FOUNDATIONS OF SOCIOMETRY

AN INTRODUCTION

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SYNOPSIS

An inquiry into the nature of the foundations of human society became necessary as a preliminary to any genuine plan for its reconstruction in accord with the requirements of well-balanced human interrelations. Sociometry is concerned with both of these problems and their interdependence. No collection—however large—of sociometric techniques can cover the whole domain of sociometry. Some of the chief concepts are discussed: the concept of the Moment, tele, the social atom and psycho-social networks. A number of the most significant discoveries which have been made in the course of sociometric studies—such as the socio-genetic law, the patterning of social atoms and the racial saturation point—are stressed. The paper ends with a discussion of the dialectic character of sociometry.

THE PROBLEM

The discovery that human society has an actual, dynamic, central structure underlying[1] and determining all its peripheral and formal groupings may one day be considered as the cornerstone of all social science. This central structure—once it has been identified—is either found or discernible in every form of human society, from the most primitive to the most civilized: it is in the genesis of every type of society. In addition, it exerts a determining influence upon every sphere in which the factor of human interrelations is an active agent—in economics, biology, social pathology, politics, government and similar spheres of social action.

It seems to be established beyond any reasonable doubt that the tele factor, the social atom (with its specific types of

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[1]See page 23, last paragraph.

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patterns), the stages which are intermediary between atoms and more inclusive configurations, the psycho-social networks and their patternings, the principle of socio-genetic evolution-- all these have always been operating in all human society and will continue to do so. These concepts and structures have been either isolated or demonstrated by methods called "socio- metric." Every other genuine method bent upon the study of social processes should be able to verify their existence.

In the past, as long as the individuals composing a hu- man society remained passive agents--more or less immobile entities, carried hither and thither by fate or circumstance-- these key structures could not be found. Per se, they do not become manifest in a human society. A reagent--a catalyzer-- is necessary in order that they may be brought to view. This catalyzer is, on the social level, the spontaneity of all the in- dividuals in the given society. Up to the advent of sociometric exploration of human society, we had seen the social scientist himself beginning to come into contact with the life-situation which was to be explored, but the subjects--the material of the investigation--had been left out of any participation in the study of this, their own life-situation. This meant shutting off the spontaneity of the subjects--the most important source of in- formation. In other words, the methods used to explore the subjects were those which had been successful in physical, chemical, geological and astronomical exploration, for example, where--metaphorically speaking--the spontaneity of the subjects studied did not enter into or disturb the experiment. But in human interrelations and in human society, the spontaneity of the individual is the alpha and the omega, the crux, of every social situation and of the whole experiment.

The task of the social scientist is to invent adequate tools for the exploration of a chosen domain. On the level of human interrelations, this domain is made up of the interactive spontaneities of all the individuals composing it. Therefore, the task of the social scientist becomes the shaping of tools in such a fashion that they are able to arouse the individuals to the required point on a scale which runs all the way from zero to the maximum. But individuals cannot be aroused--or .only to an insignificant degree--by undynamic and automatic means. The individuals must be adequately motivated so that they sum- mon from the depths of their beings the maximum of their spontaneity. Thus, the invention and shaping of methods for social investigation, and the stirring up of the actions, thoughts, and feelings of the people on whom they are used, must go hand in hand.

Finally, knowledge of the central structure of human interrelations is essential to any general planning and construction of human society. In fact, this was well-nigh impossible as long as the key structures remained unknown. Man believed that the genesis of society was outside his province-- even more so than the genesis of personality.

Sociometry opened up a new possibility of genuine planning of human society for the reason that the factors of spontaneity, the initiative and the momentary grasp of the individuals concerned were made the essence of the method of exploration and of the investigation itself. In a sociometric system, the essence of every process of planning is total spontaneity--not, as heretofore, the spontaneity of a small number of leaders or individuals chosen at random. The total sum of the individuals, by means of their spontaneities, becomes operative in determining every direction of planning and, in addition, in the selection of every key individual or leader to whom a certain function or action is to be entrusted. Thus, all the peripheral actions and functions--on every level between the periphery and the center--remain under the continuous or recurring control of the key or central structure. The new philosophy of human interrelations, sociometry, gives us a methodology and guide for the determination of the central structure of society and the evocation of the spontaneity of the subject-agents, and these two factors together supply us with a basis upon which the planning of human society may be undertaken.

HISTORICAL BACKGROUND

It was during the first World War that the idea of a sociometry, in conjunction with a modern, revised theory of spontaneity,[2] had its first expression. Sociometry developed at a moment which had no precedent in the history of mankind-- at a moment when, notwithstanding all the advances man had made, the utter futility of his efforts had become evident as being largely because of these advances. In spite of all the magnificent edifices which he had erected so industriously, man saw himself slipping back to the primitive state from which he had begun his rise.

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[2]See the section on the General Theory of Spontaneity and the Cultural Conserve in "Mental Catharsis and the Psycho-drama," by J. L. Moreno, SOCIOMETRY, Vol. III, No. 3.

The technology of machines and tools was perhaps the first phenomenon to shock man out of his roseate dream of progress ad infinitum, but the effect of technology upon the spontaneity of the human organism was not studied and re- mained, therefore, uncontrolled; its influence within our social structure had remained unadjusted. It was realized, then, that the foundations of human society must first be uncovered be- fore any extra-human superstructure (such as machine technol- ogy and the technology of cultural conserves) could be fitted to them.

My first definition of sociometry was, in accordance with its etymology, from the Latin, but the emphasis was laid not only on the second half of the term, i.e., on "metrum," meaning measure, but also on the first half of the term (i.e., on "socius," meaning companion).[3] Both principles, it seemed to me, had been neglected, but the "socius" aspect had been omitted from deeper analysis far more than the "metrum" as- pect. The "companion," even as a problem, was unrecognized. What remains of a society to be investigated if the individuals themselves and the relationships between them are considered in a fragmentary or wholesale fashion? Or, to put it in a positive way, the individuals themselves and the interrelations between them, in toto, cannot be omitted from any study of a social situation. Can the foundations of human society be reached and, perhaps, uncovered if we do not begin with that aspect of human interrelations which all types of human society, from the most primitive pattern of the past to the most com- plex pattern of the future, must have in common--the patterns of relationships which human beings form with one another and which persist underground, regardless of what religious, social, political and technological structure is superimposed upon them and rules on the surface?

The technological devices which aroused man's deepest suspicion were the products of the printing press, the motion picture industry and, later, the radio; in other words, of the so-called "cultural conserves." Man, as an individual creator, was outwitted by the products of his own brain--his books, his films, his radio voice. He saw himself being more and more replaced by them. He began to look upon himself as a negligi- ble, archaic entity. At the same time, these identical devices revolutionized all previous methods of interhuman communica- tion of ideas, feelings, opinions, news, etc., to an unprecedent- ed degree. These new methods of communication began to

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[3]See "Trends in Sociometrics and Critique," by F. Stuart Chapin, SOCIOMETRY, Vol. III, No. 3, pp. 245-262.

play havoc with the old, natural methods of communication
whose laws and configurations had not been studied. Now that
they seemed to be in danger of being obliterated or, at least,
distorted in their functions, their significance began to loom on
the horizon of man's awareness.

The analysis of technological and cultural conserves, es-
pecially of the book, the film, and the radio, was thus an im-
portant, albeit negative, theoretical preparation for the develop-
ment of sociometry. This analysis stimulated the projection of
constructs as diverse as the category of the Moment, spon-
taneous creative actions, the category of the cultural conserve,
a social geometry of ideas and things, and the original state
and situation of a "thing"--its status nascendi. The theoretical
ground was thus gradually laid for a positive beginning of a
sociometry which was concerned with the patterns of social
structures which actually exist in human society. The core of
a social structure is the pattern of relationships of all the in-
dividuals within the structure. Around this core, influencing
the configurations of these patterns, are arrayed many levels
of stimuli--economic, cultural and technological processes, for
instance. A human society which functions without one or an-
other of these stimuli is conceivable, but one cannot conceive a
society functioning without some consideration for the individ-
uals themselves and the relationships between them. The core
of a social structure is, of course, never entirely separable
from these various stimuli; hence, the study of their stratifica-
tion and their gradual integration with the core becomes an es-
sential part of sociometry.

The original vision of the larger sociometric experiment
was that the data obtained in any particular research must
have, as a frame of reference, the total pattern of human soci-
ety in order that these data may be useful as a basis for the
construction or reconstruction, for the partial or total readjust-
ment, of human society. In order to enlist every individual's
interest during the phase of reconstruction, the social scien-
tist must, of necessity, acquaint himself, in the research phase,
with the individuals themselves and the interrelations between
them. Analaysis and action, social research, and social con-
struction, are interwoven.

THE SOCIOMETRIC EXPERIMENT

It is significant to differentiate between the major exper-
iment in sociometry and the minor experiments. The major
experiment was visualized as a world-wide project--a scheme

well-nigh Utopian in concept--yet it must be recalled again and
again to our attention lest it be crowded out by our more prac-
tical, daily tasks in sociometry.

We assumed--naively, perhaps--that if a war can spread
to encircle the globe, it should be equally possible to prepare
and propagate a world sociometry. But this vision did not
arise wholly out of thin air. Once we had successfully treated
an entire community by sociometric methods, it seemed to us
at least theoretically possible to treat an infinitely large num-
ber of such communities by the same methods--all the com-
munities, in fact, of which human society consists.

The ground is still gradually being prepared for the
major experiment. Schemes like Marxism, and others, which
have attempted world-wide reorganization of human relation-
ships, have been analyzed and the causes of their failure dis-
closed. Their failure seems to have been due to a lack of
knowledge of the structure of human society as it actually ex-
isted at the time of the attempt. A partial knowledge was not
sufficient; knowledge of the total structure was necessary. We
know that, in order to attain this total knowledge, all the indi-
viduals in a society must become active agents. Every indi-
vidual, every minor group, every major group, and every so-
cial class must participate. The aim is to gain a total picture
of human society; therefore, no social unit, however powerless,
should be omitted from participation in the experiment. In ad-
dition, it is assumed that, once individuals are aroused by so-
ciometric procedures to act, to choose and to reject, every
domain of human relationships will be stirred up--the economic,
the racial, the cultural, the technological, and so on--and that
they all will be brought into the picture. The sociometric ex-
periment will end in becoming totalistic not only in expansion
and extension but also in intensity, thus marking the beginning
of a political sociometry.

It is a fact that the work to date has consisted in minor
experiments and studies. Sociometric investigators have turned
their attention away from a general experiment towards a more
strategic and practical objective--the refining of old methods
and the invention of new ones; the study of every type of chil-
dren's group, adolescent group and age group; the investigation
of communities, closed and open, primitive and metropolitan.
The investigators have been concerned with every aspect of a
community--the economic, the cultural and the technological--
for which there was found some degree of aspiration or expres-
sion within the community. At times a project was carried to
the maximum point of its domain, not only exploring the

structure of a community but also applying the findings to the
community situations and thus relieving tensions and producing
social catharsis.   At other times, however, possible upheaval
within the political administration of a community and resist-
ance on the part of its citizens hindered thorough sociometric
experimentation.   Cases have occurred where the investigator
had to be content with gathering only partial data (and this by
indirection) because of the low sociometric adaptability of the
population under observation, resulting in studies which were
only halfway sociometric.   In these cases, the findings could
necessarily cover only a peripheral segment of a community,
and the application of these data to the people themselves was
not considered.   Nevertheless, a critical survey of all the so-
ciometric studies which have been made to date, evaluating the
methods used and the results obtained in all cases, whether
completely sociometric or only partially so, would be of sub-
stantial assistance in the preparation of more dependable socio-
metric procedures for future use.

        The result of these small scale experiments has been
twofold.   On the one hand, they led to important discoveries in
the realm of human relations which were confirmed by every
new study, and, on the other hand, they made it possible to put
together, like a jig-saw puzzle, the pieces of sociometric struc-
ture which had been found in various communities and get,
with the assistance of these miniature patterns, a bird's-eye
view of the sociometric foundation of society at large.   The
greater the number of valid studies in the years to come, the
more accurate and complete will be our psycho-geographical
model of the world, as compared with the still sketchy and
primitive model which is available to us today.

                SOME FUNDAMENTAL CONCEPTS

        The status nascendi.[4] The most neglected aspect
of social science is the function of the Moment in a social sit-
uation or, in other words, the relationship of a social situation
to the moment of its emergence.   In a philosophy of the Mo-
ment there are three factors to be emphasized: the locus, the
status nascendi, and the matrix.   These represent three views
of the same process.   There is no "thing" without its locus,
no locus without its status nascendi, and no status nascendi

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[4]See "Das Stegreiftheater," by J. L. Moreno (1923), a trans-
lation of which will be published in SOCIOMETRY for May, 1941. This
note refers to pp. 22, 23 of the original.

without its matrix. The locus of a flower, for instance is in
the bed where it is growing. Its status nascendi is that of a
growing thing as it springs from the seed. Its matrix is the
fertile seed, itself.

Every human act or performance has a primary action-
pattern--a status nascendi. An example is the performance of
eating which begins to develop the rôle of the eater in every
infant soon after birth.[5]   The pattern of gestures and move-
ments leading up to the state of satiation is, in this instance,
the warming-up process. With satiation comes an anti-climax.
In the case of a very complex human performance, such as in
the creative arts, the status nascendi and the warming-up proc-
ess take place in the course of the process of creation. From
the point of view of productivity, the anti-climax for the artist
is reached when his creation is divorced from him and becomes
a cultural conserve. The last act in a process--the last crea-
tive brush-stroke on a painting, for instance--is to us only as
important as every other phase in the process. The common
misconception occurs when the last act of production or crea-
tion is taken for, or substituted for, the whole process and all
the preceding phases in the development are ignored. This
last act undergoes a still more significant change when the
technological process enters into the situation. The finished
painting is removed from its place at the end of the course of
creation or production and, by means of various machines,
technologically reproduced over and over again, thus becoming a
cultural conserve.

In the case of a social situation, such as a love rela-
tionship, for instance, the status nascendi exists when the lovers
meet and begin to warm up to one another. The last phase,
the phase before the anti-climax, in a love-relationship (mar-
riage, for example) is all too likely to be a stereotype, and in
many social relationships similar stereotyped institutions are
the end-products, parallel to the cultural conserve stage in a
work of art. Moreover, in the contemplation of, say, the mar-
riage relationship between two people, the consideration of all
the phases leading up to it is omitted. It is not to be assumed,
however, that processes of human relations cease to exist when
a cultural conserve or a stereotyped relationship enters the
picture. In either case, a new social situation is begun which
requires special methods of investigation.

The social sciences have been too much preoccupied

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[5]See "Normal and Abnormal Characteristics of Performance Pat-
terns," by Anita M. Uhl and Joseph Sargent, SOCIOMETRY, Vol. III,
No. 3, pp.38-57.

with studies of processes after they have become cold. The
status nascendi has been neglected. Most of the studies of
man-woman relationships occur when the anti-climax has been
reached--when the flow of feeling between the man and the
woman has dried up and the love which brought them together
is over. The study of finished products, of cultural conserves
and of stereotypes has, of course, its place and its meaning in
a system of social science. The preoccupation with them is
not surprising. It is much easier to study a relationship when
it is finished and established and when it has the deceptive ap-
pearance of being an end-result. Perhaps this is why sociolo-
gy has been chiefly concerned with the study of the tangible
structures in society. But it is from the social situations in
statu nascendi that the more important inspirations and deci-
sions come. Their deep impress upon all human interrelations
has been demonstrated. The problem has been how to get at
these intangible, esoteric phenomena--how to study them. It is,
of course, important that they be studied systematically. A
human society without these phenomena in statu nascendi would
present a lifeless appearance. Therefore, social research
which does not give its main attention to these phenomena must
be sterile. Any plan for the betterment of society, for the im-
provement of human relations, is hopeless without them. There-
fore, theories and methods had to be found.[6] It is at this
cardinal point that sociometric and psychodramatic studies have
stepped into the breach. The results to date are meager, it
must be admitted, but the road is now open.

A study of human interrelations proceeding forward from
their status nascendi, instead of proceeding backward from
their end-product, has great theoretical advantages. A study of
this sort is able to do away with the dualistic character
ascribed to social processes. There is no true dichotomy be-
tween, for instance, underlying and surface structures, or be-
tween genetic phenomena and symptoms. Just as every cause
is a part of its effect and every effect a part of its cause,
every underlying structure partakes of the peripheral and vice

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[6]Studies contributive to sociometry in their emphasis on in-
ter-personal systems have been made by: C. N. Allen, R. Borden,
J. H. Criswell, K. Curtis, D. M. Davidson, Jr., S. C. Dodd, M. Feld-
stein, J. G. Franz, F. Herriott, H. H. Jennings, A. D. Johnson,
N. C. Kephart, L. M. Kerstetter, C. P. Loomis, G. A. Lundberg,
J. L. Moreno, A. J. Murphy, T. M. Newcomb, W. J. Newstetter, M. L.
Northway, L. Price, W. Richmond, I. T. Sanders, J. Sargent, B. Sol-
by, M. Steele, C. C. Taylor, M. B. Treudley, A. M. Uhl, S. C. Wol-
man and L. D. Zeleny.

versa.[7] This is the case if we begin with the status nascendi
of a situation and follow its warming-up process through stage
after stage. Dual constructions such as cause and effect be-
come, then, illogical.

The "Tele" Concept. The tele concept is not a
purely theoretical construction. It has been suggested by so-
ciometric findings. The statistical distribution of attractions
and repulsions is affected by some esoteric factor. The normal
distribution into which practically all psychological phenomena
thus far investigated fit is not followed by attraction and re-
pulsion patterns. The trend towards mutuality of attraction and
repulsion many times surpasses chance possibility.[8] The fac-
tor responsible for this effect is called "tele." It may explain
why there are not as many human societies as there are indi-
viduals--a situation which is at least theoretically possible--
with all social relations the product of individual imaginations.
Tele can be assumed to be responsible for the operation of the
multiple foci in any relationship between two persons, or as
many persons as compose a given social situation. It is de-
pendent upon both, or all, the individuals and is not the subjec-
tive, independent product of each person. Out of these opera-
tions of the tele factor a product results which has the charac-
ter of an objective, a supra-individual, system.

Although it is clear that the tele factor operates, nothing
is as yet known about its "material" structure. It may have
some relation to gene structure and sexual attraction. It may
be that the study of tele psychology will provide clues to a
better understanding of sex attractions.

The Social Atom. As the individual projects his
emotions into the groups around him, and as the members of
these groups in turn project their emotions toward him, a pat-
tern of attractions and repulsions, as projected from both sides,
can be discerned on the threshold between individual and group.
This pattern is called his "social atom." It is not identical
with the formal position an individual occupies in the group
(his position in the family, for instance). It evolves as an
inter-personal structure from the birth-level onward. The size

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[7]In the sociometric analysis of home groups, for instance, we
have found that some relationships on the formal level are identi-
cal with those on the underlying level.

[8]See "Statistics of Social Configurations," by J. L. Moreno
and H. H. Jennings, SOCIOMETRY, Volume I, part I, pp. 342-378.

of the social atom of any particular individual cannot accurate-
ly be discerned unless the whole community or group in which
he lives is sociometrically studied. Sociometric case-work of
a single individual may be tolerated in practice, but we must
be aware that some positive or negative tele may exist in ref-
erence to him which cannot be calculated unless all the indi-
viduals around him are tested in conjunction with him. The so-
cial atom is the first tangible structure empirically discernible
in the formation of a human society. It is its smallest unit.
The study of Jennings[9] demonstrates clearly that it develops
different patterns. In fact, she differentiates eight different
patterns. Thus, an individual can be diagnosed from the point
of view of how his social atom is patterned. A community can
be diagnosed from the point of view of what types of social
atoms are in the minority. A study of this sort may suggest
the optimum pattern for a well-balanced community in which
this or that pattern predominates.

      The discovery of social atom patternings is an excellent
illustration of how sociometric ideas develop and change in ac-
cord with the findings. The first construction of sociometric
concepts, like the social atom, for instance, was intuitive, sug-
gested by slight, empirical material. "Social atom" was first
a purely descriptive term for a social configuration which was
evident in every inter-personal relation system of a communi-
ty, but we did not then know what dynamic meaning it had in
its formation. Only later did we suspect that it might be a
basic social unit.

      In an early phase of sociometry, at a time when we
were studying group structures from the outside, as participant
observers (watching children at play, or sitting in a spontanei-
ty theatre and watching the formation of pairs on the basis of
various rôles, noting how certain persons assumed a leader
position in respect to certain others and how some were able
and others unable to begin or end an action), we were able to
determine with some precision the outer structure of the
group.[10] But the deeper structure of the group remained un-
disclosed and, with it, the social atom. Accordingly, the first
charting of inter-personal relation systems showed blank areas.
When sociometric tests were applied to a formal group in a

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[9]See "Quantitative Aspects of Tele Relationships in a Commun-
ity" by Helen H. Jennings, SOCIOMETRY, Vol. II, No. 4.
    [10]See "Who Shall Survive?" by J. L. Moreno, pp. 169-191; also
the section on Experiment in "Des Stegreiftheater," by J. L. Moreno
mentioned in Note 4.

public school,[11] the findings permitted an analysis of inner structures, percentages of attractions and repulsions, the number of isolates, pairs, triangles chains, etc., but the social atom could not yet be discerned--not even on the descriptive level--because the tests were limited to the classrooms. The relationships of the pupils to the families, to the neighborhoods and to other situations in which they were involved were not part of the study. It was not until a still further advanced phase was reached, when a whole community was approached sociometrically, that the social atom became discernible.

Now that we are able to study social atoms both descriptively and in their dynamic differentiations, the earlier structural analysis of a community as being made up of pairs, isolates, etc., looks rather artificial, although, within its limits, it is still valid. From the point of view of the total community structure, a true pair, for instance, cannot exist independent of relationships with other persons. Our previous procedure of structure analysis may, in the course of time, be superseded by the use of more dynamic patternings of the social atom as a more penetrating guide to the depth structure of a community.

The great theoretical advances which have been made as the result of sociometric experiments become more pointed if we consider them in the light of the contributions of two sociological pioneers, von Wiese[12] and Cooley.[13] From the formalistic distinction between von Wiese's patterns of association and disassociation in human relations to the modern sociometric concepts is a long way. Sociometric concepts had to be constructed anew, as inspired by the dynamics of actual situations. Cooley's concept of primary groups comes closer to the realities of social structure. But, although social atoms are certainly primary, they are not exactly "face-to-face" groups. To be sure, an individual knows "face-to-face" a certain number of the people composing his social atom--they may belong to his family, home or work group--but he may be ignorant or unconscious of the existence of many individuals who feel strongly about him and there may be some individuals about whom he feels strongly but who are, in turn, either ignorant or unconscious of this fact. In other words, there are primary social configurations, social atoms, psycho-social networks, and others, which are not primary groups.

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[11] See "Application of the Group Method to Classification," by J. L. Moreno, 1932, Pp. 98-103.
[12] See "System of Sociology," by Becker-Wiese, 1931.
[13] See "Social Organization," by Charles H. Cooley, 1909.

Another aspect of the social atom which may stand in need of revision is its relation to the findings which have come to us from spontaneity testing of the individuals comprising it. Originally, we constructed two tests, the sociometric test and the spontaneity test. The sociometric test produced findings which suggested the setting up of the concept "social atom," viewed as an attraction-repulsion pattern. The spontaneity test, aided by psychodramatic procedures, produced findings which suggested the construction of an additional concept, the "cultural atom," which was viewed as a pattern of rôle relations. Now, in reality, there is but one atom. From the point of view of the actual situation, the distinction between social and cultural atom is artificial. It is pertinent for construction purposes but it loses its significance within a living community. We must visualize the atom as a configuration of interpersonal relationships in which the attractions and repulsions existing between its constituent members are integrated with the many rôle relations which operate between them. Every individual in a social atom has a range of rôles, and it is these rôles which give to each attraction or repulsion its deeper and more differentiated meaning.

Psycho-Social Networks. If we continue to investigate the larger and more inclusive sociometric structures which can be discerned on the psycho-geographical map of any typical community,[14] we can discover many intermediate stages between the social atom and the psycho-social network. We can see, for example, the coalescing of three or four social atoms, the central individuals of which are mutually attracted, forming a triangle or a square. At other places on the map we may see half a dozen social atoms which exist in close geographical proximity to a dozen other social atoms, but with no visible relations between any of their constituent individuals. Elsewhere on the map we may encounter a group of social atoms whose central individuals show a negative tele to the central individuals of another group of social atoms, in the same geographical area. Very little is known about these and more

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[14] Individuals cluster together and form psycho-social networks of varying configurations and the communities in which they live are held together by specific emotional currents which can today be mapped with the same precision as the physical geography of that region. In contrast to ethnological concepts such as class, race, etc., patterns of social atoms, psycho-social networks, and many other similar structures actually exist as dynamic parts of human society.

complex structures, beyond their descriptive pattern. Local
investigation may disclose that, in the first illustration above,
the central individuals are of the same kinship. In the second
illustration, they may belong to different social strata--the one
group having a higher cultural and economic status, the other
a lower. The third illustration may represent individuals of
competitive situations. Further exploration is required which
cannot be made by even the most inspired speculation. The
communities must first be mapped as wholes; then a study can
be begun.

     The psycho-social networks are not readily visible on a
psycho-geographical map. We became interested in the possi-
bility of their existence when we noted that rumor distributed
itself irregularly, reaching one section of a community more
easily than another. We saw individuals who were unacquaint-
ed with one another and belonging either to different parts of a
community or to different communities, doing or saying things
so similar and so simultaneously as to seem to indicate some
mysterious correspondence--the "grapevines" of folk-sociology.
It seemed logical to assume that individuals, however far apart
they appeared to be geographically or on the social scale but
who are associated with one another through the devious links
and counterlinks of mutual tele, would produce a smooth chan-
nel for the transmission of news, opinions, etc. We lifted from
the original map all the individuals who were interconnected in
the fashion described, regardless of the specific groups to
which they belonged, and then transferred them to a new map.
Thus, we saw the entire community broken up into several so-
called "psycho-social networks." We saw them partly overlap-
ping one another; we saw that individuals as a rule belonged to
more than one network; we saw that only a small proportion of
the individuals who belonged to the same network knew each
other personally--the large majority were tied to one another
by a hidden chain of tele-links. We saw that only a small pro-
portion of the social atoms of a community belonged to any one
network; others belonged to different networks or remained un-
related and scattered between the networks, doubly isolated--
isolated as individuals, and left out of the networks.

     Once the networks in a community were described and
mapped, it was easy to demonstrate their dynamic existence by
a simple experiment. In a closed community which was under
investigation, we were aware that rumors passed continually
back and forth from mouth to mouth. The object of the experi-
ment was to demonstrate that these rumors followed the paths
of the networks which we had mapped. The experimenter

entered Group I and approached an individual, M, who, according to the map, belonged to Network A. M was a key individual, that is, he was linked up with 22 other individuals, some of whom belonged to his Group I, and others to Groups II, III, IV and V. M was chosen to be the person with whom to start the spread of the rumor, which concerned a leading personality in the community's administration. We had found that, in networks comprising more than 100 individuals, only very few participated in any one other network. It seemed, therefore, that the chances were that the rumor would spread with ease and speed through M's own network, Network A, and then would need a longer time to filter through to the other networks. We assumed that it would take its longest time to reach Network E, into which there was no overlapping from Network A. It was gratifying to see our assumptions verified with great accuracy. Checks from time to time showed that the rumor was, indeed, following the paths we had expected it to follow.

From the material which had been available, it can be deduced that there are many specific patternings of psycho-social networks. This field is little explored, but some future study may be able to show that communities differ in accord with the types of networks which prevail within them. It will probably become apparent that the size of the various networks differs greatly. Some, we know already, are limited to a particular locality; others operate throughout several communities; still others may cross the whole country, from coast to coast. Microscopic studies of networks will also show that the tele-links between the connected individuals are held together by ideal images (such as Christ) or sacred symbols (such as the Cross and the Swastika). The different characteristics of its psycho-social networks will indicate the growth or decay of a community.[15]

It is obvious that the relationship between the networks and the modern technological apparatus for the distribution of ideas, opinions, and news--the printing press, the motion picture and the radio--is of prime importance. The distorting effect which the printed page has upon individual spontaneity and the mouth-to-mouth transmission of ideas was, indeed, my first approach to the sociometric concept of the network and the realization that this superimposition of a mechanical-social

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[15]See Loomis' "stayer-" and "mover-" networks in "Measurement of the Dissolution of In-Groups in the Integration of a Rural Resettlement Project" by C. P. Loomis and D. M. Davidson, Jr., SOCIOMETRY, Volume II, number 2.

network upon a psycho-social network produces a situation which takes society unawares and removes it more and more beyond human control.[16] The development of the film, the radio, and modern propaganda has accelerated this process of which we are largely unconscious, to an unprecedented degree.

In an age like ours, the most important message, if transmitted by mouth, can be kept from dissemination by the first man to hear it if he does not choose to pass it on, while the most harmful and least cultured expression, if uttered at the psychological moment over a prominent radio network, can reach, affect, and disturb almost the whole world. It would be of interest to study what the technological networks, the printing press, and the radio, for instance, actually do to the psycho-social networks of which human society consists. There is, however, one important beneficial effect which our modern radio systems have upon the psycho-social networks. At one stroke they can bring thousands of independent psycho-social networks in different parts of the country into a confluence which could not have been produced by a mouth-to-mouth transfer of news or opinion, except after a long period of time.

It is interesting to note the relationship between politics and sociometry. There is hardly anything which is more important to a man than his position in the group, or how people feel about him. The ebb and flow of attractions and repulsions within his social atom may be responsible for tensions within him, since he cannot be entirely unaware of how much sympathy or hatred is directed toward him. This is more significant still for the position he has in the psycho-social networks in which he is either active or passive. He may make a guess at what is brewing for or against him--as an individual or as the member of a group, but he cannot know for certain. Political leaders are keenly aware of the "grapevine" phenomenon; they are "practical" sociometrists. In a political campaign, for example, they pick the key individuals in a community and operate through them. Their psycho-geographical maps are, of course, entirely intuitive. If, however, they had real psycho-geographical maps of the communities at their disposal, they could make their selection of key individuals with greater precision and prepare their campaigns with better chances of success.

The network theory is able to interpret political phenomena difficult to understand otherwise. One illustration is the

[16]See "Die Gottheit als Autor" (The Godhead as Author), by J. L. Moreno, Berlin, 1918.

purges attributed to Stalin. Why were extensive mass murders committed when but relatively few men had actually been found guilty of treason? It would seem unnecessary to punish more than a few, but the cold politician, Stalin, knew that, besides the few men who had been direct associates of Trotsky, there were literally thousands more, potentially equally dangerous, who could be just as threatening to his régime. He knew that, to each of the, say, twelve guilty men, a number of sympathizers must be linked, and to each of these sympathizers, in turn, others were linked, and to this larger circle many others were inter-linked, either directly or indirectly, who might become infected with the same political ideas. In other words, he visualized a myriad of psycho-social networks spread over all Soviet Russia in which these actual or potential enemies acted in rôles which might be dangerous to him. Unfortunately, he had only a rough, instinctive picture of the networks; he did not know the actual men and their actual positions in their respective communities. So, in order to reach and exterminate his potential as well as his actual enemies with the highest possible efficiency, he gave orders that not only the friends of Trotsky but also the friends of these friends, and the friends of these friends of the friends of Trotsky be "purged," even if the suspicion of any friendly relationship was very slight.

Principle of Socio-Genetic Evolution. Whenever repeated sociometric tests have been administered at intervals to the same (or nearly the same) population, the regularity with which certain specific patterns of inter-personal relations have occurred has arrested the attention of investigators. The material demonstrating this regularity has been the result of two research projects. One project studied the formation and evolution of a community[17] and the other studied the formation and evolution of groups from birth level up to the age of fourteen.[18]

Most of the sociometric studies of communities made to date were of communities which were already established. It was almost impossible to trace the principle of socio-genetic

[17]See description of a resettlement project at Mitterndorf, Austria, 1815 to 1918, in "Who Shall Survive?" by J. L. Moreno, pp. 17 and 18, and "Sociometric Planning of a New Community," by Shepard Wolman, SOCIOMETRY, Volume I, part I, pp. 220-254. See also discussion by C. C. Taylor of C. P. Loomis' paper on "Informal Groupings in a Spanish-American Village," in this issue.

[18]See description of a sociometric project in a public school with a re-test after a period of two years; "Who Shall Survive?" by J. L. Moreno, 1934, pp. 23-28.

evolution in these communities as their past history and their
beginnings are unknown. An investigator who attempts to dem-
onstrate the operation of this principle must be present when
the community is in the process of formation, in statu nascendi,
and he must follow up its development, step by step. The fol-
low-up must consist of the application of sociometric tests; the
successive maps of the community will disclose its genesis. An
opportunity to make a study of this sort has, up to now, been
given to an investigator only twice.

Sociometric projects, arbitrarily studying groups of chil-
dren at one or another age level, cannot bring the workings of
a socio-genetic evolution into relief. The investigator, in or-
der to reach valid material, must approach groups which pre-
sent a cross section of all the age levels from birth to ado-
lescence. Only then will he be able to compare the most in-
fantile group structure (group structure in statu nascendi) with
each successive step in structure formation, from month to
month and from year to year. It is upon many more studies
of this sort that a competent discussion of the form and ex-
istence of socio-genetic evolution can be based.

THE DIALECTIC CHARACTER OF SOCIOMETRY

The dialectic attitude of the sociometric investigator is
brought about on one hand by the natural resistance of the com-
munity to a scheme which carries the democratic process to
a maximum degree of realization (for which it is as yet unpre-
pared and uneducated) and, on the other hand, by the resistance
of people who favor other earlier methods and ideologies in the
manipulation of population problems. When sociometry began
to arouse public attention several years ago, the number of
procedures which were ready for application was few as com-
pared with the number of social problems which were to be
faced in any community study. Economic, technological and
political problems of all sorts pressing for an immediate solu-
tion could neither experiment with untried procedures nor wait
until they were ready. I recommended, therefore, that supple-
mentary techniques should be used around the true sociometric
core, even if they did not fulfill the requirements of genuine
sociometric procedures. To the category of supplementary
techniques belong, among others, public opinion studies, studies
of attitudes and socio-economic measurements.

When I introduced terms like "sociometry," "sociometric
techniques" and "sociometric scale," I anticipated that such

terms would be applied to types of social measurement which are in some degree sociometric (near-sociometric),[19] in addition to methods developed by me and my closer associates. I also anticipated that, partly because of the influence of sociometry, and partly as a result of the natural development of social science, methods and concepts in sociology, psychology, and psychiatry would become more flexible and realistic and thus approach the point of view which has been fostered by sociometry. An illustration is the development from Bogardus,[20] who studies attitudes towards people as a race or as a class and gets an answer which cannot be but a symbolic one and the scale based upon similar data a symbolic scale of attitude to studies like that of Ford,[21] who asks questions which deal with personal contacts. This time the answers must be more concrete--they must be based upon "experiences"--but they are still a far cry from the specific individual with whom the contact took place although it is within the field of the status nascendi of a relationship. An attempt is made, at least, to shape a questionnaire in such a fashion that it more nearly covers the actual inter-individual structures which exist.

Another illustration is the development from the older public opinion questionnaire, which expected uniform responses from a rigid, set question, to the more recent refinements in pre-testing questionnaires--adjusting the questions to the group which is to be studied.[22] The latter procedure is also far removed, however, from the sociometric approach which would disclose to the investigator the key individuals in the group, the psycho-social networks through which opinion moves, and whether the opinions which are collected represent the opinions of the key individuals only or the opinions of the groups under their influence. Consequently, what these investigators measure may not be what they intend it to be, an opinion of the public, but the private opinions of a small number of people. It can be

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[19] "Near-sociometric" can mean procedures which fall short of the full meaning of the term "sociometric" either in its "socius" aspect or in its "metrum" aspect (see page 18 of this paper). Bogardus and Thurstone provide examples which fall short in the "socius" aspect, while case-work studies are typically short in the "metrum" aspect.

[20] Bogardus, E. S., "Social Distance and Its Origin," 1925.

[21] Ford, Robert N., "Scaling White-Negro Experiences by the Method of Equal-Appearing Intervals," SOCIOMETRY, Volume III, number 4.

[22] Blankenship, A. B., "Pre-Testing a Questionnaire for a Public Opinion Poll, SOCIOMETRY, Volume III, Number 3.

expected that sociometric methods which include the inter-
personal relation systems in their tests will gradually replace
methods which investigate social situations in a more or less
indirect and symbolistic fashion.

The other field in which sociometry can demonstrate its
value is that of social planning. There are many concepts and
hypotheses in the conduct of human affairs which stand in the
way of the application to their fullest extent of sociometric
ideas. The philosophy of anarchism, for instance, may criti-
cize the various schemes of present-day governments, however
liberal, as authoritarian regimes, but in a society which is
sociometrically planned, a special niche for anarchists is not
necessary because sociometry is based upon the principle of
spontaneity and gives expression to even the most extreme in-
dividualism. The philosophy of communism, particularly of
Marxism, may maintain that the rule of one social class which
represents the mass of the producers is necessary in order
that a maximum of justice, perhaps arbitrary, may prevail, but
in a sociometrically planned society the genuine contribution of
collectivism could be brought to its fullest expression without
any necessity of resorting to arbitrary measures. The econom-
ic factor, and with it the production and distribution of goods,
cannot be artificially divorced from the total system of inter-
personal relations. Within the scope of sociometric investiga-
tion a first clue to the solution of this knotty problem has been
found in the relationship between the socio-dynamic effect[23]
and the distribution of wealth. The philosophy of totalitarian-
ism proposes a regime in which a master race, self-chosen,
is to rule all other peoples, the master race itself being gov-
erned by a leader at the top with a number of auxiliary lead-
ers carrying out his orders. But the central problems of this
ideology, the leader and the race question, can be handled with-
in a sociometric scheme without violence and certainly with a
far greater precision and with a minimum of friction. Within
a totalitarian society, the group of leaders who have inaugurat-
ed the régime, whether self-chosen or elected, may go stale.
This may become the Achilles' heel of the totalitarian society,
relying as it does upon a distorted distribution of the total
available spontaneity which places, if possible, all the spontane-
ity in the leaders (maximum spontaneity at the top) and no
spontaneity in the peoples (minimum spontaneity at the bottom).
This crucial problem, the proper equilibrium between leaders

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[23]See "Statistics of Social Configurations," by J. L. Moreno
and Helen H. Jennings, SOCIOMETRY, Volume I, part 2, pp. 342-374.

and followers, can be dealt with by means of sociometric plan-
ning without having to resort to a totalitarian régime. It has
been demonstrated[24] within a community which is administered
along sociometric lines that the set of individuals who are in
key positions today can easily be ascertained by sociometric
tests. In the course of routine re-testing at regular intervals
it becomes dramatically apparent that these key individuals
wane in influence and others come up to take their places (in
statu nascendi). This raises the question as to whether leader-
ship artificially maintained may not become a "conserve" and
therefore a stultifying instead of a spontaneous and inspiring
agent. In addition, the problem of race is managed as an in-
herent part of the sociometric scheme. By means of concepts
like race cleavage and the racial saturation point, populations
which differ ethnologically can be distributed within a given geo-
graphic area without having to resort to forced and hit-or-miss
migration.

Sociometry can well be considered the cornerstone of a
still undeveloped science of democracy. The so-called demo-
cratic process is not truly democratic as long as the large
spheres of invisible processes disclosed by sociometric pro-
cedures are not integrated with and made a part of the politi-
cal scheme of democracy.[25] Sociometry can assist the United
States, with its population consisting of practically all the races
on the globe, in becoming an outstanding and permanent exam-
ple of a society which has no need of extraneous ideas or of
forces which are not inherent in its own structure.

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[24]See discussion of leaders and leadership. "Who Shall Sur-
vive?" by J.-L. Moreno, pp. 163, 164, and "Quantitative Aspects of
Tele-Relationships in a Community," by Helen H. Jennings, SOCIOME-
TRY, Volume II, No. 4, pp. 93-100.
    [25]See "Human Nature and Conduct," by John Dewey, Henry Holt
& Co., New York, 1922; and "Cross Cultural Survey," by George P.
Murdock, American Sociological Review, June, 1940.