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APPLIED SOCIAL SCIENCES IN INDUSTRY

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The author in the following lines points out that basic social research in the fields directly related to industry has to be conducted before it could be applied to industry. The author refers to Richardson's comprehensive Survey of recent work in the field and indicates broadly some important specific topics of research.

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Application of any branch of scientific knowledge for some practical end awaits initiative, foresight and risk-taking; more so in social sciences. The promise of return and the utility value of applied research is not readily perceived and, therefore, does not attract attention. Social scientists, therefore, are obliged to take the responsibility of demonstrating the sale value of social researches and have to haggle in order to make it acceptable.

Theory and methods in social sciences by which we mean sociology, social psychology and social anthropology, do not offer such ready-made formulas and prescriptions which are possible in natural sciences because of imponderable and multiple complexity of human factors involved. The empirical methods of mechanical observation, controlled experimentation, precise measurement under 'known' and 'defined' condition are not possible in social sciences. Human beings can neither be controlled and experimented upon nor human factors can be measured precisely and be fully "known" and "defined". In social sciences only approximations to this method can be reached. This makes the problem of application of social sciences more difficult. The results of social sciences are either too abstract and generalized to appear commonplace or are too particular pertaining to a definite situations only—both of which render them inapplicable for direct practical end to any considerable extent.

Need for Basic Research and Experimentation.—Much basic research, therefore, is needed along directed lines before the results of social sciences can be directly applied with some profit. This is why much basic social research in the fields directly related to industry has to be conducted before it can be actually 'applied' to the industry *as given means to given ends.* An example of this approach is that even with precedence of 25 years of social research in industry in America, Chappie writes: ".... if 'applied anthropology' is taken to mean the *deliberate introduction* of change into an industrial situation—the greatest amount of research done in this field is not "applied" in this sense; it has been primarily concerned with *understanding the process of change* in one particular type of social institution".[1]

Before any change is contemplated in the social process of any institution, thorough understanding of the institution and the process are necessary requisites. Basic research provides this understanding. It gives formulas which can be readily cashed. Such research is only exploratory and experimental.

[1] E. D. Chappie, "Applied Anthropology in Industry" in A. L. Kroeber, edts. *Anthropology Today,* Chicago: University of Chicago Press, 1953, pp. 819-831.

In suitable field situations action can be combined with research to preview the context of application. Action-research projects are a very useful tool in social sciences which makes possible guarded and phased introduction of changes in social situations. A brilliant example of this is the Etawa action-research project of Mayer and associates where the scheme of community development was evolved through social research, experimentation, and evaluation.[2] This project has since then become guide-post of Community Development Projects all over India. In the field of industry outstanding experiments were conducted by Mayo and associates at Hawthorne Works, U.S.A., where he for the first time experimentally demonstrated the importance of human relation factors in productivity in a factory and also devised means of improving human relations in factory to this end.[3] This gave impetus to a series of studies along similar lines in the U.S.A.

Problem of Basic Research in Industry in India.—The main problems in the way of basic social research in the field of industry in India is the lack of interest and enterprise owners and management among for sponsoring and financing research projects. It is also due to inability, or rather indiffactory and also devised means of improving their skills; to make management interested in the utility and value of such research. The indifference of management may be attributed to the following reasons:

1. Lack of adequate knowledge as to the possibility of application of social sciences in solving human-problems and improving production.
2. Their interest in some immediate cure or penacea for an urgent malady like strike.
3. Lack of genuine interest in the well-being of the workers and healthy social atmosphere in the factory.
4. Lack of interest in the minor stress and strains in the life of workers inside or outside factories which affect their mental health.
5. Managements' disinterest in anything which is not *directly* related to increase of profits or production.
6. Lack of enterprise in this direction.

In fact, we do not have in India substantial literature on social research work done in the field of industry. Any attempt to begin, therefore, is bound to be modest in scope.

Factory as a Social Unit.—Human relations and mental health in the industrial circles is a pressing problem of modern age of progressive industrialization. Mayo rightly entitled his study of human relations in a factory as "The Human Problems of an Industrial Civilization". In underdeveloped countries like India, where industrialization is impinging a two-fold impact upon urban and rural population, it is a burning problem of the day to which the social scientists and others will have to turn their attention sooner or later. Mental health aspects of industrialization, especially with reference to labour from rural and tribal areas have attracted some attention.[4] Mead has shown how closely this aspect is related to social, cultural and psychological aspects of workers' life.

Factories not only produce goods but also produce a social system, a culture. What happens to workers in and outside factory affects the whole culture group from which the worker comes and at the same time what relationships develop in a factory

[2]A. Mayer and Associates, *Pilot Project India,* University of California Press, N. Y. 1958.
[3]E. Mayo *The Human Problems of an Industrial Civilization,* New York: The Macmillan Company, 1933.
[4]M, Mead, Ed. *Culture Patterns and Technical Change,* Unesco, 1953.

depends upon the culture-group to which workers belong.[5] To understand the problems of workers in factory one must understand worker in situ. Factory is not merely a work-place, it is a way of life; it has a social organization, it has conventions, mores and fashions; it has a socio-political hierarchy. The work and routine in a factory, like a community, foster a social hierarchy, a value pattern, a world-view, a personality type to which the workers continually strive to adjust or react. Factory has a social organization and every social organization has a culture. No true welfare work, therefore, can be planned to ensure the proper social and mental health without adequate understanding of this social system. Gorky's *Mother* is a literary evidence of this phenomenon.

Factories are institutions of the modern civilization. An institution as a whole has casual, operational, functional and effective relation to other dimensions of complex culture of which it is but a part. The owner and management of industries are guided by the considerations which emerge from the total set up of national economy in socio-political framework. Therefore, understanding of industry as an institution involves both microcosmic analysis and macrocosmic analysis outlined here.

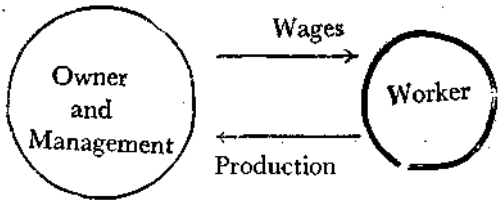
Social Structure of the Factory.—Various types of persons are brought into direct and indirect relation to one another in a factory. Management and workers are the two broad circles. Interaction and communication among various persons in factory take place within a defined framework of management-worker organization. There is a definite hierarchy of management from investing or owning authority (individual, company or State) to foreman and workshop-incharge, etc., through directors, secretaries, departmental heads, advisers, etc. Flow of directives and authority is in a defined channel. In this set up, the role and status of every individual member of management is well defined and fairly obvious to the factory personnel. The main interest of the management is administration and regulation of work in the factory at all levels—the criteria being maximum production and smooth running with minimum waste and delay.

Workers are brought into this set up for the purpose of production and other necessary services. The circle of workers also has a definite hierarchy of seniors, skilled, unskilled, menial, etc., some of whom are the part of the management like gatekeepers, timekeepers, sentries and orderlies. Various operational cycles in production work are performed by the workers either individually or in groups. The interaction of each worker vis-a-vis other works and the management has a definite pattern which allows but little deviation. The role and status of each are also broadly 'given' in a definite work situation. There are often leaders of work groups nominated or chosen. There are intermediary roles which though workers form a part of the management (like peons, sentries, timekeepers and gatekeepers, etc.). The main interest of the worker is in the payment he receives in return for his labour.

This contract system between worker and management is shown below. The main criteria of measuring the suitability, are the wages of the worker and the output for the management. All other criteria are only secondary. Management, however, is always in a position to dictate the terms of suitability. It may also be mentioned that this contract is not always entirely voluntary. Social

[5] *Ibid.*
[6] F. L. W. Richardson, "Anthropology and Human Relations in Business and Industry" in *Yearbook of Anthropology,* New York: Wenner Gren Foundation, 1955, p. 401.

pressure due to scarcity, demand increase or unemployment may induce either of them, generally workers, to accept even a non-equitable contract.



Variables involved in this interaction situation are mentioned below in outline:

1. Organization of factory: hierarchy, operational cycles of different roles of factory personnel, interpersonal, mode of conduct in factory personnel; authority and leadership.
2. Management's criteria of suitability and efficiency:
   a. Agreement at dictated terms of work (wage, payment system, leave, discharge, etc.).
   b. Skill, efficiency and output (also non-absenteeism).
   c. Role adjustment of worker in factory organization vis-a-vis other workers and management.
   d. Co-operation and non-alignment against management (such . as strikes).
3. Worker's criteria of suitability and satisfaction:
   a. Wage satisfaction rate, payment system, bonus, overtime-payment, etc.
   b. Job satisfaction: type of work, leave, role, physical mobility, risk, etc.
   c. Status satisfaction: in and outside factory in the role of worker.
   d. Social security and welfare: to worker and his family and kins; basic amenities and living conditions.
   e. Job security: against retrenchment, dismissal, closures and lockouts, turnover system and security against invalidation, old age, etc.
   f. Group-security: trade unionism, collective bargaining, representation rights, right to depute spokesmen and arbitrators; right to protest, call strike, go-slow, etc.
   g. Social adjustment: worker's family, relatives; caste and class sentiments; living conditions.

Human Relations in Factory.—There are four distinct levels of interaction and communication involved in the activities of factory personnel:

a. Management vs. management.
b. Worker vs. management and vice versa
c. Worker vs. worker.
d. Worker vs. non-worker and non factory personnel.

These interaction patterns are evidenced in the various behaviour situations inside and outside the factory. Each situation involves a set of overt and covert behaviour series—the latter is of great diagnostic value though difficult to investigate and measure accurately. Here (d) is of special importance in defining the social context of workers.

Communications-interaction patterns at all the above mentioned levels in a factory give the basic material upon which pattern of human relation in factory has to be constructed. The social cohesion and social distance between various groups—in work or non-work situations —can also be measured by suitable tests and observations. When any problem of maladjustment and outburst, irregularity

occur at any level, the diagnostic investigation can be directed within this well-defined frame. It is, however, not correct to assume that main "problem" field of human relations in factory is between the workers and management only. There may be a danger to industrial peace due to conflict between the factions in worker's circle or due to factions in the management circle. In India, where the real political leadership of trade unions is often in the hands of non-factory personnel (political leaders), the disputes may originate at the level of communication between workers and non-workers exclusive to management circle.

Cycle of production activities which a worker performs in the factory involves physical and social interaction with co-workers and management. The quality of interpersonal relation between the interacting individuals in a work group affects the efficiency of workers. It has been demonstrated by a number of experiments in America and England; that more "informal", "natural" or congenial atmosphere in the interaction of work groups and management in a factory improves the output. It acts as a socio-psychic incentive to worker. Worker assumes a status, confidence and mental security which in turn affects his productive rate.

It has often been difficult to co-ordinate a number of workers in a work-group to perform interdependent operational activities. The interpersonal adjustment among the group members and between the workers and group leader affects the rate of the work. A more friendly group with a mutually recognized leader turns out more than others.

Selection of adequate personnel for definite occupations is a task in which social scientists have proved helpful. There is a whole branch of social psychological dealing with such problems of selection for occupational situations.

Industrial Unrest.—Importance and relevancy of these facts is not brought home until one analyses industrial unrest. Despite the magnitude of this problem in Indian industries and the despite the management's immediate concern with the unrest situations, little detailed diagnostic analysis of industrial disputes has been made. The apparent causes of such disputes generally mentioned are (i) pay, (ii) bonus, (iii) personnel, (iv) leave and (v) others. It is reported elsewhere that percentage of disputes during the year 1940-1948 due to wages is about 41 per cent and due to personnel causes is 17 per cent.[7] Besides, the problem of strikes and go-slow strikes are problems of absenteeism, turnover and dismissal, lock-outs and closures. We do not know under what conditions of interpersonal relations these strikes and disputes take place. We do not have evidence whether no other factor except wages is explicitly or simplicitly associated with these disputes. My apprehension is that the feeling of economic insecurity and fear of unemployment are the main reasons why the workers are at the tip of their nerves to burst into a unified dispute. There can be, however, no question of amicable human relations between workers and management where the wages and living conditions are inhumanly low. Therefore, wages, welfare and social security are the basic minimum for creating amicable social relations between workers and the management and for arriving at solutions of disputes. When the price indices shoot up, when the owners reap higher profits, can it be expected that workers can be placable with the same or even lower wages?

[7]R. N. Saxena, "Labour Tensions in India," *Indian J. of Soc. Work*, Vol. XV. No. 1 (1954), pp. 12-21.

The diagnostic case studies of these disputes not merely in terms of wages, profits and manhours, etc, but also in terms of communication between workers and management, in terms of interpersonal relations between them; in terms of views, opinions, incidents, and in terms of cycle of events should be conducted. This can, to a great extent, help reconciliation between parties at dispute. After all, reconciliation, mediation and negotiation are forms of communication. Life of workers during and after the disputes is also relevant. Such disputes bring forth salient features of social relations.

Some Lines of Social-science Research in Industry:

Richardson, after making comprehensive survey of recent work in the field, isolates research which has attracted most attention. "The four topics of long standing interest are studies and discussions of (1) Small Work Groups; (2) Committees and Conferences; (3) Individuals in Organization; and (4) Face to Face Communication. The four new topics discussed are (5) Social System in relation to Technical System; (6) Labour Unions (as Organizations); (7) Organizations and their overall Functioning and finally, miscellaneous topics are mentioned briefly, such as problems of consulting, problems in establishing rapport and cultural and class differences among employees".[8]

Some important specific topics of research are given below to give an idea of the kind of work that can be done in this area. Most of these are topics of actual studies conducted.

1. Social organization of the factory:
2. Working conditions in the factory:
   a. social-cultural
   b. physical
3. Sociology of groups at work.
4. Adjustment of worker to instruments and machines.
5. Communication pattern in a factory.
   a. normal routine
   b. strike
6. Problems of changes in routine, management relations, or administrative set-up.
7. Management-worker relationship.
8. Recruitment of workers—attitude and aptitude studies.
9. Leadership in workers of a factory:
   a. work-groups
   b. non-work groups
10. Socio-cultural life of workers in situ.
11. Production increase devices by change in working conditions, living conditions, and social relations.
12. Case studies of strikes and disputes.
13. Training and orientation of management circle for understanding problems of human relations in factory.
14. Socio-graphic analysis of roles in a factory, such as foreman, welfare officer, etc.
15. Opinion attitude polls on changes and reforms.
16. Rehabilitation of migrated families of workers.
17. Effect of migration of workers from rural and tribal areas on their family life.
18. Co-operation and conflict among the workers of factory.
19. Trade-Union and political activities of workers.
20. Interaction pattern in a work group.

[8] Richardson, *op. cit.*, p. 401.

21. Time-budgets and flow charts of operational cycles.
22. Social distance among the various worker-groups.
23. Attitude of workers towards routine work, leisure, interval, overtime, accumulation of money, group tasks, physical mobility, etc.
24. Case studies of absenteeism, turn-over, dismissal, etc.
25. Socio-psychological factors in productivity.
26. Daily living of a worker and his family. (routine and household budget, etc.)
27. Factory as an institution in contemporary society.

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