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CHAPTER 3

Sociometry

1937

Editor's note: From the first, Moreno was interested in social relations. He believed that the structure of human groups was complex, highly dynamic, and only discernible by means of a pragmatic, hands-on method of investigation. His goal: the maximum participation of every individual concerned.

Religious, economic, technological, and political systems have been constructed to date with a tacit assumption that they can be adequate and applicable to human society without an accurate and detailed knowledge of its structure. The repeated failure of so many plausible and humane remedies and doctrines has led to the conviction that the close study of social structure is the only means through which we may treat the ills of society.

Sociometry, a relatively new science developed gradually since the World War of 1914-1918, aims to determine objectively the basic structure of human societies . . . .

The difficulties in the way of attaining such knowledge are enormous and discouraging. These difficulties may be considered essentially in three categories: the large number of people, the need of obtaining valid participation,

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From Sociometry in Relation to Other Social Sciences, *Sociometry* 1 (1937), 206-219. Another version appears in *Experimental Method & the Science of Society* (1951).

and need for arranging for continued and repeated studies. The difficulties may be considered in a bit more detail together with the steps thus far taken toward overcoming them in the development of sociometric techniques.

First, human society consists of approximately two billion individuals. The number of interrelations among these individuals—each interrelation influencing the total world situation in some manner, however slight—must amount to a figure of astronomical magnitude. Recognizing this fact, the field work of sociometry was started with small sections of human society, spontaneous groupings of people, groups of individuals at different age levels, groups of one sex, groups of both sexes, institutional and industrial communities. To date, various groups and communities, the total populations of which are more than 10,000 persons, have been sociometrically tested.[1] A considerable amount of sociometric knowledge has been accumulated. We may not forget, though, however much we may learn in the course of time, however accurate our sociometric knowledge of certain sections of human society may become, that no automatic conclusions can be carried over from one section to another and no automatic conclusions can be drawn about the same group from one time to another. Each part of human society must always be considered in its concreteness.

Second, as we have to consider every individual in his concreteness and not as a symbol, and every relationship he may [have] . . . we cannot gain a full knowledge unless every individual participates *spontaneously* in uncovering these relationships to the best of his ability. The problem is how to elicit from every man his maximum spontaneous participation. This participation would produce as a counterpart of the physical geography of the world a psychological geography of human society. Sociometry has endeavored to gain such participation by applying as a fundamental part of the procedure an important aspect of the actual social situation confronting the people of the community at the moment. This was made possible by broadening and changing the status of the participant observer and researcher so as to make him an auxiliary ego of that individual and all other individuals of the community—that is, one who identifies himself as far as possible with each individual's aims and tries to aid him in their realization. This step was taken after a careful consideration of the spontaneous factor in social situations. General definitions of the physical and mental needs do not suffice. There is such a uniqueness about each actual momentary position of an individual in the community that a knowledge of the structure surrounding and pressing upon him at that moment is necessary before drawing conclusions.

Third, as we have to know the actual structure of a human society not only at one given moment but in all its future developments, we must look forward to the maximum spontaneous participation of every individual in all future time. The problem is how to motivate men so that they all will give repeatedly and regularly, not only at one time or another, their maximum

spontaneous participation. This difficulty can be overcome through fitting the procedure to the administration of the community. If the spontaneous strivings in regard to association with other persons or in regard to objects and values are aided officially and permanently by respective community agencies, the procedure can become repeatable at any time, and the insight into the structure of the community in its development in time and space can become constantly available.

In undertaking the study of the structure of human society, the first step has been to define and develop sociometric procedures which would surmount the difficulties described above. Sociometric procedures try to lay bare the fundamental structures within a society by disclosing the affinities, attractions, and repulsions operating between persons and between persons and objects.

TYPES OF SOCIOMETRIC PROCEDURES

Every type of procedure enumerated below can be applied to any group, whatever the development level of the individuals in it. If the procedure applied is, in degree of articulation, below the level of that which a certain social structure demands, the results will reflect but an infra-structure of that community. An adequate sociometric procedure should be neither more nor less differentiated than the assumed social structure which it is trying to measure.

One type of procedure is to disclose the social structure between individuals by merely recording their movement and positions in space with regard to one another. This procedure of charting gross movements was applied to a group of babies. At their level of development no more differentiated a technique could have been applied fruitfully. This procedure discloses the structure developing between a number of babies, between the babies and their attendants, and between the babies and the objects around them in a given physical space. At the earliest developmental level, the physical and social structures of space overlap and are congruous. At a certain point of development the structure of the interrelationships begins to differentiate itself more and more from the physical structure of the group, and from this moment onward social space in its embryonic form begins to differentiate itself from physical space . . . . A more highly developed structure appears when the children begin to walk. They can now move towards a person whom they like or away from a person whom they dislike, towards an object which they want, or away from an object which they wish to avoid. The fact of nonverbal, spontaneous participation begins to influence the structure more definitely.

Another development of the procedure is used in groups of young children who (before or after walking) are able to make intelligent use of simple verbal symbols. The factor of simple "participation" of the subject becomes more complex. He can choose or reject an object without moving bodily. A still further development of the procedure sets in when children are influenced in their making of associations by the physical or social characteristics of other people, such as sex, race, and social status. This factor of differential association signifies a new trend in the development of structure. Up to this point, only individuals have stood out and have had a position in it. From here on associations of individuals stand out and have a position in it as a group. This differentiating factor is called a criterion of the group. As societies of individuals develop, the number of criteria around which associations are or may be formed increases rapidly. The more numerous and the more complex the criteria, the more complex also becomes the social structure of the community.

These few samples may make clear that sociometric procedure is not a rigid set of rules, but that it has to be modified and adapted to any group situation as it arises. Sociometric procedure has to be shaped in accord with the momentary potentialities of the subjects, so as to arouse them to a maximum of spontaneous participation and to a maximum of expression. If the sociometric procedure is not attuned to the momentary structure of a given community, we may gain only a limited or distorted knowledge of it. The participant observer of the social laboratory, counterpart of the scientific observer in the physical or biological laboratory, undergoes a profound change. The observing of movements and voluntary associations of individuals has value as a supplement if the basic structure is known. But how can an observer learn something about the basic structure of a community of 1,000 people if the observer tries to become an intimate associate of each individual simultaneously, in each role which he enacts in the community? He cannot observe them like heavenly bodies and make charts of their movements and reactions. The essence of their situations will be missed if he acts in the role of a scientific spy. The procedure has to be open and apparent. The inhabitants of the community have to become participants in the project to some degree. The degree of participation is at its possible minimum when the individuals composing the group are willing only to answer questions about one another. Any study which tries to disclose with less than maximum possible participation of the individuals of the group the feelings which they have in regard to one another is near-sociometric. Near-sociometric procedures of the research or the diagnostic type are of much value in the present stage of sociometry. They can be applied on a large scale, and within certain limits without any unpleasantness to the participants. The information gained in near-sociometric studies is based, however, on an inadequate motivation of the participants; they do not fully reveal their feel-

ings. In near-sociometric situations the participants are rarely spontaneous. They do not warm up quickly. Often an individual, if he is asked, "Who are your friends in this town?" may leave one or two persons out, the most important persons in his social atom, persons with whom he entertains a secret friendship of some sort which he does not want known. The observational method of group research, the study of group formation from the *outside*, is not abandoned by the sociometrist. This becomes, however, a part of a more inclusive technique, the sociometric procedure. In fact, sociometric procedure is operational and observational at the same time. A well-trained sociometrist will continuously collect other observational and experimental data which may be essential as a supplement to his knowledge of the *inside* social structure of a group at a particular time. Observational and statistical studies may grow out of sociometric procedures which supplement and deepen structural analysis.

The transition from near-sociometric to basic sociometric procedures depends upon the method of creating the motivations to more adequate participation. If the participant observer succeeds in becoming less and less an observer and more and more an aid and helper to every individual of the group in regard to their needs and interests, the observer undergoes a transformation . . . to auxiliary ego. The observed persons, instead of revealing something more or less unwillingly about themselves and one another, become open promoters of the project; the project becomes a cooperative effort. They become participants in and observers of the problems of others as well as their own; they become key contributors to the sociometric research. They know that the more explicit and accurate they are in expressing what they want, whether it is as associates in a play, as table mates in a dining room, as neighbors in their community, or as co-workers in a factory, the better are their chances to attain the position in the group which is as near as possible to their anticipations and desires.

The first decisive step in the development of sociometry was the disclosure of the actual organization of a group. The second decisive step was the inclusion of subjective measures in determining this organization. The third decisive step was a method which gives to subjective terms the highest possible degree of objectivity, through the function of the auxiliary ego. The fourth decisive step was the consideration of the criterion (a need, a value, an aim) around which a particular structure develops. The true organization of a group can be disclosed if the test is constructed in accord with the criterion around which it is built. For instance, if we want to determine the structure of a work group, the criterion is their relationship as workers in the factory, and not the reply to a question regarding with whom they would like to go out for luncheon. We differentiate therefore between an essential and an auxiliary criterion. Complex groups are often built around several essential criteria. If a test is near-sociometric—that is, inadequately constructed, then it

discloses, instead of the actual organization of the group, a distorted form of it, a less differentiated form of it, an infra-level of its structure.

Within sociometric work several approaches can be distinguished: (1) the research procedure, aiming to study the organization of groups; (2) the diagnostic procedure, aiming to classify the positions of individuals in groups and the positions of groups in the community; (3) therapeutic and political procedures, aiming to aid individuals or groups to better adjustment; and finally, (4) the complete sociometric procedure, in which all these steps are synthetically united and transformed into a single operation, one procedure depending upon the other. This last procedure is also the most scientific of all. It is not more scientific because it is more practical; rather, it is more practical because it is more scientifically accurate.

The responses received in the course of a sociometric procedure from each individual, however spontaneous and essential they may appear, are material only and not yet sociometric facts in themselves. We have first to visualize and represent how these responses hang together. The astronomer has his universe of stars and of the other heavenly bodies visibly spread throughout space. Their geography is given. The sociometrist is in the paradoxical situation that he has to construct and map his universe before he can explore it. A process of charting has been devised, the sociogram, which is, as it should be, more than merely a method of presentation. It is first of all a method of exploration. It makes possible the exploration of sociometric facts. The proper placement of every individual and of all interrelations of individuals can be shown on a sociogram. It is at present the only available scheme which makes structural analysis of a community possible.

As the pattern of the social universe is not visible to us, it is made visible through charting. Therefore the sociometric chart is the more useful the more accurately and realistically it portrays the relations discovered. As every detail is important, the most accurate presentation is the most appropriate. The problem is not only to present knowledge in the simplest and shortest manner, but to present the relations so that they can by studied.* As the technique of charting is a method of exploration, the sociograms are so devised that one can pick small parts from the primary map of a community, redraw them, and study them as if under a microscope. Another type of derivative or secondary sociogram results if we pick from the map of a community large structures because of their functional significance, such as psychological networks. The mapping of networks indicates that we may devise on the basis of primary sociograms forms of charting which enable us to explore large geographical areas.

*See examples of sociograms in Chapter 15. (Ed.)

THE SOCIAL ATOM

Sociometry started practically as soon as we were in the position to study social structure as a whole and in its parts at the same time. This was impossible as long as the problem of the individual was still a main concern, as with an individual's relations and adjustment to the group. Once the full social structure could be seen as a totality it could be studied in its minute detail. We thus became able to describe sociometric facts (descriptive sociometry) and to consider the function of specific structures—i.e., the effect of some parts upon others (dynamic sociometry).

Viewing the social structure of a certain community as a whole, in so far as it is related to a certain locality, with a certain physical geography—a township filled with homes, school, workshops, and the interrelations between their inhabitants in these situations—we arrive at the concept of the psychological geography of a community. Viewing the detailed structure of a community, we see the concrete position of every individual in it, also a nucleus of relations around every individual which is "thicker" around some, "thinner" around others. This nucleus of relations is the smallest social structure in a community, a social atom. From the point of view of a descriptive sociometry, the social atom is a fact, not a concept, just as in anatomy the blood vessel system, for instance, is first of all a descriptive fact. It attained conceptual significance as soon as the study of the development of social atoms suggested that they have an important function in the formation of human society. Whereas certain parts of these social atoms seem to remain buried between the individuals participating, certain parts link themselves with parts of other social atoms and these with parts of other social atoms again, forming complex chains of interrelations which are called, in terms of descriptive sociometry, psychological networks. The older and wider the network spreads, the less significant seems to be the individual contribution towards it. From the point of view of dynamic sociometry these networks have the function of shaping social tradition and public opinion.

It is different and more difficult, however, to describe the process which attracts individuals to one another or which repels them, that flow of feeling of which the social atom and the networks are apparently composed. This process may be conceived of as *tele*. We are used to the notion that feelings emerge within the individual organism and that they become attached more strongly or more weakly to persons or things in the immediate environment. We have been in the habit of thinking not only that these totalities of feelings spring up from the individual organism exclusively, from one of its parts or from the organism as a whole, but also that these physical and mental states, after having emerged, reside forever within this organism. The feeling relation with regard to a person or an object has been called attachment or fixation,

but these attachments or fixations were considered purely as individual projections. This was in accord with the materialistic concept of the individual organism, with its unity, and, we can perhaps say, with its microcosmic independence.

The idea that feelings, emotions, or ideas can "leave" or "enter" the organism appeared inconsistent with this concept. The claims of parapsychology were easily discarded as unfounded by scientific evidence. The claims of collectivistic unity of a people appeared romantic and mystical. The resistance against any attempt to break the sacred unity of the individual has one of its roots in the idea that feelings, emotions, ideas must reside in some structure within which it can emerge or vanish and within which it can function or disappear. If these feelings, emotions, ideas "leave" the organism, where then can they reside?

When we found that social atoms and networks have a persistent structure and that they develop in a certain order, we had extra individual structures—and probably there are many more to be discovered—in which this flow can reside. But another difficulty stepped in. As long as we (as auxiliary ego) drew from an individual the responses and material needed, we were inclined—because of our nearness to the individual—to conceive the tele as flowing out of him towards other individuals and objects. This is certainly correct on the individual-psychological level, in the preparatory phase of sociometric exploration. But as soon as we transferred these responses to the sociometric level and studied them not singly but in their interrelations, important methodological reasons suggested that we conceive this flowing feeling, the tele, as an interpersonal, or more accurately and broadly speaking, as a sociometric structure. We must assume at present, until further knowledge forces us to modify and refine this concept, that some real process in one person's life situation is sensitive and corresponds to some real process in another person's life situation and that there are numerous degrees, positive and negative, of these interpersonal sensitivities. The tele between any two individuals may be potential. It may never become active unless these individuals are brought into proximity or unless their feelings and ideas meet at a distance through some channel—for instance, the networks. These distance or tele effects have been found to be complex sociometric structures produced by a long chain of individuals, each with a different degree of sensitivity for the same tele, ranging from total indifference to a maximum response.

A social atom is thus composed of numerous tele structures; social atoms are again parts of a still larger pattern, the psychological networks, which bind or separate large groups of individuals due to their tele relationships. Psychological networks are parts of a still larger unit, the psychological geography of a community. A community is again part of the largest configuration, the psychological totality of human society itself.

SOCIOMETRY AND THE SOCIAL SCIENCES

A full appreciation of the significance of sociometry for the social sciences cannot be gained unless we analyze some of the most characteristic developments in recent years. One development is along Marxist lines as elaborated especially by Georg Lukács and Karl Mannheim.[2] The social philosophy of these students is full of near-sociometric divinations. They stress the existence of social classes and the dependence of ideology upon social structure. They refer to the position of individuals in their group and to the social dynamics resulting from the changing of the positions of groups in a community. But the discussion is carried on at a dialectical and symbolical level, giving the reader the impression that the writers had an intimate and authoritative knowledge of the social and psychological structures they are describing. They present social and psychological processes which are supposed to go on in large populations, but their own intuitive knowledge . . . shines through. These large generalizations encourage pseudo-totalistic views of the social universe. The basic social and psychological structure of the group remains a mythological product of their own mind, a mythology which is just as much a barrier to the progress from an old to a new social order as the fetish of merchandise was before Marx's analysis of it. The dialectical and political totalists have reached a dead-end. A true advance in political theory can not crystallize until more concrete sociometric knowledge of the basic structure of groups is secured.

The economic situation of a group and the dynamic influence it has upon the social and psychological structures of that group cannot be fully understood unless we also know the social and psychological characteristics of this group and unless we study the dynamic influence they have upon its economic situation. Indeed, from the sociometric point of view, the economic criterion is only one criterion around which social structure develops. Sociometric method is a synthetic procedure which through the very fact of being in operation releases all the factual relationships, whether they have an economic, sociological, psychological, or biological derivation. It is carried out as one operation. But it has several results: it secures knowledge of the actual social structure in regard to every criterion dynamically related to it; allows for the possibility of classifying the psychological, social, and economic status of the population producing this structure; and [permits] early recognition of changes in the status of the population. Knowledge of social structure provides the concrete basis for rational social action. This should not be surprising, even to staunch believers in the old dialectic methods. As long as it appeared certain that all that counts is the knowledge of economic structure, all other structural formations within society could be considered in a general manner intimating at random how the economic motive deter-

mines them. An economic analysis of every actual group was all that seemed necessary. Since the more inclusive sociometric technique of social analysis has developed which attacks the basic social structure itself, the possibility of a new line of development appears on the horizon. From the sociometric angle the totalism of the new-Marxists appears as flat and unrealistic as the totalism of Hegel appeared to Marx. Compared with the elan of the totalistic schools of thought, sociometric effort may seem narrow. Instead of analyzing social classes composed of millions of people, we are making painstaking analyses of small groups of persons. It is a retreat from the social universe to its atomic structure. However, in the course of time, through the cooperative efforts of many workers, a total view of human society will result again, but it will be better founded. This may be a deep fallback after so much dialectical conceit, but it is a strategic retreat, a retreat to greater objectivity.

A different sort of symbolism comes from other lines of development which deal largely with psychological theory. An illustration of this trend is the recent phase of the Gestalt school. Thus J. F. Brown schematizes social structures and social barriers which no one has empirically studied. A conceptual scheme may become just as harmful to the growth of a young and groping experimental science as a political scheme. There are many links in the chain of interrelations which cannot be divined. They have to be explored concretely in the actual group. It is not the result of a study which concerns us here—for instance, whether it approximates the probable factual relations or not—but the contrast between empirical and symbolical methods of procedure. We have learned in the course of sociometric work how unreliable our best divinations are in regard to social structure. Therefore we prefer to let our concepts emerge and grow with the growth of the experiment and not to take them from any a priori or any non-sociometric source.

SOCIOMETRIC CONSCIOUSNESS

The best test of the damage done by any sort of symbolic concept of social structure is to come face to face with the crucial experiment itself—a worker entering a group, however small or large, with the purpose of applying to it sociometric procedures. The introduction of sociometric procedure, even to a very small community, is an extremely delicate psychological problem. The problem is the more intricate the more complex and the more differentiated the community is. On first thought one would be inclined to minimize the difficulties involved. Sociometric procedures should be greeted favorably as they aid in bringing to recognition and into realization the basic structure of a group. But such is not always the case. They are met with resistance by some and hostility by others. Therefore a group should be carefully prepared for the test before submitting to it.

Sociometric techniques have to be fashioned according to the readiness of a certain population for sociometric grouping . . . which may vary at different times. This psychological status of individuals may be called their degree of sociometric consciousness. The resistance against sociometric procedures is often due to psychological and educational limitations. It is important for the field worker to consider the difficulties one by one and try to meet them.

The first difficulty which one ordinarily meets is ignorance of what sociometric procedure is. A full and lucid presentation, first perhaps to small and intimate groups, and then in a town meeting if necessary, is extremely helpful. It will bring misunderstandings in regard to it to open discussion. One reaction usually found is the appreciation of some that many social and psychological processes exist in their group which have escaped democratic integration. Another reaction is one of fear and resistance, not so much against the procedure as against its consequences for them. These and other reactions determine the degree of sociometric consciousness of a group. They determine also the amount and character of preparation the group members need before the procedure is put into operation.

In the course of its operation we can learn from the spontaneous responses of the individuals concerned something about the causes underlying their fears and resistance. In one of the communities tested some individuals made their choice and gave their reasons without hesitancy; others hesitated long before choosing; one or two refused to participate at all. After the findings of the test were applied to the group, a frequently chosen individual was much displeased. He had not received that man as a neighbor with whom he had exchanged a mutual first choice. It took him weeks to overcome his anger. One day he said smilingly that he liked the neighbor he had now and he would not change him for his original first choice even if he could. There was another individual who did not care to make any choice. When the chart of the community was laid out, it was found that in turn none of the other individuals wanted him. He was isolated. It was as if he guessed that his position in the group was that of an isolate; therefore he did not want to know too much about it. He did not have the position in the group he would like to have, and so he thought it better perhaps to keep it veiled.

Other individuals also showed fear of the revelations the sociometric procedure might bring. The fear is stronger with some people and weaker with others. One person may be most anxious to arrange his relationships in accord with actual desires; another may be afraid of the consequences. For instance, one remarked that it made him feel uncomfortable to say whom he liked for a co-worker: "You cannot choose all and I do not want to offend anybody." Another person said, "If I don't have as a neighbor the person I like—i.e., if he lives farther away, we may stay friends longer. It is better not to see a friend too often." These and other remarks reveal a fundamental

phenomenon, a form of interpersonal resistance against expressing the preferential feelings which one has for others. This resistance seems at first sight paradoxical as it crops up in face of an actual opportunity to have a fundamental need satisfied. An explanation of this resistance of the individual versus the group is possible. It is, on the one hand, the individual's fear of knowing what position he has in the group. To be made fully conscious of one's position may be painful and unpleasant. Another source of this resistance is the fear that it may become manifest to others whom one likes and whom one dislikes, and what position in the group one actually wants and needs. The resistance is produced by the extra-personal situation of an individual. He feels that the position he has in the group is not the result of his individual make-up but chiefly the result of how the individuals with whom he is associated feel towards him. He may even feel dimly that there are beyond his social atom invisible tele-structures which influence his position. The fear about expressing the preferential feelings which one person has for others is actually a fear of the feelings which the others have for him. The objective process underlying this fear has been discovered by us in the course of quantitative analysis of group organization. The individual dreads the powerful currents of emotions which "society" may turn against him. It is fear of the psychological networks. It is dread of these powerful structures whose influence is unlimited and uncontrollable. It is fear that they may destroy him if he does not keep still.

The sociometrist has the task of breaking down gradually the misunderstandings and fears existing or developing in the group he is facing. The members of the group will be eager to weigh the advantages which sociometric procedure is able to bring them—a better balanced organization of their community and a better balanced situation of each individual within it. The sociometrist has to exert his skill to gain their full collaboration, for at least two reasons: the more spontaneous their collaboration, the more valuable will be the fruits of his research and the more helpful will the results become to them.