

~~CONFIDENTIAL~~

THE SOCIAL SCIENCES

COMPARISON WITH NATURAL SCIENCE (SUMMER, 1948)

The relationships of science and culture go very deep, so deep that many men, quite competent as scientists in a limited field, have seen fit to deny that the scientist has any concern with social conditions and social problems. Such men are biting the hand that feeds them, for, as we have seen in the last chapter, cultural conditions determine the problems with which man must concern himself and determine indeed whether there shall be any science in the popular sense of the word at all. We would not pause to rebuke ingratitude, however, if it were not for the fact that some social consequences grow out of the mistake.

In the first place, some natural scientists seem to feel that what they are doing is the truth, the whole truth and nothing but the truth. They thus demand that no one be concerned with their activities, and that they are perfectly justified in working at whatever problems they may see fit, without any sense of responsibility to the community which provides both the milieu and the means for their work. The scientist, no more than the army general, can divorce his skill from the ends to which the skill is being directed.

Now the methods of making science responsible for its pre-occupation and results may vary greatly and are certainly hotly disputed. On the one side, we may have a perfectly acceptable ideal of the morally responsible scientist who recognizes that his scientific capacity must not enslave his social capacity. On the other extreme, we may have the Soviet social controls over science, whereby the most remote scientific discoveries in biology must be

consistent with some communist party directive, arrived at purely deductively, without evidence and in a passion for utter conformity.

The present condition of most nations, including the United States, is clearly in neither extreme. Gone are the days when scientists worked almost exclusively under general and indirect social influence and patronage. More and more basic scientific work, both physical and human, is directly inspired, organized, financed and utilized by the nation. The field of nuclear physics, and its ominously practical results like the atomic bomb, is a case in point. While most students are being taught along with their ABC's that Galileo, Bacon, Kepler, Columbus and Pasteur suffered «intolerable» restrictions in their scientific work, modern scientists are engaged in activities continually more restricted and organized. Political policy filters through an increasing area of the natural and social sciences, determining where science should go and how it must get there.

The second consequence of the mistake of trying to make science irresponsible has already been implied. It is that those social scientists who would like to imitate the natural sciences in cultivating an ethic of irresponsibility, are already hopelessly outdated. They cannot in any event study just «anythings». What they do study has consequences both social and political and therefore is determined to a certain extent socially and politically. The scientist who is not a mere high-grade technician must realize this connection between ethics, philosophy and science, and keep his science in its place. At the same time, of course, when he is working on a scientific problem, he must control his own mind just as he would his laboratory experiments, letting it operate only

according to the procedures of the scientific method.

Therefore we may begin our discussion of the differences between the natural and social sciences by refusing to admit any difference at all so far as social responsibility is concerned. At the same time we may add that both are subject to the same laws of human logic. Both wish to solve problems without the intrusion of irrelevant, deceptive, and magical factors. Both make laboratories of their own minds. Both strive to carry out Aristotle's dictum that the educated man looks for precision in each class of things so far as they allow. But it is exactly in this statement that the social and physical sciences shade off from each other and begin to look like dissimilar things, so much so that some men foolishly try to say that the two things are completely and absolutely different.

Differences in Subject Matter

Although ultimately subject to the laws of thought and the limits of human understanding, the natural sciences study natural relationships. There exist interstitial sciences which study both, for example, animal biology and psychology, physiology, geography, but the major distinction in subject matter between the non-human and human has important meaning.

First of all, the social scientist is studying men and he is himself involved in the study. Whatever he says has consequences to his own being, his pride, his aspirations, his political views, his family life and many other strong emotional areas of his constitution. This may rather more easily than in the case of the natural scientist lead him to have certain biases or prejudices which prevent him from reasoning clearly and observing carefully.

In the second place, he is often particularly concerned with values, for human values are an essential part of the data of the social sciences. How could one study economic incentives, for example, without trying to ascertain what motives impell people. It is not only hard for him to keep his own values from being mixed up in the study he is conducting, but other people and groups look with suspicion on such work. They cherish their own values and fear that objective analysis of them may expose inconsistencies and therefore force some change on them. Such is obviously the case with a social scientist who wishes, let us say, to study allegedly fascist or communist groups. They will refuse him cooperation, give him misinformation, conceal their activities, and perhaps even threaten violence unless he removes his person from the scene of the data.

The taking of public opinion polls constantly bumps into areas of social sensitivity and the pollsters must guard against hostility. The words of a Louisiana newspaper are typical of some elements of the public:

Three months ago a half dozen post-graduate "Social Science Workers" from Princeton University, augmented by seven or eight East Side New Yorkers who had never in their lives seen a possum, tasted a sweet potato or chewed a plug of tobacco, arrived in New Orleans to conduct a so-called "survey of public opinion".

No large group of society has a monopoly of antagonism against being the objects of social study or even to allowing social science.

research to be conducted under any conditions. Donald Young found that unfavorable conditions of work in the social sciences were caused in part by

Public misunderstanding of the nature, accomplishments, and potentialities of the social sciences as practical means for gaining knowledge useful in meeting problems of community, national, and world relations. The essence of this misunderstanding, ranging from indifference and scepticism to open hostility, may be found in the reports of the hearings on the Kilgore-Magnuson science legislation bill and in the subsequent congressional debates. While there was much encouraging support of the social sciences by natural scientists and members of the lay public, social research was also identified with the race equality movement, economic radicalism, the New Deal, dangerous reforms in general, and rampant "social society consciousness", whatever that may mean.

The funds, when finally granted, contributed to the already enormous imbalance between the natural and social sciences.

In the third place, many of the most pertinent and important of the objects studied by the social sciences are already highly developed, unique clusters of things--man, institutions, historical facts buried in mountains of data and hardly real apart from the multitude of associated facts. The problems of social science are man and society, to put it crudely, yet both are "facts" of such great complexity that in order to give a working definition of either "fact", a host of other facts must be assumed. The danger

here is that, in trying to break down a human being for purposes of study just as one would a molecule, one may get a lot of data but be unable to put the data together again for the solution of meaningful problems.

Thus, one who wants to study the effects of factory work on human ambition can study the effects of fatigue in many kinds of work, must know the conditions of work in detail, must prepare statistical tables of the origins, original aspirations, education, and home environment of the workers, and then can administer a series of tests to the workers designed to find out whether the original aspirations in life have changed, how much, and in what direction. But the scientist must be careful at every stage in the investigation not to be so enamoured of things that he can estimate precisely (like stature, lighting of work, wage incentives, etc.) that his final analysis ignores things difficult to measure (like evangelistic movements, unionism, general social defeatism). If he errs, he will end with a study of particular importance, but without the general estimate of trends in the aspirations of factory workers. He may thus skirt the fringes of the problem which has many social and political consequences.

A more common case, perhaps, of losing the functional goal, in the pursuit of discrete data, is to be found in many studies of leadership which take a group of leaders in a particular area, list their specific traits or abilities, and summarize their evidence by building a fictitious idealized type possessing all the required characteristics. We then have a meaningless pseudo-type, like the vaunted "Aryan" type of the Nazis, which as one wag put it, was

"blond like Hitler, tall like Goebbels, and lean like Goering." Usually even the naive reader can see that Napoleon, Al Smith, Calvin Coolidge and countless others must then be mirages. The clear testimony of the senses must be denied in favor of a statistical average. Such studies are not useful, because they go nowhere.

Fourthly, the natural sciences have succeeded in getting most men to take one view of the world; the world of the social sciences is multiple. Common perception then becomes a difficult problem and without common perception you do not have one science, but rather several. Each science is founded on the way of looking at the world which a person possesses. This is his world-view, or Weltanschauung, as the Germans say. The way he gets his world view is a psychological and sociological problem of great importance to political science. Suffice to say here that at work on the individual personality are the forces of the environment from birth to death--his thoughts and perceptions are vastly influenced by them. But since environments and men differ, their basic attitudes towards the world, that is their belief systems or ideologies vary. Thus we find two great political philosophers on the same period differing fundamentally in their approach to political science because they differ fundamentally in their views of human nature: John Locke could build a scientific system of government (that is, a rational arrangement of political methods to achieve basic human needs) that was "representative government" because he thought that men were naturally cooperative, social and reasonable; whereas, on the other hand, Thomas Hobbes could build a scientific system of government that was "absolutism" because he thought that men were

naturally in a state of conflict that made their lives "nasty, brutish and short" until they turned to absolute rule.

Why the basic personalities of men differ and how they differ is a key problem in political psychology. The results of their differing are a focus of interest in all of political science. To get men of the Hobbes type to agree with men of the Locke type on almost anything, including what should and should not be the objects of scientific research, is most difficult. Yet without such agreement, at least among scientists (remember, however, the fact that scientists are only relatively free from such influences) a single system of scientific theory to organize known facts is incredibly difficult. In the very definition of a fact following upon its perception, basic splits may occur among social scientists and impede agreement forever after. For the social "fact" has qualities natural facts almost never have. As John Dewey declared: "Fact, physically speaking, is the ultimate residue after human purposes, desires, emotions, ideas, and ideals have been systematically excluded. A social 'fact', on the other hand, is a concretion in external form of precisely these human purposes."

Differences in Methods

The scientific method, we have been given to understand in the first chapter, is the correct thinking which enables men to achieve their goals. It consists of reliable and valid and guarded forms of thought. How do we know when we have achieved this happy state? We know it because of its results, the successful solution of problems. We also know it because men generally have observed that certain forms of thought have been productive of good results and

therefore can be predicted to be a factor in future successes in solving problems. The latter statement can be only partially useful, however, because of the difficulty of finding out what thought processes actually occurred and of recording in communicable form the way they occurred. The success which has been obtained is summarized in the propositions of logic, together with its mathematical refinements. Logic and mathematics deal with the requirements for validity in thought and demonstration, and the exact statement of relationships among objects. They are instrumental sciences in the sense that they help all thought directed at finding relationships among certain kinds of fields of objects. It is from man's concentration in these fields that the other sciences develop --astronomy, biology, psychology, politics, etc.

Much thought has gone on, needless to say, without the full benefits of logical and mathematical principles, and the full environment of thought has not yet been explored and described. That environment is both external and internal to the thinking man. That is to say that external conditions such as an adequate income, a comfortable room, absence of noises and distractions, asceticism, and a number of others have been often proposed as necessary circumstances to the fruition of thought. In addition, other at least partly internal intellectual activities have some relation to the scientific productivity of thought. But here too the exact conditions are not well-known and dispute is common. Being at peace with oneself in certain ways would be a precondition to effective thought in philosophies so disparate as Plato's and Freud's. Wide individual differences in ability to concentrate or to perceive the objects of attention fully have inspired numerous formulations of

rules which have not been completely successful or accepted and which certainly may not be compared to the effectiveness of the rules of logic or mathematics.

Whatever the extent of our knowledge of all of these processes, it is by means of them that natural and social scientists alike operate. It is by means of them that data is observed, classified, checked and rechecked, communicated to others and fitted into theoretical systems. Several marked differences occur, however, between the typical procedures constructed by natural and social scientists to handle their fields. These differences in emphasis have to do mainly with the differences in subject matter which we have found to exist between the two.

1. Because of the fuzzy state of the broad interpretations of society that exist, a social scientist must be more concerned with and educated in the implications of the various broad interpretations. He will benefit from knowing the difference between Freud's and Aristotle's theory of human nature, for example, even if he is working on a tiny problem concerning a person's relations to his school club.

2. He must be highly self-conscious and have great self-insight throughout his scientific operations because of the slippery and complex nature of the facts with which he is dealing.

3. He must be scrupulous in logic, for that is one of the few real instruments that he has for his type of work. He must always carefully distinguish his fact from his value statements, the difference between what *is* and what *ought to be*. Methodologically, the latter must be eliminated while solving discrete problems.

4. Mathematics thus far has not proved to be integral to the development of social science for several reasons. All attempts at major synthesis of knowledge about human behavior in exact terms, statable mathematically, have failed because of disagreement as to terms, proof or comprehension. At other times, generalizations about social relations have been effectively and clearly enough stated without benefit of symbolic representation, and attempts at such use of unfamiliar and technical symbols have been rejected as pretentious and useless.

Examples can easily be given: Suppose a social scientist wishes to build a system of symbolic relationships and starts by saying the sum of human instincts constitutes all of human nature. In order to be concise, he writes this $\sum I = N$. We need follow him no further, for the social scientists have been disagreeing bitterly over the meaning and utility of both his terms for a long time, many to the point of denying that either term has any meaning at all. In order to get others to accept those two symbols, he has to write a book of definitions and description, and in the end could hardly achieve his desire of a simple, concise formula. If people do finally agree with him, they may well reject the formula anyway on grounds that its terms are crystal clear without being stated symbolically.

Everyone of the social sciences has a graveyard reserved for such attempts. Without agreement on basic ideas or concepts, a symbolic representation of the ideas means nothing and tends to delude. An appalling dearth of organized and reliable observations in all of social sciences has forced mathematical interpretations or statements of social relationships to omit, to skip, to incorporate

falsely large areas of relationships. The fields are spotted with areas of incipient mathematical presentations, but none of them connect with the others. A tiny part of the field of economics, of psychology, of geography, of sociology, and of political science is so stated, but the great bulk of all fields has not been influenced.

The most impressive use of mathematical statement has come from statistics, which is a field of mathematics best able to manipulate figures describing large aggregates of things. In its simplest form, statistics may allow the orderly presentation of the chief characteristics of the people living in a city or nation, for example. Averages can be struck which are sometimes useful. A census will tell how many men are available for military service in the age-group 18-25, or how many trucks and passenger cars are available for taxation. Election figures can indicate the decline or rise in voting participation. Then one can say that participation in voting has gone up from 49% of the qualified population to 65%, whereas without the figures, one would have to state the trend in general and perhaps ambiguous terms, based probably on less reliable indications.

5. Most social scientists must be content to work on materials not of a precise nature. This is already obvious, but it is well to indicate here that the problems of social science are dependent on society's interest in their solution. Answers must be given to many broad matters even though the answers are as often as not only partially correct. How the U.S.S.R. will react to the recall of the American Ambassador to Moscow may be a vital question to which no wholly correct answer can conceivably be given. Yet whatever poor

resources social science can offer to the solution of the problem must be used, if the alternative of action is blind ignorance is not to prevail. The fact is that there are not enough social scientists available for answering such questions. Training in social science is yet in a rudimentary stage, far behind even the modest theoretical accomplishments of the field. Decisions of vast importance, thousands of the character of the one mentioned, are made in ignorance and passion, the parents of folly. Often such mistakes are products of good intentions faced with the uncertainties of social science as a method. It is so often difficult to tell the sham from the reliable that the worse way be preferred to the better unwittingly. This is said as a warning to those who expect that a scientific approach in these important but broad areas of social science will naturally bring acceptance and employment.

6. An almost identical point is this one: most generalizations in social science will be on a lower level of probability than generalizations of the natural sciences. As an example, let us agree that the association of persons of different income levels will decrease class antagonisms. As advisors to a summer camp director, we are judging the effects of granting camp scholarships to three poor boys in a rich boys' camp. If the result of the intrusion of the poor boys is the wholesale withdrawal of the rest, we obviously will be winning a battle and losing the war. So we examine what has happened under like conditions elsewhere, investigate the kinds of relationships existing in the camp, sound out the parents of the boys concerned, and on the basis of all available evidence, decide that perhaps three boys will withdraw from the camp as a result of

the proposed action. In fact, four do. Our prediction was not exact but was satisfactory. In the more imposing area of foreign policy this is known as the "calculated risk". Mussolini ordered the invasion of Ethiopia with an ultimately accurate estimation that the League of Nations would not oppose him with extreme measures; Theodore Roosevelt encouraged the Panamanian revolution in the expectation that the Congress would approve his attempts at ensuring a canal route for the United States and that Columbia was not strong enough to resist the effort and the threatened opposition of America.

Of course, history is full of the failures of other calculated risks and they stand as monuments to the unfulfilled possibilities of social science. Yet the continued success of gigantic enterprises in the field of insurance bear testimony to the possibilities inherent in the more complete knowledge of particular conditions. Again, when the United States Treasury wished to increase the sale of war bonds, ^{Rensis} Lewis Lickert made a preliminary survey showing the disposition of persons to buy more bonds when approached personally. The number of agents was therefore increased and the sale of bonds rose remarkably--not an exactly proportionate increase but a satisfactory one. Almost every year now sees the development of new techniques designed to strengthen the probability that a certain act will have particular results.

7. The operations of natural and social scientists differ in their respective reliances on the experimental method. A good part of the natural sciences, including especially partly human fields such as biology, have benefitted from the use of controlled experiments, performed in a laboratory with intruding factors held to a minimum. Advances in knowledge have been hastened where

scientists could subject their materials under investigation to certain known and controlled influences, record the results, and then repeat the whole operation time after time, until doubts and variations could be explained away. In other important fields such as astronomy, direct experimentation has been impossible, but the great observed regularity of events has to some extent compensated for this misfortune. In addition, laboratory experiments on light, gravity, and gases have contributed to understanding of the universe.

The social sciences have been able to do little with controlled experimentation. The vast complexity of social events has proven too difficult to reproduce in a laboratory. Here and there, scattered experiments have been performed in fields such as biology and chemistry which have contributed to social science, and limited experiments are possible in the social sciences themselves, usually, however, not in a laboratory, but by means of comparing "controls" and "experiment" groups. Thus, a group of houses inhabited solely by whites is compared with a very similar group of homes in which both negroes and whites dwell in order to see whether problems arise in the one that are not found in the other group. Or two similar groups of voters are marked out, one is subjected to certain kinds of propaganda, the other is not, and the resulting behavior of the people at the elections is compared to determine the effects of the propaganda.

8. In their ability to perform experiments, as in their possession of adequate data, adequate personnel, and other respects, the social sciences suffer from a lack of resources. Incomparably more money and effort finds their way into the natural science fields.

This in itself accounts for social neglect of the potentialities of social science. Having demonstrated relatively little, the social sciences receive little encouragement, and, receiving little encouragement, they can demonstrate little.

The United States Census, to give an example, although it furnishes perhaps the largest body of materials made available to the social scientist, is woefully inadequate in many important respects as to coverage. Yet, the Hoover Commission on the Reorganization of the Executive Branch of Government did not recommend that Census Bureau Services be enlarged or directed at the multitude of policy problems of the administrative agencies, and Congress in 1946 (?) abolished the Department of Agriculture's opinion survey division, one of the few agencies in the government gathering systematic information on the effects of administrative policy.

The administration of even a small study in social science, if the study is to be based on first-hand observation at all, requires far more funds than are generally available. Resort to slipshod methods, hasty observations, unfounded assertions, and inadequate rechecking of findings may frequently be the result of insufficient research financing. Adding insult to injury, natural science oriented university administration imposes heavy teaching loads which limit the research capacity of social scientists. Since the other vocations of social scientists are mostly manipulated toward certain goals--e.g. advertising, politics, race relations organizations--and since the government services have restrictions on the interests and research activities of their employees, the chances of disinterested research even in a relative sense are inconsiderable.

The History of Social Science

Yet the zeal of a few men has done remarkably well. The social sciences do exist; they gather influence and personnel in increasing numbers; and an uncomfortable and beneficial conviction that social science must somehow answer questions beyond the abilities of the natural sciences is spreading. How has this come about historically? Who have fathered the social sciences? How do the disciplines appear today? We may answer these questions now.

Social science began as the unsystematized body of men's observations about religion, the world, and man. It began as a body of rules inseparable from the rightness of the rules. It began, that is, as a code of behavior supported by the conscious and unconscious laws or mores of groups of men and by the religious directives upholding those laws which were believed to come from the world of spirit. As men differed among themselves as to what was right, they looked to authority for their assurances. Gods and rulers supplied authority and assurances and where the one could fail, the other could not. Interpretations of the will of both came to be discussions of what was true. The interpretation of the will of God came to be the study of the movements of the heavens and the abstract manifestations of truth found in the climatic and unusual events on earth.

God gave Moses the tables of the law. Truth lay in them and inconsistencies with them were both untrue and wrong. From time to time, Hebrew prophets arose, troubled by evidences of social disorganization and demoralization around them, and demanded that the law of God be reinstated in the rules of human behavior. But people everywhere else professed to have their own Gods and their own truths

about men. To men who travelled and could sharpen thereby their faculties of perception, what were two truths to two isolated nations became two facts concerning both. Comparing the facts became a common operation wherever dissimilar cultures mingled.

In Greece, the development of interest in that field of study which we call today the social sciences went through. The tribal stage of identity of truth with mores (see the Homeric epics), through the religious stage where conflict among men over truths took the form of speculation about the nature of the universe (Heraclitus, Parmenides, Pythopras^{ad. oras}) and ended up in the concrete account of human behavior first noticed among the Sophists.

Rejecting both theological and metaphysical theories (i.e. universal explanations of the world not testable by the senses), the Sophists saw in all human customs and morals simply facts which might be summarized and compared without resort to moral judgements as to their goodness or badness. "Man is the measure of all things": this was roughly their interpretation of events, physical and human. They picked their evidence far and wide, from the many Greek settlements and from the barbarians and Orientals. Herodotus, the "father of historical writings", they regarded as naive and gullible. Thucydides, the great Athenian historian of the Peloponnesian Wars, was much more to their liking, as he was accurate and adhered to earthly explanations of human affairs. We find the Sophist view of the world under fire by Socrates, who was not so sure of the transient nature of human values and the impossibility of distinguishing good from bad in politics, and definitely denounced and rebutted in the Platonic dialogues and Aristotle's Ethics and Politics. But the

Sophists lived on in the ideas of the Cynics and the Epicureans, and, in modern times, their viewpoint coincided with the beginnings of the social sciences of the 19th Century, especially in sociology and anthropology.

Neither Plato nor Aristotle made the many distinctions among the branches of social science which are found today. Politics meant the life of man in the community--his family, his customs, his political institutions, his economic life, his relation to nature (geography), and his education. The beginnings of all the social sciences are clearly here but they are woven into a pattern from which the parts are inextricable. Indeed, the social sciences are merged beautifully into the natural sciences as well, and into religion and metaphysics, too; the whole body of philosophy and science has a wonderful symmetry, reminiscent of the complete world view found in the Vedas of Ancient India with their commentaries, the Brahmanas and the Upanishads, and, in the Western World, of the same all-consuming character as the Christian philosophy of the 13th Century. Certainly the Twentieth Century reveals no comparable unity of belief and thought. Integrity and completeness of thought and theory, however, must not be confused with integrity and fulfillment in human activity. It has often been observed that intellectual systems of ethics and politics sometimes precede and sometimes succeed the disintegration of a society's way of life. In the case of Plato, Aristotle, Thucydides and their brilliant confreres, the city state community which produced them and to which they were devoted was soon to flounder in embroglios and foreign imperialism. Their ideas were disseminated by their conquerors, first Alexander and then the Romans.

The culture of the Mediterranean under Rome saw widespread technological advances. Roads, factories, aqueducts, household implements, public defense, public and private buildings benefitted from extensive applied engineering and applied social science in the fields of war, law and administration. Social theory, as in the United States during the 19th Century, concerned itself primarily with constitutional and moral questions. What is the real constitution of Rome and what does it mean? What are the proper qualities of a statesman and how should one behave towards his fellow men? To these questions, men like Polybius, Cicero, Livy, and Marcus Aurelius directed themselves. In law and administration, a third matter intruded, that of the adjustment of many diverse societies to the hegemony of the Roman Republic and Empire.

A body of law called jus gentium (law of peoples) grew up, extracting and compiling the common elements from the laws and customs of the diverse peoples who made up the Empire. As members of the various peoples travelled through the Empire on matters of trade, their affairs were settled by Roman courts applying the jus gentium. At the same time as the new body of law was gathering prestige, the influential Stoic philosophy of universal brotherhood, abetted by the general belief that Roman dominion was universal in the civilized world, was developing a theory of the existence of a law of nature. Natural Law consisted of eternal truths about human relationships deducible from the purposes and behavior of all men. Both jus gentium and the natural law were united finally with the Civil Code of Rome in the Great Code of Justinian (529).

Like Plato and Aristotle, Justinian's jurists served to unify

a way of life that was already disintegrating. The Code, however, together with the Christian Church and its moral code, survived the crumbling of empire and operated influentially in the evolving structure of medieval thought. Since both Church and Empire in the middle ages traced their origin to the Roman Empire, both rooted themselves on the Imperial Law. The Glossators of the 12th and 13th centuries in the Italian Universities began systematically to convert the authorities of the Roman Law to medieval requirements. Philosophy, theology and law were united in the jurisprudence which existed until the 16th century.

The Medievalists, even less than the Greeks, distinguished between the various kinds of social science. Their main theoretical interests centered on problems of theology. This is not to say that men thought less rigorously than they do today, or that astute politicians and clever traders did not abound, or that the Western world became like a gigantic clock that has stopped with its hands pointed at midnight. But rather a conjunction of historical conditions following the breaking up of ancient society occurred: physical communications were difficult; static communities of a tight-knot sort were really a progressive adjustment to general anarchic conditions; the limiting of men's efforts to a building of a larger peace among the small communities (something force and law could do well) was at the top of man's agenda; elementary techniques like reading and writing were scarcely known, and were allocated, just as Japan allocated her industrial techniques to her militaristic plans of empire, to the major problems of extending the local peace to wider areas (the lawyers) and of preserving spiritual unity (the priests).

The beginnings of the modern social sciences, coming out of the legal and theological unity of medieval thought were deeply colored by their influences in scope, methods, and substance. Machiavelli, writing in 1513, was a striking exception, hardly duplicated (though one may cite Alberico Gentili and Thomas Hobbes) until the 18th century behavioristic and pragmatic schools of psychology and politics, so unpalatable was his utter disinterest in legal and moral principle in his analysis of politics. More typical in their adherence to natural law as the basis for explaining and predicting conduct were writers such as Mariana and Grotius in international law, Bodin in politics, Calvin in economics and politics, Bacon in scientific methods and politics. But specialization scarcely existed in social science, save in branches of the law and statecraft. When sociologists, anthropologists, political scientists, jurists, geographers and economists look back today generally all of them mention a man like Bodin who was a little of everything, including a philosopher and moralist. The psychologists will go back to philosophers like Descartes, Leibnitz and Spinoza, and from there back to St. Thomas Aquinas and Aristotle.

The 16th and 17th centuries saw the process of discrimination between morals and science and between one scientific field and another continuing and growing in strength until the 18th Century crowned the gigantic movement with its Age of Enlightenment which displayed an almost universal belief among intellectuals in the ability of the human mind to understand, conquer and use nature and society. The major distinction between the new and old, between the Enlightenment and the centuries preceding it (according to our idea)

was the separation of the scientific method and its procedures from morality. An increasing number of men both in the natural and social fields, found that they could understand and manipulate both nature and man better if they separated their ideas of what ought to be from the observation of "what is".

This required a tremendous discipline which we have inherited and taken for granted. They had first to separate what they wished from what they saw. They had to distinguish between their statements of fact and their statements of preference. They had, moreover, to have enough regard for the secular and material conditions of life to devote considerable time, energy and discipline to secular and material problems, something the Medieval Period was not so bent upon doing. Once done, however, the results, especially in the natural sciences, were astounding. In the social sciences, for reasons related at the beginning of the chapter, the development proceeded at a slower pace, but the change was none the less remarkable.

The Special Growths of the Various Disciplines

History. The modern period of historical writing dates back in important ways to the same development of humanism in Renaissance Italy which produced the Prince of Machiavelli. In fact, Machiavelli himself, in his History of Florence, represents the reestablishment of history as a discipline to its position at the time of Thucydides and he, as was true of the other humanists, took the classical methods of analysis and writing as his models. Other great historians of the 15th to 17th centuries were Guicciardini, Grotius, Mariana, Bodin and Clarendon. In the 18th century Enlightenment, we have the works of Voltaire, William Robertson, and Gibbon, all of them

intensely rationalistic and secular in tone.

The rationalistic treatment of events, which tended often to view history as a gigantic struggle between reason and superstition, but which also made great contributions to the systematic recovery of the facts of the past, was opposed in the early 19th century by a romantic conception of history, soon intensified into a nationalistic writing of history to prove that the pretensions of various nations were founded on historical "facts." Among the romantics we ought to name Thierry, Barante, Leo, Michelet, and Motley. Among the nationalists, there was a great revival in the political and aspirational history of particular nations. Hegel, Treitschke, and Sybel exemplified nationalist history in Germany, Michaud, de Coulanges, Thiers in France, Stubbs, Macauley and Seeley in England and a variety of men ranging from John Fiske to Theodore Roosevelt in the United States.

Other historians of the 19th century were not so affected by the rising wave of nationalism everywhere and could set up sterner ideals of historiography. Von Ranke in 1824, with his famous work on historical criticism and methodology which summed up developments reaching back to the Benedictine monks of the 17th century in France, Muratori in Italy, and others, launched a great movement for exact, painstaking work on sources, proof, and dispassionate inquiry on historical materials. Waitz, Guizot, Seignobos, Aulard, Langlois and Pirenne are outstanding examples of scholars whose methods of historical study and writing deserve high regard and respect.

Still, two major problems were not yet solved by historians,

nor indeed are yet solved. One is that of objectivity. Ranke, for all his good intentions, did not write completely objective dispassionate history but was Germanic in his views. So with most others, too. Aulard's theory for explaining the French Revolution differed from that of others. Twentieth century historians are somewhat more aware that even dry-as-dust facts, like any other facts in life, are chosen for a purpose. Methods, no matter how capably applied, seem unable to separate the wish from the perception, the wish from the measurement of the importance of one fact against another. Self-analysis, self-consciousness, is as indispensable to the modern historian as to any other social scientist.

The second problem which has only recently been surmounted to any large extent has been the excessive focusing of attention on political history, the story of kings and empires, wars and elections. But history, to be most useful to social science, must be total cultural history. It must study institutions, customs, inventions, etc. And so, in modern historical writing, we have intellectual histories of great import (Lamprecht, Lecky, Troeltsch, Robinson, Croce), histories of science (Merz, Lynn Thorndike, C. H. Haskins, Mumford) including economic history (Max Weber, Sombart, Tawney), social history (De Coulanges, Ferrero, Schlesinger) and politico-legal history (De Toqueville, Beard, Turner, Gierke, Pollock, Jenks and Pound).

Progress in historical writing is basic to progress in social science. Everytime we act or experience, the event becomes both a part of history and a condition imposed on our future acts and experiences. We shall be able to give future men a basis for the solution to their problems to the extent that we may leave them an

accurate record of our own experiences. Our own inheritance of historical record is fragmentary, so much so that many social scientists refuse even to treat historical evidence as at all meaningful. Yet, as we shall see, some of our most effective social science techniques are primarily historical ones. It is not the fault of history that we cannot learn or predict from it; it is rather the fault of our predecessors and our own incompetencies at preparing and preserving historical evidences and records. We have inherited fetishes rather than history.

Geography. In geography we are somewhat better off than in history, because the mountains and rivers of yesterday, like the stars, are still with us. The regularities are still here to be observed, in several important areas. Yet defects in history affect geography as well as the other social sciences. Historical geography is the study of population facts and trends, the movements of groups, races, individuals, and geographic-economic patterns of history. Other fields of geography include the study of soils, agriculture, exploitative occupations such as fishing and mining, and human relations to physical configurations of the land. Economic geography studies trade routes and exchanges of raw materials and products. Cultural geography (including political geography) studies the relations of whole cultures to their physical environment. Political geography is concerned with the power relations of political groups as they are affected by resources and stages in the exploitation or control of resources, and the relations of units of government in their administrative and functional capacities to their physical surroundings.

Unsystematic observations on the relation of society and geography go back, of course, very far in time. Aristotle, Strabo, Ibn Khaldun, Bodin, Montesquieu, and Hume had geographical explanations for political and cultural phenomena. Le Play, a French economist, Ratzel, a German anthropologist, and de la Blache and Brunhes, French geographers, stimulated the development and systematized its structure in the 19th and early Twentieth centuries. Huntington, F. Thayer, and D. S. Whittlesey are among the recognized contributors to the science in the United States in more recent times.

Economics. In the 17th and 18th centuries, economics emerged as a social science. Apart from law it was perhaps the first to acquire a special field and a discipline of study. The mercantilists, such as Antonio Serra, Sieur de Vatteville, Charles Davenant and Johann Becker, theorized on the sort of economic policy which might bring greatest riches to their nations. They took government activity in the economic sphere for granted. The Physiocrats of France in the 18th century, including especially Francois Quesnay, divorced economics from state policy and made individual well-being the pivot point of economic policy. They did, however, rate most highly the productive role of the agricultural class, and consequently were left behind by the work of other individualistic economists who emphasized the role of the commercial classes.

Of these, the greatest was Adam Smith whose Wealth of Nations appeared in the same year as the Declaration of Independence of the United States of America. Free trade, free money, free enterprise were the bulwark of Smith's individualistic economics. If each man

sought his own maximum profit in trade, society would ultimately benefit, for production would increase, competition would force profits down, and most men would have more of the material goods of life. Just as Machiavelli had created the "ideal-type" of the "power man", Smith developed the ideal-type of the "economic man" who behaved out of pure economic motives of self-interest and responded immediately to changing market conditions.

Adam Smith was followed by a succession of brilliant English economists--Thomas Malthus with his prophecy that population would outstrip the means of subsistence unless drastic preventive and positive checks like abstinence from procreation or pestilence prevented it; David Ricardo who deduced a law of diminishing returns and predicted the increase in rents relative to the profits from capital as population grew; and John Stuart Mill who wrote on logic, government and economics and justified Smith's classical "supply and demand" formulas by reconciling Bentham's dictum that "the happiness of the greatest number" was the basis of legal policy with Smith's principle of "self-interest".

But the working classes saw little hope in Smith's laissez-faire or "let things alone" theories. Their best and just share, they believed, could not be obtained therefrom. Socialism, the advocacy of government ownership of the means of production, developed rapidly during the 19th century, both as a demand for reform of the existing order (St. Simon, Fourier, Robert Owen, and Louis Blanc) and as an extreme demand for the abolition of the existing order by force if necessary (Karl Marx, Frederick Engels). Karl Marx expounded fully the theory of economic determinism, declaring that the government, culture and even the family were the creatures of economic conditions.

Whatsoever class controlled the means of production, determined all important aspects of society. Since this was the case, it could only be that revolution was necessary for change, since the ruling class represented the dominant economic class and would never abdicate power without a struggle. In 1848, The Communist Manifesto, written by Marx and Engels, appeared and urged: ^{"The proletarians have} ~~workingmen of the~~ World-unite, ^{They} you have nothing to lose but your chains, you have a world to ^{win. Workingmen of all countries, unite!} gain. Ultimately the new society was to be anarchistic, that is, without government, since government is instituted only to enforce class injustices. But temporarily the new government would be operated by a dictatorship of the proletariat.

Both the classical theories and the socialist theories have come down to the present time with many supporters and many deviations. In addition, new theories of economics have developed important ideas. The non-socialist theory of the "welfare state" may be said to begin in the last century with De Sismondi, who argued on behalf of the positive interference of the state ^{to assure} ~~in the interests of~~ general well-being. Syndicalism arose in the writings of men like George Sorel and Arturo Labriola. It disbelieved generally in the virtue and utility of over-all government and advocated instead self-government by professional and occupational groupings. It was, therefore, a form of pluralism, which might be compared with the gild system of the middle ages wherein the gilds of craftsmen had a great deal to say about conditions of work, prices and quality in their trade. The English Gild Socialist Movement (as in G.D.H. Cole's early writings) proposed similar solutions for economic-political problems. Mathematical presentations of economic observations and

theories found a full development in the work of Walras^L, Pareto, Schumpeter and Fisher. Thorstein Veblen, Max Weber, Werner^S Lombart, Roberto Michels, and Wesley Clair Mitchell^P, approached economics institutionally. Here economics resembles the other social sciences more closely, for it is studied as a manifestation of culture, bearing profound resemblances and meaningful differences with respect to the political, sociological, and geographical characteristics of the culture. Problems of supply and demand become "habit-determined" rather than "reason-determined", i.e., economics is studied as customs existing under particular historical conditions. To the latter group, we might finally add the name of John Maynard Keynes whose works on economic theory, mathematically phrased in some cases, reflected the increasing preoccupation of economics with political decisions and world economic institutions. Not even in mercantilist times did the state intervene in economic affairs of every sort so vigorously as it does today in almost every land, including the United States, where of all major places, the process is least advanced.

Anthropology. The beginnings of anthropology may be traced to a wide interest in primitive societies which occurred in Europe following the Age of Discovery (15th to 17th centuries). To the ideal-types of the "political man" and the "economic man" drawn by the political scientists and economists, one should add the "nature-man" of the early travellers and social theorists. What was man really like before he was smothered by a plethora of social institutions? Did he exist free and untrammelled? Was society formed by the consent of a number of individuals? Men generally accepted this "social contract" theory in the 17th and 18th centuries. They believed man

existed before society. Dispute waxed over the condition of his natural state--some like Hobbes believing it to have been deplorable, other like Locke and Rousseau believing it to have been free and pleasant.

Rigorous observation of primitive societies and inductions from such data did not take place until the 19th century, however. Then Adolph Bastian and Friedrich Ratzel began their tremendous output of materials on divergent cultures, the former emphasizing religious customs and primitive psychology, the latter material culture and its diffusion from one community to others. In 1859, contemporary with Bastian's major effort and preceding Ratzel's works, Charles Darwin's Origin of Species appeared. The theory of evolutionary biology was presented along with the theory of the "survival of the fittest" in the evolution of species and both were supported by Darwin's field observations. The evolutionary theory was seized upon immediately by anthropologists, as well as sociologists and political scientists. Herbert Spencer, who was all of these, applied the tool of evolutionary theory to the analysis of a large number of specific social institutions, tracing, for example, the profession of ruler from the earliest primitive society to modern society. E. B. Tylor, much more the professional anthropologist than Spencer, wrote notable works on the life histories of beliefs in spirit, or animism (Primitive Culture) and developed the evolutionary concept of culture survivals, i.e. the persistence, function and meaning of useless cultural left-overs from a preceding stage of development.

Frazer, Wundt and Durkheim contributed precious analyses of primitive psychology without disagreeing generally with the

evolutionary doctrine. Then come more direct attacks on the evolutionary theory. It was pointed out that so-called stages of development, a pet term among the evolutionists, were often clear in the mind of the writer but not at all observable in the data offered as proof. Certain so-called "universal" mores were proved not to be universal. Customs supposed to characterize a particular "stage" were found in "lower" or "higher" stages by other investigations. The concepts of "diffusion" (Rivers and Graebner) and "conveyence" of culture facts, when applied with evidence to certain areas, showed the importance of cultural communications to be at times much greater than any isolated, internal "evolution" of a culture. The idea of "progress" implicit in the earlier evolutionary theories was replaced in some cases by proof that some cultures were actually "regressing", if one used the same criteria of "progress" for cultural comparisons. Finally, the effect of war, pestilence, revolutionary inventions and other critical events on culture sometimes, as was shown, destroyed any pattern of gradual evolution.

Franz Boas, in his painstaking and valuable researches in linguistics, racial characteristics, and myth, contributed new techniques to the field and summarized an important part of anthropology in his work on The Mind of Primitive Man. He developed the concept of the culture area in historical anthropology, showing that various Indian regions of America had their own integrated social and psychological clusters of traits, practices and beliefs. Within each area the tribes differed less markedly than they differed from outsiders. Finally, we may mention the socio-psychological approach to primitive anthropology which developed in Wissler,

Goldenweiser and Sapir, ^{the} last present^d a concept of culture as "inherently harmonious, balanced, self-satisfactory". It "aims to embrace in a single term those general attitudes, views of life, and specific manifestations of civilization that give a particular people its distinctive place in the world."

The crisis of modern civilization have made anthropologists turn from their traditional interest in primitive cultures to study problems of modern western society. Some of them have focused their attention and skills on describing the essential features of modern communities of the machine age and the problems of human relations in highly mobile societies. The work of Lloyd Warner and Clyde Kluckhohn is important in this newly developing field.

Sociology. When cultural anthropology shifts its focus from the primitive to the industrial or agricultural community of the modern West, it becomes in some respects indistinguishable from sociology. Both are interested in patterns of culture, group relations, and the history of institutions. Frequently both work together, pooling the viewpoints and techniques they have derived from their previous areas of specialization. Sociology shares its origins with the other social sciences. Plato, Aristotle, Tacitus, Machiavelli, Althusius, Hobbes, Montesquieu, Vico, and Rousseau may all be read with profit by the sociologist seeking perspective on his problems of today. The Age of Enlightenment broadened the sources and interests of social science. Diderot, Voltaire, Helvetius, Pain, St. Simon, Fourier, and many others combined a scepticism regarding existing institutions with great faith in the ability of man to apply scientific methods to the design of new institutions of a "rational" sort.

The word "sociology" was coined by one of their descendents, Auguste Comte, who also founded the school of Positive Philosophy in the belief that any reliance on spiritual, metaphysical or other non-sensibly experienced data would prove disastrous to the development of a true social science. Men may only know about man and society from observing and connecting real events. Social physics, a science of society determined in every way by immutable natural laws, was his vision of the future of sociology. He further viewed human history as a succession of three stages--the Military-Theological, the Critical Metaphysical, and the Scientific-Industrial (here influenced by St. Simon)--the post-Enlightenment being the beginning of the last, "rational", stage. Comte, himself, fell into his own trap by so adoring the abstract idea of "Reason" as to make it into a god with all the trappings and rituals of his theological stage.

Herbert Spencer's Synthetic Philosophy, following upon Comte, sought to establish a general science of nature and society in the manner of Plato and Aristotle. He failed because the 19th Century saw ferment in every field of society, and there was universal disagreement over some of the most important concepts and theories. He did, however, present the new social sciences with masses of data. His basic social idea was evolution and his approach to the study of society individualistic and moralistic. He judged all societies inferior as they failed to approach his ideal of the industrial society. He believed social evolution led to industrial society, and that the absence of religious belief characterized "higher" orders of mankind.

The general field of sociology grew very rapidly as the 19th century drew to a close. Philosophical and cultural interpretations of history, with sociological implications were numerous. Sociological treatises bearing the strong imprint of Marxism were common. Lombroso did his famous work in criminology, Renan in religion, Karl Pearson in probability theory and actuarial statistics, Gumplowicz, Ratzenhofer, Schaffle, and De Greef in general sociology, Sighele, Tarde, and Le Bon in collective or social psychology. The early Twentieth Century brought major contributions from Max Weber and Roberto Michels in economic history, political and general sociology; Durkheim, Simmel, Tonnies, Sombart and Pareto wrote highly influential studies and general treatises. Among the areas in which sociologists worked and published may be listed cultural history, criminology, ethnology, race, demography, folk and political psychology, social classes, political and social institutions and other forms of social organization, the sociology or cultural conditions of knowledge and theory, and problems of methodology in the social sciences.

More recent contributions cannot be summarized here. We may mention the work of Karl Mannheim in analyzing the cultural conditions affecting forms of thought (Ideology and Utopia), MacIver in political sociology, Myrdal on race relations in the United States, Park and Wirth in urban sociology, Sorokin in social mobility, Parsons and Chapin in sociological theory,--but these are only a few of countless contributors to sociology in the contemporary scene. Much of the most important work in the field, as in the other social sciences, advances on the level of technical and severely circumscribed monographs, based on observations accumulated through field work or other methods.

Psychology. When we approach the science of psychology, we find much the same prolixity of interest, methods, and output that characterize sociology. The origins of much of the field go back to philosophy--the problems of how do we know, what can we know, what is will, emotion, thought, what is heredity as distinct from environment? To these questions, about which the philosophers worried for two thousand years, may be added the tremendous impact of biological discoveries of the 19th century, especially the Darwinian theory of the origin of species. But we ought also to include the influences that affected psychological thought coming from the other areas of the social science, and these had their main effect in directing psychology towards social psychology. Throughout the development of psychology, more than in the other social sciences, we find a concern for duplicating the methods of the biological sciences; if individual men could be studied intensively like individual animals, the results would give us a complete science of man.

Recent specialization in psychology should not blind us to the fact that Plato and Aristotle had consistent psychological systems though they wrote treatises in politics and ethics, that Locke was a famous psychologist and ~~indeed~~ paved the way for much modern experimental work with his theory of the origins of knowledge in individual experience, that ~~indeed~~ theories of psychology are in the very warp and woof of all political thought and philosophy. It was the devotion to special aspects of human activity that created a corps of psychologists in the 19th century. What those special aspects of human activity were, differed among the psychologists,

but, on the whole, they restricted themselves much more severely than their predecessors, believing, as indeed have most of the social scientists in modern times, that they could best advance science if they could bring order to just a small part of the universe of man, not the whole of it (for history has "shown" this to be an "impossibility").

The first half of the 19th century in psychology was dominated by the philosophical successors to Hobbes, Locke, Berkely, Hume and Kant. The British associationist school, leading out from Locke, Berkely and Hume, had as its important figures Daniel Hartley, Sir William Hamilton, James and John Stuart Mill, Herbert Spencer, and Alexander Bain. The associationists believed that experience working on the mind produces combinations which are associated into ideas and constitute the sum of thought. In Germany, Johann Herbart explained complex mental phenomenon as the resultant of conflict among ideas having forces of varying but measureable intensity. He influenced Fechner who in turn performed some of the first experimental work in psychology after the turn of the century. In 1879, Wilhelm Wundt founded a psychological laboratory in Munich, and gave through his experiments considerable prestige and impetus to physiological psychology. Minute experiments and measurements were taken on matters of sensation and perception. Wundt felt that the new methods could not be used to study the more complex thought processes but that indirect, historical and cultural methods had to be employed. That is, not experiment, but an examination of many aspects of culture could reveal laws concerning social psychology.

Titchener worked for many years on experimental psychology in America, rejecting affiliation or adherence to the theories of the

new schools that were arising and refusing a systematic statement of his own theory save in terms of his methods of experiment and his criteria for proof. His psychology has been called by other "introspectionism" or "structuralism" but in fact is not an "ism", at all but rather a belief that if sufficient observations were made and relationships tested, the parts would one day fall in place. Other psychologists were not so sure that this would happen. William James was one who broke early with this traditional approach. He was an anatomist who turned psychologist and then became a philosopher late in life. Rejecting an approach in terms of discrete elements, he looked upon psychological activity as a complete organic response, requiring a certain preponderance of effort of components of the organism but in no way capable of being separated from the total situation, internal or external of the organism. His strong emphasis on environmentalism was associated with a strong emphasis on habit as the core of psychology. Thought was the organism's reaction to obstacles and a tool in the re-creation of a more stable habit. John Dewey and George Mead continued in the tradition of James, Dewey developing a complete social psychology from an analysis of habit, impulse and adjustive thought, which moved easily into the field of political psychology.

Similar to the James-Dewey-Mead group in their rejection of piecemeal explanations of human behavior or conduct were the Gestalt psychologists. Wertheimer, Kohler, and Koffka were the founders of the new movement. In rebellion against the Wundt approach to psychology through the study of minute phenomena, and by implication against the Tichnerians in America, they insisted that the organism

reacted completely to a total situation. This whole reaction to a situation is not to be dismembered. It is the primary thing to be studied. Breaking it into parts makes it meaningless. The Gestalt, or total form of the experience, is experienced as a whole with all the environment at that moment filling out the picture. The organism acts not only with respect to the object of closest attention but to that object taken as part of the whole situation. A baby acts in varying ways to a bottle extended to him, depending not only on his desire for the milk and nipple but also with reference to who holds the bottle, how they hold it, etc. What he perceives is a,b,c,d,e,f,g,h, etc. as a whole, not as parts, with the bottle, d, standing out a little more prominently from the rest. Kurt Lewin was much influenced by Gestalt theories in his "vector" or "field psychology" which tried to state in symbolic form the description and findings of his experimental work.

Gestalt Psychology bumped squarely into the vigorous American group of Behaviorists, whose founder was John Watson. They threw away the idea of consciousness, rejected the James approach to the analysis of the organism, and studied human activity as activity. Psychology became the sum of how men behave. The functional elements of James' psychology were retained: that is, the acts of the organism were to be the key to its character. Behaviorism, however, unlike James and the "Chicago School" or the Gestalt^tists, sought to build up the whole of complex behavior from simple processes.

If behaviorism was essentially at odds to Gestaltism, it could certainly not tolerate Freudian psychology which devoted almost as

much attention to unconscious mental processes as the behaviorists did to overt acts. In fact Sigmund Freud, drawing on the developments in psychiatry and hypnosis in France in the late 19th century, believed that interpretations of what were apparently most simple and explainable acts could often be completely unsuccessful unless the analyst went back into the individual's history for certain crucial phases of his life. The psychoanalysis, a lengthy "free-fantasy" depth interview, designed to extract from the patient his "forgotten" but significant life experiences, was Freud's major contribution to psychological techniques. To Freud, the stream of individual life force, the libido, would, if not immediately set upon and altered, be directed at self-gratification of one's impulses from birth. The impulse to gratification of impulse, the id, is however restrained by the parents or attendants of the child, and develops into conscience or the super-ego, while the adjustments which the child makes between the id and the super-ego conflicts becomes the ego. From the mingling of these conflicting forces in the personality, varied in each individual by the particular circumstances of his early infancy and childhood, comes an adult character compounding the forces into a more or less adjusted personality. Certain universal occurrences such as the Oedipus Complex, the competition of the child with one parent for the affections of the other, are responsible for certain of society's most important institutions, taboos and laws, and social problems.

Quite different from Freudianism is the eclectic approach of Cattell, Thorndike, and Woodworth, whom we may mention finally. They devoted themselves to whatever cause and effect matters of

psychology occurred as important and capable of being studies intensively. They then devised batteries of tests, experiments, statistical modes of presenting data, and other quantitative devices to study the problems. Educational and industrial psychology have found such investigations most useful for certain of their needs, whereas Freudian as well as Gestalt psychology find the initial stages of concrete and precise statement or objectification more difficult. The lengthy and not quite standardized method of psycholanalysis is not so obviously useful in measuring educational attainment or overt dissatisfaction of work groups among large numbers of subjects.

Political Science. The foregoing paragraphs give scarcely a glimmering of the activity occurring over the general area of the social sciences. They may, however, show how much any one of the social sciences depends on the others and even merges into the others, as circumstances demand. And political science is no exception to the rule ~~(see figure 5)~~

It is important to realize that it is the environment that determines whether or not a particular branch of science shall exist. It is nowhere written in the sky that there shall be one, two, three, or more sciences. It is nowhere laid down that there must be a science called geology, another called biology, and so on. Remember rather that astrophysics came into being only after a long series of developments in related science, and that atomic physics is a new science developed out of the old branches.

The same thing holds true for the social sciences. We have a science called psychology because it is believed that certain important things are to be found out about the workings of the human mind if certain problems are to be solved. We have a science called cultural anthropology because it is felt that many important lessons about human behavior can be derived from intensive study of the behavior of certain aggregates of human beings.

The truth of the matter is that men create sciences as they learn more about the nature of the whole body of human knowledge. They are compelled to specialize in order to keep moving along certain lines. As they move along certain lines they make discoveries about related things and so create a whole body of knowledge which constitutes a recognizable and separate part of the whole body of human knowledge. As men live, they encounter or anticipate problems. The skills they acquire in dealing with these problems is scientific skill and there begin to develop various kinds of such scientific skill--thus a science of weather prediction, of machine construction, of swaying peoples' minds. The problems resolve into solutions. The solutions become a reservoir of knowledge.

They are set up on the shelf like so many different spice cans-- one labelled physics, another chemistry, another sociology, another psychology. Thus knowledge is the result of scientific activities; the activity is the result of problems; and the problems are the results of man bumping into his physical and human environment.

Political science is the study of all the factors determining the nature of government, the possession of acquisition of power, and the operations of the governing process. Its principal areas of specialization are noted in Figure 2, its main problem areas in Figure 3. It is perhaps more closely related to history and psychology than to the others when its major problems are surveyed, but we ought to make no hard and fast statement. Since most important political events are separated in time by fair margins and are complex occurrences to begin with, historical methods of research are frequently the best available means for fixing and analyzing an event in its full context. Two successive elections may be studied by a number of methods, but it is safe to say that the study will benefit greatly by good traditional histories of the circumstances surrounding each election, and, in fact, it is obvious that the study in itself is an historical one.

So it is with psychology, which is most useful to the wide areas of political study where behavior is not entirely fixed or routinized by legal or administrative procedures. Motivations, leadership, political movements, propoganda and public opinion-- all of these political problems and many more depend substantially on psychological analysis within the political framework.

But political science is closely connected to economics, too,

first, because an economic system is often dictated by the state and changes in the state of politics are soon translated into changes in economics. More basic than even these relationships is the fact that wealth plays a great role in the determination of who shall have and who shall hold political power. As far back as Aristotle, philosophers have indicated that the acquisition of wealth is often translated into the acquisition of political power, and vice versa that the acquisition of political power is often the source of the acquisition of wealth. Our modern age is particularly characterized by a close connection between wealth and power and a good many of the problems ~~which you encounter~~ in ~~American~~ government arise out of the conflict between the theory of equality among men and the unequal power men hold by reason of the possession of money. The extreme connection between economics and politics occurs in the so-called school of economic determinism which holds that all politics is determined in its nature, means, and goals by the class which holds the economic controls. Taking this as their premise, the Marxists gloomily predict that there is no future for the working man and that he might as well resort to violent revolution in order to obtain economic justice, because he will not get it otherwise from a democratic political system which is supposed by them to be only a sham and a delusion.

Political science, sociology, and cultural anthropology in many cases work with identical materials. Thus social institutions are some of the main objects of sociological study. Political institutions are social institutions but are generally studied by political scientists. Nothing prevents a sociologist from studying

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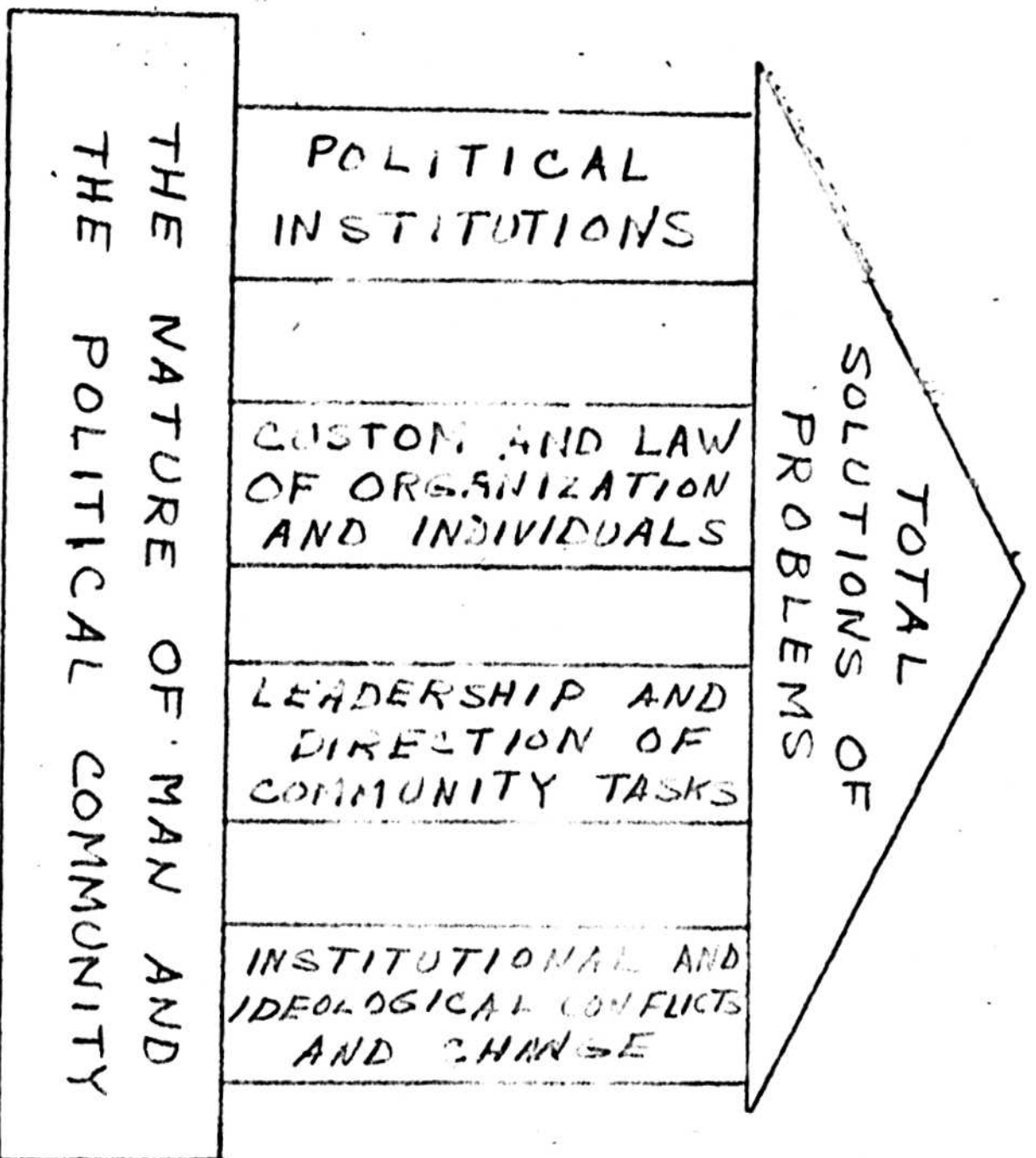


Figure 3

them, and a knowledge of sociology stands a political scientist in good stead in studying such institutions. Needless to say, all of these subjects are so vast that there is no feeling of stifling competition anywhere along the line. Some of the most famous sociologists have done some of their best work in political science and vice versa. Max Weber, Emile Durkheim, Vilfredo Pareto, Robert MacIver, Talcott Parsons, Herbert Spencer, and Pitirim Sorokin are some of the men who have taken these boundaries lightly, and deservedly so.

Law is no exception to the rule that the social sciences overlap. If a young man is interested in law and government it is difficult to advise him whether he ought to go into a law school or into a department of political science. The arguments on each side are strong. The field of public law, that is, constitutional law, the law of elections, the law of public bodies, and administrative law, is substantially the same in law and political science, and only the slant of the person going into the field determines whether he will come out with work which will be stamped as political science or jurisprudence.

The study of education again involves the study of political science along with the other sciences of society, first because the process of education depends on many political factors in society which determine what shall be taught, who shall qualify to teach it, and under what circumstances it will be taught. And secondly because the content of education is rarely divorced from the political sphere. Methods of teaching may be dictatorial or fraternal and the result of one or the other method may have effects which easily

carry over into the attitudes of the students towards political methods afterwards. What education in Nazi Germany was designed to do was once stated by Adolph Hitler, "Everything," he scribbled in his jail cell, "from the baby's first storybook to the last newspaper, theatre, cinema...will be put to this end...until the brain of the ^{finest} ~~finest~~ child is penetrated by the glowing prayer: Almighty God, bless our weapons again...bless our battle."

We should not neglect either the relations which the studies in the area of geography have for political science. In several cases, the two fields are joined in name, as in political geography, Economic geography, ecology, and special problems in urban planning, or regional development projects such as the Tennessee Valley Authority are in large part political studies.

Finally we should mention the fields of human values, ethics, moral and political philosophy, theology. These are not scientific fields as we customarily use the word science. They are areas of preferences, of value statements, of beliefs which are regarded as having no need of proof, of faith, or of logical and scientific systems of attaining objectives which are determined in the first place by unprovable premises and value statements. Yet these fields furnish political science with two important elements: data and objectives. With the data, i.e. a number of fact statements about different ethical systems, political scientists can work on the probable political results which will occur when the different ethical principles are carried out. Also with the data of ethics, political scientists can determine where conflicts will develop between the different ethical ideas and suggest remedies for their

reconciliation. An excellent example of applied political science was in the drafting of the American Constitution. There two groups were vigorously opposed, one believing that the states should not be deprived of any substantial part of their independence, another believing that the common interest would best be served if the states gave up their sovereignty. The compromise which was finally worked out was evidenced principally by a bicameral legislature in which the House of Representatives was supposed to represent the whole body of people while the Senate was supposed to represent the states as equal and sovereign units.

The process of compromise as demonstrated here also represents our second ethical element, the objectives. Both data and objectives were present. The two opposing viewpoints made themselves known and objectives common to both allowed the leaders to arrive at an acceptable compromise. Political science today feels a great lack of objectives in the present world situation. We probably have data enough to work out some sort of compromise which would bring the Russian and American ethical systems into a compromise short of war, which is the renunciation of all possibilities save life or death. But we really do not know the objectives of the Russians and therefore cannot, with any peace of mind, take the steps necessary to consolidate a compromise.