manners and dress suited to the particular situation. The following injunctions of Professors Bingham and Moore may be borne in mind: "To learn how to interview well actual practice is indispensable, but this is a slow and wasteful process unless the learner thinks constructively about what he is doing and systematizes his experience."

XIII

OBSERVATION

OBSERVATION is one of the important modes of acquiring knowledge in social as in physical sciences. The investigator is primarily a discoverer and his main source of information is his own experience derived from observation and experiments. Both these are in a way facets of the same process, the former being the passive and the latter, the active, facet. In experimentation the researcher actively creates the situation and produces different combinations of factors in order to study causal relationships and effects.

In social science research observation plays a more important part than experiment. Observation comprises the recording of data as they come to the investigator's notice when he plays largely a passive part. It consists in collecting facts in the direct knowledge of the investigator. It is, however, more than merely seeing things; it is really "seeing with a purpose". It is, in fact, looking closely and purposively at the situation as a whole and at the same time taking in the results without completely losing oneself in the situation.

ITS COMPONENTS

Observation has three distinguishable components; sensation, attention and perception. Sensations, the first step in observation, are gained, through the sense organs. The reliability and fullness of the sensory reactions to the situation depend on how keen the sensory organs are, and this is why the investigator should be physically in top condition. It is true that new apparatus for recording impressions and of high degrees of accuracy too, are being made available but basically it is the personality of the observer that makes for accurate observation. The second ingredient in observation

is attention i.e. the investigator's ability to pursue the subject under study. Concentration is largely and in the initial stages a matter of will power, but adequate training, experience and grit could make it almost a matter of habit. The third element, perception, comprises the interpretation of the sensory reports. A sensation merely reports the fact as observed, whereas perception enables the mind to *recognize* the facts by grouping and identifying sensations and drawing upon past experience, imagination and thought.

Although a great deal of thought, sometimes automatically operating, is bestowed on the observational process, particularly in correlating the observed facts, basically this "study through the eye" is most useful in collecting facts rather than in finally interpreting them. In this process observation serves four distinct purposes: studying collective behaviour and complex social situations; following up of individual units composing the situation; understanding the whole and the parts in their interrelation, and, finally, getting out-of-the-way details of the situation.

To serve these purposes observation has to be accurate, and this demands of the researcher a background of knowledge and experience so as not only to control and direct the sensory experience but also to endow it with meaning and understanding. In other words, the researcher, to be a good observer, should be thoroughly conversant with the problem under investigation so far as current knowledge goes.

It is possible that prior knowledge may prejudice observation. Similarly, being human, an observer cannot be completely objective in a situation in which his own life is embedded (e.g. a person evaluating the rituals and ceremonies of his religion or caste) or even where he is a complete alien to the culture (e.g. a Westerner viewing Central African rites). It is this which perhaps explains why the analysis of a number of socio-cultural or economic situations in oriental countries are presented differently by indigenous and by foreign investigators. As has been said,[1] attitudes, beliefs, emotions and early training tend unconsciously to colour what we see around us. But a great deal of such prejudice can be avoided if the investigator is properly trained and

1 Fry, *The Technique of Social Investigation*, p. 47.

regards himself more as a scientist than as a participant or a critic.

KINDS OF OBSERVATION

Observation is broadly of two kinds — *controlled* and *non-controlled*. The latter is characterized by the absence of any attempt to use precision instruments to measure and record facts and to check their accuracy. Mechanical aids are not used, and data are collected without standardizing procedure and without resorting to a random sample. Further, there is no division of the situation or the problem into the experimental or control and non-control groups. In such observation the investigator is likely to assume that he knows more than he actually sees. "The data are so real and vivid and, therefore, our feelings about them are so strong that we sometimes tend to mistake the strength of our emotion for extensiveness of knowledge".[2]

It is to neutralize this danger that, wherever possible, controlled observation, so characteristic of physical sciences, is introduced. Here mechanical aids for securing accurate data are used; conditions of observation are standardized, and attempts are made to get a representative sample and to correct sampling errors wherever necessary. This is not only to obtain dependable facts but also to facilitate checking by other investigators. Among the aids used are questionnaires, schedules and attitude scales, notes, photographs, maps and socio-metric scales. Wherever it is possible elaborate laboratory set-ups may be utilized. As Professor Bernard observes:[3] "The only pre-requisite is that wherever it is made the person who is making it must use instruments which will render it subject to check by others".

2 *Participant and non-participant types:* Both controlled and non-controlled observations could be either of the non-participant or of the participant types. In the former the observer keeps himself outside the situation he is studying. It has been compared to snapshots by a busy tourist rather than a studio photograph. To a large extent it lacks a criti-

[2] Bernard, *Fields and Methods of Social Study*, p. 372.
[3] *Ibid.*, p. 378.

cal background and has little of accurate study of the situation to enable penetration behind the apparent. This does not mean that non-participant observation is not scientifical ly useful or desirable nor that participant observation is always possible. While, by and large, participant observation is more accurate and dependable its operability depends on the particular situation and the problem on hand.

Participant observation is based on the assumption that an interpretation of an event can be more reliable and detailed when the investigator gets into the depths of the situation. To penetrate into the thought, emotions and actions of the group the investigator should become a part of the group and, thus gain *rapprochement* and opportunities for following the situation more closely, correctly and comprehensively. As participation may, however, reduce objectivity and detachment in the observational process, great discretion, self-control and experience are essential to be an effective participant. In fact, the Behaviourist School of Psychology stresses this type of observation, for, the best way to know human beings is to watch them by being one of them. One well-known investigator into prison conditions actually spent two weeks in jail, while Indian sociologists are familiar with the work of a famous authority on tribal customs who, though a foreigner, actually married into the tribe and settled down among the tribes without in any way losing his objectivity of observation and judgment.

However useful observation might be for gathering data, it has certain limitations. For instance, casual observation and even non-participant and un-controlled observation can be unreliable. Personal equation has a strong tendency to distort facts, although persistent self-observation and introspective analysis of personal experience might reduce this drawback. Even where controlled or participant observation is resorted to, there is the element of 'mind-set' which introduces errors of judgement. With properly trained and careful observers and the use of technical gadgets, however, the limitations could be reduced. Perhaps the best way of using the observational technique in social research is to resort to both types of observation, wherever possible, so as to get a composite of the outside and the inside viewpoints.

3. Accurate, and objective observation could be developed by taking certain steps. The first is to formulate the problem clearly and precisely. This would save time by leading the investigator to concentrate on relevant facts only. Secondly, the observer must develop a free and open mind avoiding the temptation to formulate opinion on the first few cases he comes across. This mental attitude could be developed by constant self-discipline. Observation of one thing at a time is very essential and what is observed should be selected both with reference to the time and place as well as its importance to the problem. To get a proper perspective the situation should be observed in its proper relation to the problem, for, often what is apparent may not be real. The investigator should, therefore, be on the alert to go a little deeper into the situation than he intended to. Facts observed are generally interrelated and their significance in themselves and in relation to other facts needs very careful study and, so, every fact, which might tend to have a bearing on the subject, however remotely, must be carefully examined and noted. But only vital elements should be considered and irrelevant data should be excluded lest they draw away the observer's attention. Such selectivity and objectivity can be developed by cultivating a questioning attitude. Not only would this attitude make observation more accurate but also may lead to new methods and ideas. The investigator should also develop initiative and originality during observations and not be hide-bound by the given directions which act only as general guidance rather than as being inflexible in character. The observer should bear in mind Rudyard Kipling's words:

> "I keep six honest serving men;
> They taught me all I know;
> Their names are What and Why and When,
> And How and Where and Who".

In the course of observation so many things happen that it is difficult to remember all of them in sequence, and apparently similar situations may lead to a mix up. It is, therefore, best to write down the impressions as early as possible.

RELIABILITY OF OBSERVATIONS

If observation is to serve a scientific purpose it must be reliable regarding both the facts and the inferences. Reliability depends on three factors: (1) the techniques and tools used; (2) the kind of situation observed; and (3) the quality of the observer.

Techniques and tools: Techniques and tools comprise the variety, appropriateness and accuracy of the observational and measuring devices. There are broadly four important facets of the technique that lead to greater reliability: (1) The units observed should be simliar in form and be additive. This facet is particularly important where the situations or groups observed are different but part of the same investigation or where different persons observe different parts of the same situation. As different facts and inferences have to be collated for purposes of analysis and generalization, it is necessary that the units observed should, as far as possible, be similar and the observers have similar perspective, tools and training. (2) As observational errors may be present they must be capable of measurement. This requires the development of accurate skill and measuring rods which, however, are not at present very many in social sciences. Attempts are being made, for example, by sociometricians and econometricians to develop these instruments. (3) This deficiency in the measuring tools suggests that cross-checking by simultaneous employment of pairs of observers is desirable. The more of such a check there is, the more reliable will be the data and the inferences. But the extent of such cross-checking depends upon the time, resources and experienced observers available. Broadly, however, cross-checking as a necessary ingredient of reliability must be recognized in applying the observational technique. (4) Reliability is influenced by the degree and accuracy of planning the field work — in the choice of observers, the points to be observed, the tools to be used, and so on. This emphasizes that observation as a scientific tool cannot be haphazard or taken up on the spur of the moment but must be carefully pre-planned.

This aspect of reliability has sometimes been termed the

problem of categorization or of rating, for, it depends on the degree of agreement among observers and the accuracy of the tools. A frequently used device to appraise the degree of agreement, which is the essence of cross-checking, is the correlation co-efficient and the per cent-agreement score. Very broadly, an increase in the number of observers increases the reliability of scoring, but this again is a problem of resources and organization.

Observed situation: The second facet of reliability is the type of situation to be observed: The main question to be kept in mind is how far the behaviour at the moment and of the unit is true and representative. This becomes important because observation, being a laborious and expensive technique, only a fragment of the unit can be observed. This fragment may be an individual or a group or a community or only behaviour at a point of time or during a particular short period. If the selected unit is to yield reliable data, it is necessary to know something of the universe which it is supposed to represent and also to be careful in choosing the sample to be observed. This is a substantive problem and requires very much more careful selection of the sample than statistically oriented surveys in general would. A factor to be borne in mind is the effect of the stranger-observer's presence on the group; even where he is a participant, the observer has necessarily to maintain objectivity by not completely merging himself in the group. The degree and nature of this effect depend on the type of group and on the kind of the observer. For example, where the group is co-operating with the investigator it is affected less than where it is neutral or hostile. To encourage co-operation and win confidence, it is often necessary to explain to the group the purpose of the observer's presence. But even with the fullest co-operation, except where it is a part of the observational game, the observer should be completely neutral and behave *almost* like a piece of furniture.

The observer: The third facet of reliability is related to the observer himself. Reliability can be increased by following certain broad rules of conduct. Of these *personal factors*

are perhaps the most important. Among personal factors those which relate to the observer's physical health, alertness and application to the job on hand are important. If the investigator is fatigued he would be unable to observe fully and accurately. He should keep himself fresh. He should also have sufficient orientation and knowledge of what is to be observed, for even where an individual or a particular situation is being studied, not all the facets of behaviour are significant. Selectivity of the facet and concentration on the behaviour are requisite. This would require mental maturity, discretion and controlled imagination on the part of the observer. He should free himself from bias, excitement, hurry and moral judgement and cultivate the ability to keep himself in the background while participating in the situation as far as it is necessary to understand it. An infinite capacity to listen and to watch is highly desirable. Very often, where social situations are being observed, he should be able to make an accurate estimate without measuring devices, and, more than all, he should be both willing and ready to check his observation with those of others, and with the data secured from other sources and through other methods of collection.

Structural factors come next in importance in increasing reliability. These relate to the observational technique, and they are broadly four: (1) all observable behaviour should be put in one or the other category so as to help coding. Better to make categorization exhaustive but where it cannot be, the categories should contain at least the essentials; (2) Categorization must be such as to enable inference, that is, even if the actual facts are not fully observed or observable, at least the inferences drawn by the observer should fit into the category. (3) One category should lead to the other, that is, there should be a continuous category system. This would help a proper understanding of the position and of the interrelationship of the different degrees of behaviour. Continuity depends on the adequacy of the theoretical framework. In other words, a great deal of planning is required in evolving the categories as in selecting and training the investigators. (4) Finally, categorization should enable the use of the rating scale so as to assist in quantifying

the observational data. Rating scales may be used either to record behaviour at intervals in order to facilitate an internal comparison, or to rate at the end the nature of the entire social event, or the scales may be used to integrate the data obtained by separate scoring. The use of categorization and rating scales are a recent development meant to introduce quantification as in the physical sciences. Although the use of these scales is highly useful they are still in their infancy.

The third set of factors increasing reliability is *procedural* and has very recently been developed. As there is, however, no standardized procedure yet evolved in constructing or applying the procedural tools, only some broad rules may be indicated. The first of these suggests the development of a frame of reference in ensuring greater reliability. This means that the situation to be observed as well as its dimension should be clarified; the extent to which the social context is to be allowed for should be determined, and also how far the observer's own judgement should colour the categorization of behaviour; for, if the first and second of these facets are not observed, a great deal of vagueness and dispersion of attention would result, while inattention to the third facet would increase unreliability. Next comes the determination of the unit of behaviour, that is the size of the units to be rated. For example, is it a single individual although he is in the group, or the group itself that is to be observed? Thirdly, attempts should be made to get a representative sample of the behaviour to be observed. This sample may relate to the person to be observed *for a part of the time* or to a section to be observed *each at a particular time* or of certain key aspects of behaviour to be observed *all the time* or of observation of the whole group *during a particular period* of time. In other words, both clarification and determination of what and who is to be observed becomes all important.

However pre-planned and accurate the observational technique might be, the more important factor is, as in all research, the investigator himself. If he is not properly trained, his observation is bound to be inaccurate. Such inaccuracy is of two kinds: (1) Failure to see things that

should be seen, that is non-observation; and (2) seeing things wrongly, that is, mal-observation. Both these errors are due to the shortcomings in the observer himself, who is, in a sense, the measuring instrument. It has been well said that a well-developed observation schedule will be only as good as the skill of the person who uses it. This emphasizes the need for a proper selection and training of the observer. Apart from the personal criteria described above, the training of the observer is all important. A proper training could overcome much of the personal deficiency in the observer. The first step in such training is to make the investigator observe even without a refined schedule. Next may be introduced the schedule and observation according to it. A pilot scheme of observation, like a pilot survey, would facilitate the training. Extensive and frank discussions of experiences among the observers is highly desirable, while freedom to make suggestion would develop in the observer both self-confidence and a free and open mind.

XIV

THE CASE STUDY

What is 'Case Study'?

THIS important tool of social investigation developed particularly in the U.S.A. is used extensively in psychology, education, sociology, economics and political science. It has been regarded as best suited for tracing the evolution and growth of a social problem in its different aspects. This tool appears specially useful in an underdeveloped country where varied social institutions interact mutually.

The terms, case study and case work, are often used in the context of social research. Case study refers to the intensive investigation of a particular unit, while case work relates to the developmental and adjustmental procedure that follows the diagnosis. Thus, the two are only different facets of the same approach to a problem, and, as such, are interrelated and essentially complementary. But we are concerned here with the former.

The case study is often termed a method, sometimes a technique, at others an 'approach' to social reality and occasionally, a mode of organizing data in terms of some chosen units. It is in fact a technique which considers all pertinent aspects of a situation, employing as the unit of study an individual, institution or group, and intensively investigating it. The data gathered may relate to some phase of the life history of the unit, and, often, even the entire life process. The case study, thus, examines the complex situation and combination of factors involved in a given situation so as to identify the casual factors operating.

THE CASE STUDY AND THE STATISTICAL APPROACHES

Sometimes the case study and the statistical approaches

have been considered as rivals and as mutually exclusive, for, the case study is largely a non-statistical device of investigation. The statistician's is essentially a quantitative micro approach. He studies individual traits in a large number of separate units and takes a horizontal view of society across a vast area of data. His technique, no doubt, enhances the reliability of the study by increasing the total number and the representative character of the data; but it is really concerned with the nature of the common denominators and can, at best, correlate a few factors.

It is, thus, inadequate for social analysis, for, to be understood and assessed correctly, social problems need a developmental, macro-approach — a kind of qualitative analysis. Social reality is difficult to conceive in the form of a mere statistical table, and is real and meaningful only when taken in the context of the particular social setting and events and the group elements which produced it. The objective of any analysis should be an intensive study of the 'subjects' in all their component and changing parts rather than a cross-sectional picture at any particular point of time. An organic and genetic explanation of social behaviour and problems is essential, because the full significance of any act of a person or group can be understood only with reference to the totality of the life experience of that person or group. Set questionnaires and schedules as in the statistical technique are *by themselves* ineffective in presenting the life history of intangible factors and social forces.

A historical-genetic method offering a continuous picture through time is required. In the statistical technique the *person* disappears from the analysis and the *traits* become important in the tabulation. The distribution of one *trait* is cross-tabulated with that of another. Cross-tabulation is essentially static, though an element of process can be introduced, e.g. by the time series. The individual representing the 'wholeness' of these traits is overlooked. In most social problems the 'individual' is of great significance.

The 'wholeness', however, is preserved in the case study. Every trait and every variable are linked with another. While there should be a limit to the area of enquiry, an overall approach must be and is made. Thus, the perspec-

tive of the case study is qualitative, aggregative, synthetic and developmental.

"Statistical technique", observes a social scientist, "depends upon the reduction of data to quantitative terms in order to yield totals, averages and correlations; the case study technique seeks data in terms of processes which, for the most part, cannot be stated numerically. The statistician selects certain specific factors involved in social situations and manipulates them so as to discover the relations between the several variables. The case student examines single situations, persons, groups or institutions as complex wholes in order to identify types and processes." A similar view is taken in psychology, where the case study is extensively used. To quote a psychologist: "According to the *statistical criterion* abnormality and superiority merely represent quantitative deviations from the normal or average. ....Although the statistical criterion is useful and in many respects sound, it is based on the questionable assumption that all human variations can be expressed as quantitative deviations. Most traits are likely to be expressed in this fashion, but there are many exceptions....The difference between the affected and non-affected is qualitative rather than quantitative. This viewpoint is known as the pathological criterion...".

COMPLEMENTARITY OF THE TWO TECHNIQUES

In spite of these different emphases, the statistical and case study techniques are really not mutually exclusive. They are, in fact, complementary and both may be employed with advantage in the same project. While one analyses masses of data horizontally and cross-wise, the other studies vertically a small number of individual cases in detail and as a whole — the number of units may be small but the total number of traits would be large. The two approaches have their significant roles. In some areas of investigation, especially when prediction must be made quickly, statistical techniques have to replace case study. Sometimes case studies may supply the raw data for a later statistical study. But this is neither always nor the sole purpose of the case study. Where an overall genetic picture of a problem is needed,

case study steps in and statistical tools become its handmaid for interpreting and analysing the data. For, as in understanding and assessing a work of art, there may be something more than the number of tubes of paints used or the size of the canvas.

"The statistician and the case worker", observe Professors Good and Scates, "may profit by borrowing from each other than by quarrelling over the merits of their respective techniques." In fact, the case study, as a research method, frequently employs more techniques than one. Thus, for tracing developmental processes, it indents on the historical method; it employs the descriptive method where a factual picture is needed; it relies on questionnaires, check lists, rating scales etc. to gather data; and it looks to statistics at the classification and analysis stages. The case study, in a way, stresses that research techniques are necessarily complementary if continuity and comprehensiveness in study, diagnosis and solution are to be ensured.

The complementarity of these methods may be at three levels: First, in the choice of the units for case study. Preliminary statistical studies — perhaps in the nature of a pilot survey — may guide the selection of units for detailed case study. Secondly, a prior case study may help the statistician in developing the final questionnaire, which is necessarily selective both in the sample and in the problem; otherwise, in the process of selection, the researcher might choose items which seem outstanding to him and neglect perhaps equally important data. Finally, the analysis and processing of the material has to be treated statistically to confirm or reject the hypothesis and to determine the more precise correlation. Thus, the case study has to go to statistics if its data are to reveal frequencies, types, trends, uniformities, patterns and so on.

CASE STUDY TECHNIQUE

Any approach of such comprehensiveness necessarily involves the use of data with varying degrees of overtness and statistical accuracy. The technique of gathering and processing data are in three phases: choice of cases, recording of data and their interpretation.

Two essential elements in the *choice of cases* are, first, selection of 'representative' units *as far as possible*. The 'typicalness' of the cases is important, for, the individual case is studied not as a definite entity in its own right but as a specimen in a culture series, whose actions are socially relevant. As suggested earlier, a preliminary statistical study may be useful here. The ability of the researcher to recognize 'representative' cases is important and may facilitate selection. Secondly, although the case study has an overall outlook, a well-defined and carefully selected problem is presumed and a social situation in concrete is being studied. It is not an aimless collection of data. There would, therefore, be a necessary circumscribing of the limits of enquiry both in number of cases and type of data. This is sometimes termed 'identifying the situation', and penetrating discrimination is required to pick out the aspect of study, particularly the operating causal factors.

In *collecting* data, continuity, breadth and level are important. *Continuity* envisages completeness and validity of data, confidential and correct recording and scientific synthesis i.e. interpreting evidence and not merely enumerating data, with an eye to their becoming a basis for understanding causation. Sources, particularly valuable to facilitate continuity are life histories, biographies, diaries and such other personal documents. These would not only provide information bearing particularly on the issue on hand, but, when combined with ecological and historical data, would give a more inclusive picture and, thus, increase precision in conceptual analysis.

Studying the unit as a totality needs a *broad array* of facts so as to grasp the pattern of the individual's life in its many facets. Life histories of the units, their social attitudes, reaction to stimuli and social forces must be recorded. A selected mass of raw material describing in detail the background and social relationships must be accumulated. The recording must be not only comprehensive but also accurate. Seek data throwing light on the processes, causal factors, and rate and direction of change within the typical pattern. Presume continuity of human *nature* and social situations, although human *conduct* changes. Adopt some base-line

position in the past to project contemporary life; the determination of the base depends on adequate data and sources to reconstruct the past. The data may be abstracted from levels other than the purely sociological or economic, e.g. a biological defect or a dominant religious concept may be recorded if it affects social relationships. This gives added dimension to the individual under study, placing him/it more fully in the net work of his/its relationships.

Two other facets of recording relate to the formation of indices and types and to the interaction in a time dimension. To preserve the 'wholeness', the technique employed is the development of typologies and indexes so as to use the various traits in characterizing the unit. The devices are being used in all varieties of qualitative analysis and cross-tabulations; but in case studies, the breadth and added dimensions of the data and the processes of interaction between the various facets of the unit's life become specially important in bringing out the type. Breadth and levels of data are to be supplemented by the dynamic factor — changes in processes and over time. So data over a period of time should come into the records.

Since data are collected to facilitate diagnosis of causal factors so as to lead on to a theory and towards a solution, success in diagnosis is necessary and this requires attention to a worthwhile objective, a reasonably objective approach, a satisfactory level of specificity and comparability in data, a technically trained personnel and finally, a follow-up of the theory or the solution so as to check its validity.

The successful use of the case study tool also requires adequate and well-balanced records, of which the first ingredient is accuracy and objectivity, i.e. correct reproduction of information as received. A second component is conciseness and clarity which depend on the attention paid to the selection of data. Often, a balance has to be struck between completeness necessary for objectivity and brevity essential for clarity. A third ingredient is the method of recording, which should be easy of reference, uniform and up-to-date. This is facilitated by recording topically rather than serially, by multiple contacts and bringing the data under major themes in the investigation. Including strictly

personal or confidential information should be done with great discrimination and proper assessment.

The emphasis on carefully recording data suggests the need for a definite type of documentation, such as, classification of problems and objectives of study, definition of the methods and techniques employed; and clear identification of data through accurate description; varied sources and varied techniques to be used — persons, institutions and records; interviews, schedules, personal observations, scoring devices etc. Remarks or criticism of data while fresh in the investigator's mind should be recorded. In fact, nothing significant should be overlooked.

A no less important tool in successful collection is the skill of the investigator. A great deal of social insight and understanding, sociability, participation etc. are needed in the data-collecting personnel.

LIMITATIONS

The case study technique has its limitations which are of two kinds — in the technique itself and in the personnel. There is, to start with, the practical difficulty of obtaining a sufficient number of records and of the enormous amount of work needed for an adequate analysis of the material. A blanket enquiry into the life histories of even a few may also lead to a great deal of irritation and resentment on the part of the units and may involve a great deal of money and time. But all research is expensive and needs tact, time and money. Further, a large part of the data, that which is subjective, may not lend itself easily to quantitative checks.

What is of greater concern is the investigator himself. The investigator's bias is a danger in *all* techniques, but the danger increases in case studies, where he is in closer contact for a longer period with a smaller number of units. The records are open to errors of perception, judgement and overemphasis of unusual events. The tendency to generalize on a few cases and to extrapolate unwarrantedly is present. The dangers of *ad hoc* theorizing and neglecting to test data become greater, since nobody else knows the case as thoroughly. Thus, unscrupulous and unscientific thinking has greater scope to operate.

This failing in the investigator and the greater temptation to ignore basic principles of research methods can, however, be countered in two ways. First, as experience and judgement on the part of the researcher are more important in case studies than in the statistical treatment, the choice of a well-defined and carefully selected problem becomes essential and so does the employment of trained and dependable investigators. Secondly, to neutralize the feeling of false certainty, develop a research design — an adequate sampling pattern, for instance; utilize the technique of qualitative coding for individual factors and traits; establish categories; define and delimit types of behaviour already recorded; establish precise coding instructions for the important qualitative items. In other words, systematize the mass of data by condensation, excision, reinterpretation, etc.

VALUE OF THE STUDY TECHNIQUE

The varied *usefulness* of the case study technique outweighs its limitations. It draws attention to the role of each independent factor in relation to the others and provides a picture of past situations furnishing them new meanings. The study of data from different angles can point out the crises significant in the development of new attitudes and habits, spotlighting social developments in concrete.

The most important theoretical advantage is that it gives a wider and greater depth of experience valuable in interpreting the data and in furthering the enquiry. It offers a corrective to the cross-tabulation tendency of concentrating on particular traits. "The case study, attempting to organize data round the unit of growth or group structure of individual life pattern does force the researcher to think in these terms rather than fall back on trait analysis alone." The investigator needs to go beyond his narrow problem. A prior case study will give him this wider experience and may yield new insights because of the differences between the synthetic and the micro approaches. This would minimize the danger of misinterpretation possible when abstract, isolated and disjointed facts are presented only in quantitative terms.

Case studies are also valuable as developers of ideas, some-

times leading to conclusions and sometimes to hypotheses needing testing by experimental or other techniques. They also supply information for developing schedules and techniques for observation studies of large numbers of cases. Thus, "for the purpose of group or process analysis", conclude Goode and Hatt, "as against the analysis of individual traits alone, it is a highly fruitful approach, as yet insufficiently exploited by those who are currently doing research into research techniques".

Given time, money and the right type of investigators, the potentialities of the case study technique are immense, particularly in underdeveloped countries. If the 'cases' are chosen objectively, wherever possible by utilizing statistical devices and investigated intensively, it should be possible to formulate generalizations, whose validity would, of course, depend on how representative the cases are. A wise combination of the case study and statistical techniques would perhaps make this tool highly significant in a vast country with multiple and interrelated influences.

XV

THE EXPERIMENTAL TECHNIQUE

THE experiment is the basic tool of the physical sciences for tracing cause and effect relationships and for verifying inferences. Experimental observations are only experience carefully planned in advance and designed to form a secure basis of new knowledge, by being systematically related to existing knowledge, and the results closely followed and accurately recorded.[1] The technique itself consists in observation largely under controlled conditions, and its basic approach is to vary only one of the conditions at a time keeping the others constant so as to follow the operation of the particular condition.

Experimentation and Social Sciences

Although experimentation is almost universally used in the physical sciences, its application in the social ones is still in its infancy. Doubts are occasionally expressed as to whether experiments are at all possible in these sciences. But as Professor Fisher observes[2] while writing about the relevance of statistical experimental designs, "the questions involved can be dissociated from all that is strictly technical in the statistician's craft, and when so detached, are questions only of the right use of the human reasoning powers... on which the statistician, as such, speaks with no special authority". For, all experimentation assumes that it is possible to draw valid inferences and to argue from consequences to causes and from observation to hypotheses. The mere difficulty or uncertainty or even error in drawing such inferences may stress the need for improving the technique but cannot invalidate completely the applicability of

[1] R. A. Fisher, *Design of Experiments*, p. 9. [2] *Ibid.*, p. 2.

experimentation in every case. A major purpose and feature of experimentation is to determine to which causes of disturbance in drawing these inferences, care should be given and which ought deliberately to be ignored.

The three main features of the experimental technique, namely, isolation of factors, replication of the experiment and quantitative measurement of results appear to be applicable and relevant at least in some social sciences and in some fields. This does not mean that the technique can be applied to the same extent or the results can be of the same accuracy as in physical and natural sciences. No doubt, in the social sciences natural experimentation is infrequent and laboratory experimentation is rare, partly because of the difficulty in recognizing and observing the situation accurately, that is, because of inadequate opportunities to test hypotheses and partly because social situations having the human element as their object are difficult to replicate. Some of these difficulties could be overcome by refining the instruments and aids facilitating experimentation, and determined efforts are being made by social scientists to improve the tools.

LEVELS AND TYPES OF EXPERIMENTATION

The experimental technique is broadly at two levels. Although all experiments follow the trial and error approach in the first or pioneer stage of experimentation, which is represented in the physical sciences by the process of natural selection and which is more relevant in social research, there is very little scope for accurate observation and reproduction of the situation and, therefore, for controlling the conditions. But this stage is broadly operative in regard to quite a number of socio-economic problems; for instance, the attempted remedies for unemployment or the structure of priorities and locations in the Indian Plans is such an experiment though on a very wide canvas. The main limitation of this stage is that it is a blind process. Consequently, wherever possible the trial and error approach has been improved upon and a more precise stage of experimentation has been evolved. This comprises controlling the situation, defining terms and words, and bringing about

greater correspondence between terms and reality by introducing scientific measurement and methods of experimentation.

Even where experimental aids of measurement have been developed, three broad types for experiments could be distinguished: the natural or uncontrolled one as in astronomy, made up mostly of observation; the laboratory type as in physics and chemistry and psychology, in which the scientist reproduces the situation he wants to observe and in which he manipulates one or more of the conditions; and the field experiment — best suited to social sciences — which is a theoretically-oriented project in which the investigator manipulates one independent variable in some *real social setting*. Unlike the laboratory type, where the situation is deliberately created, the social situation in a field experiment is one whose phenomena are not artificially formed. In a natural experiment, the researcher capitalizes on-going changes and studies their effects, whereas in the field type the independent variable is manipulated in an existing social setting, i.e. the design but not the setting is planned beforehand.

In social sciences, experiments are, in general, difficult of execution. For, as experimentation is a shift from passive observation to active interference with determining conditions, it meets with resistance, associated as much with the material as with the problems tackled. Social studies deal with complex units — unique, individual and different — capable of intense suffering and not being homogeneous. The permissible field of experimentation is not defined. The difficulty of isolating disturbing influences, such as prejudices, laws and customs, limits the conditions of control. And every problem thus becomes really more complex than anticipated. In spite of these drawbacks, experimentation has become a part of social sciences, although there is still a long way to go. "In the short space of 4 or 5 years", observes Max E. Brunk,[3] "controlled experimentation has established itself as a valuable tool in agricultural economics".

[3] M. E. Brunk, "Sample Surveys and Experimental Design", *Journal of Farm Economics*, May 1955, p. 232.

THE STRUCTURE OF THE EXPERIMENTAL TECHNIQUE

A satisfactory technique should isolate the effect of specific variables, enable the testing of current and non-current practices with equal facility and help development of new techniques. The first stage in the application of field techniques consists in planning the experiment, i.e. in stating the objectives, selecting a problem and the experimental design and choosing a method for analysing the result.

The objectives are to be lucidly and specifically stated in terms of the questions to be answered, the hypotheses to be tested, and the effects to be estimated. The objectives may even be classified as major and minor. Better also specify the area over which generalizations are to be made, i.e. the universe about which it is hoped to make inferences. As the field experimenter should seize the opportunity as and when the problem is presented, the hypotheses should be stated explicitly though in general terms. The process is aided by selecting a relatively practically - oriented problem and by avoiding attempting to study too many hypotheses at the same time. The most common faults regarding the objectives are, according to Professors Cochran and Cox,[4] vagueness and excessive ambition, "in the sense that a twenty-year research program would be required in order to realise the objectives".

The next step is to select a setting for the problem as the factors to be controlled are to be assessed with regard to their significance. Contact must be established with appropriate field settings. In setting a field experiment, freedom of access to the data is essential but certain difficulties may arise here. For example, where social conflict (e.g. communal strife) is crystallized, experimentation becomes difficult; and, so, it is advisable to avoid such settings since delicate problems would crop up and data are likely to be biassed. Again, as co-operation between the scientist and the subject is essential for success, too much of conflict within an organization would reduce the success of the experiment. Therefore, scouting for information — often subtle and difficult to get — is needed before a wise choice of the setting can be made.

[4] W. G. Cochran and G. M. Cox, *Experimental Designs.*

Next comes the research design comprising a description of the experiment, the determination of its size, the choice of the experimental materials and the establishment of the control groups. The different procedures whose effects are to be measured and compared must be determined and the number of replications described, since no isolated experiment, however significant, can satisfy science. This enjoins a continuous refinement of the techniques by securing uniformity in the application of the treatment, by exercising sufficient control over external influences so that every treatment produces its effects under comparable and desired conditions, by devising suitable and unbiassed measures of the effects of the treatment, and by preventing gross errors through adequate supervision and checking. In the choice of the experimental material, the criterion applied should be maximum accuracy for a given expenditure of time and labour.

The main problem of design relates to controls. One essential characteristic of experiments is to determine to which cause of disturbance attention should be given and which ought to be deliberately ignored. Experimental and control groups are necessary since real life is both complex and changing. Ideally, control and experimental groups should be matched on all possible factors, but, practically, at least on the important ones. Matching on the basis of easily measurable variables, for example, size of groups, age, sex, economic conditions, educational levels etc. is not of basic significance unless they are particularly related to the hypotheses. Where conditions cannot be standardized the significance of the factors can be deduced by means of measurement. In fact, certain devices such as measurements, plotting trends and extrapolations, as well as quantitative expressions of differences in degree enable easy manipulation of the design.

A further step is to refine the controlling technique. While controls may help to reduce variations they do not completely eliminate unwanted ones. Unwanted variations can be reduced often by standardization and insulation. Standardization consists in holding constant something otherwise varying in the field setting; for example, in the

study of the effects of labour groups on productivity in a factory, standardization is possible by keeping constant the type of machinery, flow of materials and composition of the groups. A good experiment maximizes standardization of conditions. The second device eliminates conditions normally existing in the field setting, by isolating the experimental group from the rest, by means of physical separation as by erecting walls. Such an elimination of some variables -- possible in a few experiments only — simplifies conditions and brings the experiment nearer a laboratory type.

The size of the units — control and experimental — is an important factor. To permit easier manipulation and replication units should be of fairly small size; and to reduce the operations of unforeseen factors the period of manipulation in each experiment should be short; and how short depends on individual situations.

In making experimentation more successful in social sciences a number of gadgets have been developed. The first of such aids aiming at improving measurement, plotting trends and extrapolating observation, is sociometry. This technique of social measurement, though still in its infancy, attempts to give greater exactness to the relationship between social concepts and social referents. Another gadget relates to expressing the situation or behaviour numerically so as to facilitate easy manipulation and calculation and to emphasize the differences in degree in the varieties of behaviour. This conversion of qualitative data — feelings and emotions — into quantitative terms is difficult, but attempts are being made to improve the measuring rod.

LIMITATIONS OF THE EXPERIMENTAL TECHNIQUE

The experimental technique has, however, a few fundamental limitations — practical and theoretical.

The practical limitations show themselves in the course of field investigation as problems of organization. As the experiment attempts to measure the effect of one social factor at a time, the initial difficulty is in the measurement of a single factor by itself, because in any social problem or programme a group of factors operates as a whole. Further, there

may be at work unknown and uncontrollable influences. Since the basis of effective experimentation is the control of factors, success is jeopardized.

This difficulty can be overcome by randomization which helps to neutralize variations due to extraneous factors. When exactly randomization is required depends on the type of experiment and must be left to the judgement of the researcher. The process of dividing the sample into the experimental and control groups and of measuring each group on some criteria to evaluate the programme (e.g. scales to measure morale, adjustment and so on) has itself an implied limitation, in that cases tend to disappear during the interval between the beginning and the finalization of the experiment through mobility and non-response, and, thus, at the end of the experiment the samples may not be truly random. The longer the experiment runs, the more the cases lost. The losses are greater generally in the control group and this distorts the representativeness and comparability of the groups. The lost cases are at the extremes, making the residual groups — both experimental and control — more homogeneous. This reduces the absolute scale of differences between the groups and also yields smaller standard errors. One remedy is selecting several random samples as experimental and control groups. Another is a systematic recapture programme, which, however, is both expensive and complicated. The need, therefore, arises for careful consideration of the length of the time-spread of field work interviews.

Another practical difficulty arises from public opposition to favouring the experimental group as in the application of a social programme. Any criterion of selectivity (e.g. on the basis of response) would vitiate the sample's random character. The solution perhaps lies in the adoption of the control group technique, i.e. (a) in accepting any accessible portion of the group as the experimental one; (b) choosing the control group randomly from a similar population; and (c) matching the two on many known factors to reduce variations.

Yet another general limitation is that difficulties are more in interviewing control groups than in the more receptive

experimental ones. The remedy perhaps lies in matching the groups on as many points as possible, since the more numerous the matching factors, the larger the number of cases eliminated and the greater the similarity of the groups. Very broadly put, the longer the time of each interview — every additional question means more time — the fewer the cases canvassed, and the longer the period — days or weeks — over which the interview runs, the greater the disruption of the conditions of the experiment.

In applying the experimental device to social research, there are also limitations of a theoretical character. One of them relates to the significance or importance of the differences between the experimental and control groups. What difference is significant? The popular criterion relates to the opinions of the public, sponsors of the programme or the administrators, but these are subjective value judgments with implicit means-ends schema. The more scientific criterion relates to statistical tests of significance. These are based on the differences in the magnitudes of measurements between two groups and the resort to the probability frame of reference, i.e. the application of the theory of sampling. This needs the use of a socio-metric scale which is reliable and valid — reliable because repeated measurements agree and valid because of the selection of items.

The second theoretical limitation relates to replication. Scope for repetition is rare in social research, partly because experimental designs are new and run counter to established predilections — in fact, till the thirties their utility was doubted — and partly because of the tendency to lapse into philosophical controversies about cause and effect and of the consequent confused discussions on the role of the experiment. Two other causes are the reluctance to undertake systematic, patient and planned research essential for thorough analysis and the expense and time involved in experimental studies.

One remedy for this difficulty is to study simultaneously a number of experimental and control groups acting as checks on one another. The availability of standardized sociometric scales, statistical methods and refined design patterns has toned down the rigour of this limitation.

The reliability of an experiment depends on valid interpretations of the experiment as well as on the logical structure of the design. A large part of interpretation being of the data collected, involves computations and is, therefore, largely statistical. The sensitiveness of an experiment can be increased by neutralizing bias through random choice, by increasing the size of the experiment, of repeating it on a number of different occasions, and by quantitative improvements in the structure of the experiment and refinements of technique. Sensitiveness of each individual observation can be increased by greater uniformity in the material, and reliability and consistency of the results by multiplying observations.

Although sociologists, agricultural and industrial economists, psychologists and social anthropologists have taken to the field experiment, the technique is still in its infancy, raising a number of problems: Is there any basic difference between the field and laboratory experiments? How far can mere quantitative measurements present a complete picture of the problem? How to measure short-term carry-over effects and the long-term ones too? Is the separation of a social group into the experimental and control groups a completely valid distinction? How far can factorial matching, which is at the base of the method, be effective? Are not the theoretical and practical limitations forbidding enough to make the experimental technique a tool of very limited applicability? Can an important but complex social problem be so isolated as to lend itself to an experiment? Can adequate control of all operating variables be exercised? Is true replication, a *sine qua non* of experimentation, possible? and so on.

SOME SUGGESTED EXPERIMENTAL DESIGNS

Although the present writer is not completely convinced about the feasibility of the experimental designs suggested by Professor F. S. Chopin in his pioneer work,[5] it may be useful to refer to them here. Three designs have been

[5] F. S. Chopin, *Experimental Designs in Sociological Research*. Also see M. E. Brunk *(op. cit.)* for the design used in an agricultural economics problem.

elaborated, each with its distinctive area. The *Cross-sectional Design* is meant to analyse the present, i.e. a current problem, by making controlled comparisons by procedures of selective control. It is a method of studying if social programmes given to one group are associated with personal adjustments more than in any other group without such a programme. The technique applied is to measure relationship statistically such as computing correlation coefficients, partial correlation analysis and breakdown analysis, and to make the experimental and control groups homogeneous by adopting the matching of measurements on selected factors, either identical individual matching or by equating frequency distributions on a given trait. It is claimed that the "analysis of association by cross-sectional design forces us to handle the data, and the matching process adds to our store of direct knowledge of the factors in the problem".

The *Projected Design* operates from the present to the future. It is utilized to suggest the achievement of desired ends in social programmes by providing a technique "to separate the planned means-ends schema from the more impersonal cause-effect relationships". This relationship explains successive events by a set of assumed antecedent-consequent relationships for which the evidence is objective and recurrent. It is not a rigid determinism but a kind of association between factors with a probability of occurrence. Many social events e.g. inflation, defy explanation in simple terms of design, purpose and planning, because of the multiplicity of factors at work. However, the steps employed in this design are first, to describe quantitatively the factors; next, to find out if there is any interval of time between the appearance of one factor and the reaction if any; next, to introduce the concept of mean score on a reliable scale to measure adjustments.

The third type of experimental design suggested by Chopin — *Ex-post facto design* — is for tracing back from a present problem to an assumed prior cause. This device for analysing the past relates present effects to an assumed causal complex of factors at a prior date, using the available records. Two varieties of this design are indicated, one to study the *same individuals* and families at the present and

at some prior date, and the other to compare populations in the same *areas* in the present and in the past. The common technique of choosing the problem, formulating a hypothesis, and breaking it up for verification by taking a sample, selecting a period to assess change, measuring the variables, enumerating and matching the disturbing factors, and eliminating units to bring about homogeneity and control are followed.

The operations are simplified by control through matching of several independent variables known through prior study to be related to the dependent variable. For, in this design, the purpose of observation under conditions of control is to isolate the relationship between one independent variable assumed to be the chief causal factor or pattern of factors and a dependent variable taken as the effect.

Some limitations of this design are recognized. For example, as facts have to be gleaned from the available past and present records, freedom of application in method and technique is restricted, although all relevant facts and opinions are gathered through questionnaires, schedules and interviews. Secondly, because causal factors are likely to be fewer in this design than in the 'projected design' wherein a follow-up is contemplated, the choice of causal and control factors is restricted.

XVI

MEASUREMENT OF QUALITATIVE DATA

SOCIAL sciences in general and some of them in particular, e.g. psychological studies, deal also with problems which are qualitative and subjective. Thus, group values, attitudes and skills, and even some mainly economic issues such as the nature of and reactions to supervision, management and co-ordination, are largely qualitative. Such data do not normally lend themselves to quantitative and objective measurement as, for instance, size and structure of population and volume of income and indebtedness would. Without adequate and accurate measurement, which is largely done through statistical tools, the scientific status of a study and the usefulness of its findings are always open to question. In fact, qualitative phenomena, however interesting, cease to be of much scientific value unless they are quantified.

The problem of quantifying qualitative data raises two types of issues. The first is narrow and related to technique e.g. Can the socio-metric scale become a refined instrument? Can categorization be logical, exhaustive and a continuum? What is the degree of reliability and of validity that can be attained? etc. The second type of issue, broader and more philosophical, is characteristic of the Continent. For instance, Professor Menegazzi of Italy pleads[1] for greater attention to the qualitative aspects of social life even prior to considering the quantitative aspects, and to the synthetic or aggregative approach to problems. He deplores the application of only the physical science techniques to social sciences, and not going beyond 'social physics' and 'social mechanicity', resulting in turning the hierarchy of values upside

[1] G. Menegazzi, *Method and Foundations of Social Science*, 1957.

down and substituting pseudo-social values for moral values.

In fact, he stands for the qualitative and synthetic approach in social research as against the Anglo-American quantitative and analytical one attempting to adapt experimental techniques and statistical tools, leading to the growth of econometry and sociometry. Professor Menegazzi raises the questions: Is quantification so necessary in social studies and where 'human values' are involved? Is not a synthetic, aggregative and qualitative view of society feasible as against a more analytic and micro-approach?

Whatever the philosophical implications of quantification, it is necessary and to some extent possible to translate qualitative data into quantitative terms. Though still in its infancy, the technique of such translation broadly comprises certain steps: description, categorization and determination of quantitative incidence and interrelations. These steps have come to be called 'content analysis' — "a research technique for the objective, systematic and quantitative description of the manifest technique of communication". This process of converting 'raw' data into scientific ones comprises creating reproducible data, capable of measurement, having some significance to systematic theory and enabling generalization.

Steps in Measurement

It is first necessary to get at the characteristics of the content itself before measuring and scaling it. This requires focussing attention on the substantive nature of the content and comparing data at different points of time and coming from different sources. This presumes a prior specification of the data needed, a precise definition of the concepts employed and experience in collecting the significant information. For, content analysis attempts also to present a picture of the communicator (e.g. the interviewee) from the data themselves in order to enable the identification of the intentions and other features, and the determination of the psychological state of persons, i.e. to infer the characteristics of the audience, to reflect cultural patterns of groups and to describe behavioural responses.

CATEGORIZATION

Data could be made reproducible or objective by bearing in mind a few steps. There must be explicit specification of the variables or types of attributes to facilitate description and for reproducible analysis. Next, the attributes must be broken up into categories, on which explicit agreement is necessary, since many types of categorization are possible. Supposing the issue is "the people's confidence in the Third Five Year Plan", it may be categorized into "unqualified confidence", "qualified confidence", "balance between confidence and diffidence" and so on. It is necessary, further, to have an operational definition for each category, i.e. designating the units of analysis and specifying the indicators determining where each unit falls. In so categorizing, the category scheme must fit into the material analysed, i.e. the analysis should be adapted to the empirical content; e.g. in consumer research into preferences for clothes, the preferences must be related to the circumstances of purchase, what the clothes are expected to do; values placed on shopping etc.

Although categorization is essential for quantification of attributes, there is no 'all-purpose' scheme, which suggests that the scheme must be fitted into a generally accepted conceptual system and related to each investigation. If categorization is to be effective in leading on to a scaling device of attributes, it is essential that the categories form a continuum, i.e. an identifiable and logically related series, each group being distinct but leading on to the next in certain definite ways. This 'coding' of the qualitative material may be done in different ways, the simplest being the *dichotomy* approach, i.e. recording merely the presence or absence of an attribute. Another approach is through ranking the material, i.e. by *serialising* the categories so as to record the degree of intensity. To get such a graduated series, the data must be scalable. A third device is by introducing equal intervals in the scheme of categories, i.e. *variables*. This is possible in certain cases only, e.g. where time, monetary units, etc. are involved.

VALIDITY AND RELIABILITY

The category continuum must, as far as possible, be

representative of a 'norm' i.e. what would largely be applicable to other cases also. Such representativeness is generally ascertained through tests of validity which, along with reliability, forms an important criterion that any tool of measurement should satisfy. A scale is considered reliable if it consistently produces the same result when applied to the same sample.

Three methods of *testing reliability* are used in scaling techniques: (1) *Test-re-test,* i.e. the scale is applied to the same *population twice over.* To avoid staleness of avoid staleness of response at the second application, better randomly divide the population or same into two halves and apply the scale twice over to one half and once only to the other, so that the former will be the experimental group and the latter, where only one application is made, the control group. (2) *Multiple form,* where two forms of the scale are constructed and applied to the same sample. The greater the correspondence between the two, the greater is the reliability. (3) *Split half:* This is a modified form of the second approach. Divide the scale itself into random halves. A simple and practical way is to group the odd-numbered items in one group and the even-numbered items in the other. The degree of correlation between the two would indicate the degree of reliability. The dependability of this technique presumes that the scale as a whole hangs together (i.e. that either half is adequately representative of the whole) and that each half contains a sufficient number of items.

The criterion of validity implies that the scale should actually measure what it claims to measure. Although much remains to be done with regard to validating scales in use and developing new ones, there are alternative approaches to validation. (1) *The logical approach:* If the continuum is established and the items constituting the test are carefully selected (about social status, the items would be material possessions, income, education, family background, etc.), validity is presumed to follow logically. (2) *Jury opinion:* This is an extension of the first approach and consists in ascertaining the validity of the scale by referring it to the judgment of experts, e.g. if the adequacy of housing is to

be measured, the scale may be judged by engineers, architects, housewives, etc. (3) The best approach is that of *independent criteria.* Supposing there is already a measure in operation — however crude it may be — this can be reinforced by other related criteria, e.g. if social status is so far being assessed with reference to, say, income, check it against a variety of other factors, e.g. rental value of house, education, residential location etc. It should be emphasized, however, that all these approaches are indefinite and that it is perhaps best to utilize all of them.

Often, the qualitative items composing the scale may not all be of equal importance. Assigning weightage to them would increase the validity of the scale.

Despite these precautions, perfect reliability and absolute validity are not to be expected in social qualitative measurement. Social scaling methods range from great crudity to considerable refinement. But "any scale which is reliable and valid, regardless of its crudity of measurement, is better than no scale at all, so long as no more refined technique is applicable".

OTHER CONSIDERATIONS

Some other considerations underlying measurement may be borne in mind. If measurement is to be effective, the unit of enumeration must also be determined, i.e. the unit in terms of which quantification is made. Two alternative devices are: (1) a single *respondent* may be taken as the unit of enumeration e.g. in free answer interviews; or (2) some part of the content may be taken as the unit. Another consideration relates to the issue 'Why determine quantitative relations?'. One purpose is to compare trends over time and between different groups in respect of the attributes under investigation. If this objective is to be achieved, it is essential to have the same system of categories, the same operational definitions and the same units of enumeration and recording. And it is best to have certain norms to assess quantitatively the degree of deviation. This does not mean that the two variables compared (e.g. income level and optimism) should and could be expressed in the same units.

It means that in the two cases, over time or groups compared, the units must not change.

An infant and imprecise measurement like that of attributes, sometimes is fascinating in itself. But, if it is to be of any real use in research, the analysis must have significance for theory. Its value depends on three considerations: (1) the quality of the a *priori* conceptualization i.e. the variables in the analysis should mirror those in the investigator's *a priori* conception; (2) the content must be classified not according to superficial similarities but should be more substantial i.e. genotypic; and (3) the indicators used in rating attributes etc.

As already stated, the measurement of qualitative data is still in its infancy. But, even at this stage, it is possible to apply the rudimentary tools if certain steps are taken: *First,* specify the data required, develop a matrix with an attitude scale and with scoring devices. *Next,* plan out the tabulation of coded data before constructing the outline of analysis. *Third,* list the variables in terms of which the content is to be coded e.g. 'What is said?'. *Next,* fill in the categories of each variable i.e. do not make the categories too broad, lest they should convey little meaning; nor too narrow, lest they be identical with the 'raw' material. Adopt 'grouped categories'. *Further,* establish procedures for utilizing the material, i.e. define the units in the same way as the rest of the research design. *Finally,* try out the analysis outline, similar to a pilot survey, as a training period for the coders.

The success of measurement depends as much on the theoretical design and devices as on the coders themselves who really form the measuring instruments. They should, therefore, be sensitive and dependable and, thus, their proper selection, adequate training and effective supervision become very important. Like a tea taster, the coder must be able to detect subtle differences of meaning, and, as the work is repetitive, must be able to stand the strain without losing his sensitivity or morale. This demands also adequate training in the use of the analysis outline and precise understanding of the operational definitions.

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