REVIEW ESSAY

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LABOUR HISTORY AND ORGANIZATIONAL ECOLOGY

HANNAN, MICHAEL T. [and] JOHN FREEMAN. Organizational Ecology. Harvard University Press, Cambridge (Mass.), London 1989. xvi, 366 pp. $ 35.50.

Economists engaged in research into the firm have often used analogies which originated in the exact sciences, preferably in physics (and specifically mechanics), or biology. Alfred Marshall was a particular exponent of the latter. He regarded capitalist competition as a kind of "struggle for existence" between "industrial organisations", causing "those organisms to multiply which are best fitted to derive benefit from their environment".[1]

Organizational sociology, which emerged this century (and which is also much concerned with corporations), has also on occasions resorted to biological analogies.[2] This has been a characteristic feature only from the 1970s onwards though. Before this, organizations had been regarded mainly as static structures. It is only more recently that the concepts of "conception", "gestation", "abortion", "birth", "growth", "maturation", and the "death" of organizations have come into more frequent use. This trend can perhaps be explained by the international economic recession, which led observers to focus more attention on the fact that organizations are *temporal* structures which come and go.[3]

[1] Alfred Marshall, *Elements of Economics of Industry* (2nd ed., London, 1898), pp. 165–166. Compare Marshall's opinion that "in the later stages of economics, when we are approaching nearly to the conditions of life, biological analogies are to be preferred to mechanical, other things being equal. [. . .] The Mecca of the economist is economic biology rather than economic dynamics". See Alfred Marshall, "Mechanical and Biological Analogies in Economics" (1898), in A. C. Pigou (ed.), *Memorials of Alfred Marshall* (London, 1925), pp. 317–318.

[2] For example Mason Haire, "Biological Models and Empirical Histories of the Growth of Organizations", in Mason Haire (ed.), *Modern Organization Theory* (New York, 1959), pp. 272–306.

[3] Kimberly regards this "biologizing" as a reaction to the fact that the "dynamic quality of organizational life" is "curiously absent from most research and writing in the area". See John R. Kimberly, "The Life Cycle Analogy and the Study of Organizations", in John R. Kimberly and Robert H. Miles (eds), *The Organizational Life Cycle* (San

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From the middle of the seventies onwards a new field of research arose alongside traditional organizational sociology. This development was primarily concerned with distinctive types of organizations and their dynamic relationship to the "environment". The scholars involved concerned themselves with the dynamics of large groups of organizations of a certain type ("populations").[4] Prominent representatives of this new genre were Howard Aldrich, Glenn Carroll, Nancy Tuma and, especially, the authors of *Organizational Ecology*, Michael T. Hannan and John Freeman.

This development is potentially important for social historians because "organization ecology" has regularly concerned itself with subjects related to US-American labour history.[5] This interest has arisen not so much out of any special sympathy for the labour movement as out of technical considerations encountered in the course of research. The authors of the book being reviewed here, for example, regard trade unions as organizations which may become "sociological dinosaurs" [153]. Indeed, in order to explore the analytical potential of their approach Hannan and Freeman needed to compare organizations of a non-profit seeking nature with capitalist firms.

Before taking a closer look at the question of whether organizational ecology can contribute any insights into the history of the labour movement, we need to consider the theoretical model developed by the authors. Their compact work, partially presented in a mathematical form, explores many aspects of organizational development and considers not just trade unions but other organizations (semiconductor firms, newspaper concerns, restaurants) as well. We shall consider here only those elements of their theory which are of special significance for labour historians.

Francisco, 1980), p. 3.

[4] Surveys of this "organizational ecology" are given in Glenn R. Carroll, "Organizational Ecology", *Annual Review of Sociology*, 10 (1984), pp. 71–93, and in Douglas R. Wholey and Jack W. Brittain, "Organizational Ecology: Findings and Implications", *Academy of Management Review*, 11 (1986), pp. 513–533.

[5] John Freeman and Jack Brittain, "Union Merger Processes and Industrial Environments", *Industrial Relations*, 16 (1977), pp. 173–185; John Freeman, Glenn R. Carroll and Michael T. Hannan, "The Liability of Newness: Age Dependence in Organizational Death Rates", *American Sociological Review*, 48 (1983), pp. 692–710; Nancy Langton, "Mortality of Unions in the Service Sector" (Ph.D., Stanford University, 1984); Michael T. Hannan en John Freeman, "The Ecology of Organizational Founding: American Labor Unions, 1835–1985", *American Journal of Sociology*, 92 (1987), pp. 910–943; Michael T. Hannan and John Freeman, "The Ecology of Organizational Mortality: American Labor Unions, 1836–1985", *American Journal of Sociology*, 94 (1988), pp. 25–52; Michael T. Hannan, "Age Dependence in the Mortality of National Labor Unions: Comparisons of Parametric Models", *Journal of Mathematical Sociology*, 14 (1988), pp. 1–30; Glenn R. Carroll and Yangchung Paul Huo, "Organizational and Electoral Paradoxes of the Knights of Labor", in Glenn R. Carroll (ed.), *Ecological Models of Organizations* (Cambridge, MA, 1988), pp. 175–193.

Biological population ecology studies the way in which specific populations (species) are born, create a balance with their environment, and die through changes in the population itself or its environment. The basic hypotheses of such an analysis are, according to Hannan and Freeman, also appropriate for studying organizations, provided these are "subject to strong inertial pressures and face changeable, uncertain environments" [13]. Under such circumstances it so happens that there are many similarities between biological and organizational processes.

Hannan and Freeman's first proposition is that organizations are not as flexible and adaptive as traditional sociology often claims, but on the contrary subject to strong inertial pressures. In this they follow Stinchcombe. He argued in a seminal article published in 1965 that organizations maintain the "imprint" of the period in which they were founded: even many years after their birth it is possible to discover in their structure essential characteristics of that period which would probably not be present if they had been founded at an earlier or later date. In the case of the British Labour Party, for example, the fact that conference decisions are effectively decided by the union block vote and that the represented interests are those of the trade unions can be deduced from the fact that the Labour Party was set up *after* the trade unions had become strong.[6]

Hannan and Freeman explain that this rigidity is due to the fact that the environment rewards relative inertia, because of three narrowly related reasons. First, organizations working in a routine fashion are generally more reliable than continually changing and experimenting organizations. Second, the members of organizations prefer to work with an accountable structure which can document how resources have been used and how decisions, rules and actions produced particular outcomes.

> "This does not necessarily mean that organizations must tell the truth to their members and to the public about how resources were used or how some debacle came about; what matters is that organizations produce internally consistent accounts indicating that appropriate rules and procedures existed to produce rational allocations of resources and appropriate organizational actions" [73].

Third, in order to be reliable and accountable organizations must continually reproduce their structure. Naturally this can be done by continually repeated negotiations and decision making:

> "the members of an organization [. . .] might happen to decide each day to recreate the structure that existed the previous day. But this seems unlikely.

[6] Arthur L. Stinchcombe, "Social Structure and Organizations", in James G. March (ed.), *Handbook of Organizations* (4th ed., Chicago, 1972), pp. 153–168.

> In general, organizations attain reproducibility of structure through processes of institutionalization and by creating highly standardized routines" [75].[7]

In view of the fact that types of organization change relatively slowly (relative in comparison with the environment) the *collective* development of a population may be considered using models taken from biological ecology. At the level of the population it is not the vicissitudes of the "individuals" (the separate organizations) that is important, but the development of the total number of representatives of a species (denoted by Hannan and Freeman as density). In studying the labour movement the authors of *Organizational Ecology* deliberately ignore the total number of union members in a society and the proportion of the labour force represented by union members. They are interested only in the *number* of unions, a variable which they consider to be interesting in its own right:

> "A society in which, say, all union members belong to a single union has a quite different structure from one in which the same number of members are organized into a thousand unions. For one thing, the average and maximum size differ greatly in the two cases; and size is associated with a great many dimensions of internal structure. For another, the totality of collective actions will obviously be more diverse in the second case than in the first." [130–131]

Obviously the "birth" and "death" rates are of crucial importance for the numerical evolution of a population. For this reason these two concepts comprise the key issues.

As far as the *formation rates* are concerned Hannan and Freeman defend the proposition that there is a non-monotonic relationship between the rate of formation and density: the number of "births" of new organizations rises initially and then falls with increasing density [202]. This is due to the effect of three contradictory factors. First, the construction of an organization demands a certain type of knowledge and know-how which can best be learned in similar organizations. As the number of organizations of a certain type increases so does the number of knowledgeable organization builders (as well as the extent of their informal network) [132]. This therefore results in a positive relationship between rate of formation and density.

[7] This does not exclude the possibility that organizations can perform different sets of activities, in parallel or sequentially. "[L]abor unions gear up for organizing drives or for waves of strikes and then return to more placid bread-and-butter collective bargaining. [. . .] Does this mean that these organizations have somehow escaped inertial tendencies? We think not [. . .]. These organizations have multiple routines; they shift from one routine (or set of routines) to another in a fairly mechanical fashion. We think that organizations have high inertia both in the sets of routines employed and in the set of rules used to switch between routines" [75–76].

Second, as the number of organizations of a certain type increases, a society adjusts to accommodate this kind of organization. The legitimacy (taken-for-grantedness) of the organization therefore grows and the cost of organizing is reduced. This too implies that there exists a positive relationship between density and formation. Third, however, as the number of organizations grows there is an increasing degree of saturation. In a given environment with its accompanying "space" (resources, markets) for a certain type of organization, the possibilities for a new organization to exist become more limited as the number of those organizations rises; competition therefore increases. Furthermore, there is an increasing degree of resistance to newcomers on the part of already existing organizations [131–132].

As far as *death rates* are concerned Hannan and Freeman suggest that density *and* age are important. "[T]here are two opposing processes by which density affects life chances: first, growth in numbers in organizational populations provides legitimacy and political power; second, increasing density exhausts limited supplies of resources for building and maintaining organizations and thereby increases both direct and diffuse competition." They hold that the first process dominates at low densities and the second process dominates at high densities [275, 136]. Furthermore, they again agree with Stinchcombe, who, in accordance with his hypothesis, has formulated the "general rule" that new organizations have a greater chance of failure than old ones. According to Stinchcombe four factors cause this "liability of newness":

> "(a) New organizations, especially new types of organizations, generally involve new roles, which have to be learned. In old organizations former occupants of roles can teach their successors, communicating not only skills but also decision criteria, responsibilities to various people who have relations to the role occupant, devices for smoothing over persistent sources of tension and conflict, generalized loyalty to the organization, what sort of things can go wrong with routine procedures, and so on. New organizations have to get by with generalized skills produced outside the organization, or have to invest in education [. . .].
> (b) The process of inventing new roles, the determination of their mutual relations, and of structuring the field of rewards and sanctions so as to get maximum performance, have high costs in time, worry, conflict, and temporary inefficiency. [. . .]
> (c) New organizations must rely heavily on social relations among strangers. This means that relations of trust are much more precarious in new than in old organizations [. . .].
> (d) One of the main resources of old organizations is a set of stable ties to those who use organizational services. [. . .] The stronger the ties between old organizations and the people they serve [. . .] the tougher the job of establishing a new organization."[8]

In Hannan and Freeman's terms, this could be translated into a hypothesis stating that the reproducibility of organizations rises with age. The result of this is a decline in mortality rates over time. Furthermore, new unions created through mergers have a greater chance of surviving than completely new organizations.

Hannan and Freeman test these (and other) assumptions by examining the case of US-American trade unions in the period 1836–1985. They recorded the history of 479 unions for this period and, using mathematical models, came among other things to the following conclusions:

1. The rate of formation rises with increasing density to a certain point and then declines with further increases in density.
2. There is "asymmetric competition" in the population of trade unions between craft unions and industrial unions: "The number of industrial unions has strong negative effects on the founding rate of craft unions, but the number of craft unions has no effect on the founding rate of industrial unions." [243]
3. The mortality rate decreases with growing density to a point and then rises with further increases in density.
4. There is no evidence that mortality rates were affected by "wars, immigration flows, strike waves, or size of the labor force"; but "the spread of mechanized factory production enhanced the life chances of labor unions" [288].
5. There is a clear liability of newness. "Existence of prior organization lowers the rate of disbanding. Unions that began by merging two or more existing organizations had the lowest rate of disbanding; those that seceded from an existing organization had the next lowest. And unions that started from scratch as national organizations had the highest disbanding rates" [256].

A number of critical comments may be made in assessing the strength of the arguments put forward in this book. First, it should be noted that the strong emphasis on the biological analogy made by Hannan and Freeman is deceptive. They use population ecology as a heuristic device; but the models with which they begin are modified to such an extent that in some cases their origin in population ecology can hardly be recognized. The biological vocabulary gives the impression that organizational ecology is an *application* of biological theory to human society, along with all the related evolutionary associations (higher forms, better fits, more efficiency) – associations, by the way, from which the authors quite rightly dissociate themselves.[9]

[8] Stinchcombe, "Social Structure and Organizations", pp. 148–150.
[9] Hannan and Freeman think, for instance, that "it is unwise to assume that selection

Second, Hannan and Freeman's approach – which is not the only one in organizational ecology[10] – is not always clear and consistent. Much criticism can be levelled at many aspects of their work. Concepts are not defined unambiguously (for example, what exactly is meant by "change of the environment"?) and their line of argument is sometimes vague, making "jumps" which are not logically derived. This means that the results of their research are not all necessarily reliable.[11]

Third, the relationship between the development of individual organizations and that of the "population" as a whole remains completely undebated. By concentrating *exclusively* on aggregate data Hannan and Freeman appear to have become the victims of a deterministic bias, according to which environmental constraints virtually exclude the possibility of organizations (members, leaders) making strategic choices. As a result not only the fact that the "environment" itself is nothing more than the aggregated outcome of "past choices and behaviors of many individuals, interest groups and organizations" is missed, but also that "environmental constraints need not eliminate strategic decisions, only influence the qualitative nature of the strategic decisions".[12] The statistical analysis of aggregate processes can therefore supplement, but not replace, the analysis of separate organizations. Both the aggregate and individual levels are important, for, as Bohm has commented (giving the example of insurance companies making use of statistical predictions of death),

> "the fact that statistical laws [. . .] are operating does not prevent the simultaneous operation of individual laws which determine in more detail the precise conditions of death of each policyholder (e.g., a man may cross a road at a particular time and be struck by a car, he may be exposed to disease germs while he is in a weak state, etc.), for when the same result (death) can be produced by a large number of essentially independent causes, there is no reason why these causes should not be distributed in just such a way as to lead to statistical laws in a large aggregate".[13]

If one takes these arguments into account, the shift to the "population" level could offer interesting possibilities in studying trade unions etc. By analysing the development of large numbers of organizations over a rela-

processes in organizational populations strongly favor efficiency" [37].

[10] For another interpretation see Howard E. Aldrich, *Organizations and Environments* (Englewood Cliffs, NJ, 1979).

[11] For an extensive, if not always reasonable, critique see Ruth C. Young, "Is Population Ecology a Useful Paradigm for the Study of Organizations?", *American Journal of Sociology*, 94 (1988), pp. 1–24.

[12] Andrew H. Van de Ven, "Organizations and Environments", *Administrative Science Quarterly*, 24 (1979), pp. 324–325.

[13] David Bohm, *Wholeness and the Implicate Order* (London, 1981), p. 68.

tively long period statistical patterns which would otherwise remain hidden at a less aggregated level may well be discerned.

Like many other pioneers of a particular scientific approach, Hannan and Freeman are inclined to present their own point of view as a panacea. This is why they explicitly contrast their "anti-heroic" analysis with Marxist theories which still regard organizations as "simple tools" used by actors [34]. But in fact an aggregate analysis can of course be reconciled with a materialist interpretation of organizations, provided the developments at the "population" level are not turned into an objectivist mystification, "removing much of the power, conflict, disruption, and social class variables from the analysis of social processes".[14] In that sense *Organizational Ecology* focuses attention on a possible new area of research for labour historians.

[14] Charles Perrow, *Complex Organizations. A Critical Essay* (2nd ed., Glenview, IL, 1979), p. 243.