

Institutions and networks

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The article compares and contrasts two types of social arrangement, the institution and the network, for the pursuit of science and scholarship. An institution is defined as a corporate group with a distinct boundary that exists or is presumed to exist in perpetuity, whereas a network is seen as an ego-focused or ego-centred arrangement that ceases to exist with the decease of the individual at its centre. As the institutions of science and scholarship, most notably the universities, come under various kinds of social and political pressure, more and more scholars and scientists begin to use networks in the pursuit of their objectives.

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Types of social arrangement

I WOULD like to discuss here two types of social arrangement which may be described as institutions and networks. The contrast between the two and their interface have figured widely – explicitly or implicitly – in social enquiry and analysis across many different domains from kinship studies to studies of economic transactions. Here my focus will be on arrangements for the pursuit of science and scholarship, with special reference to the social sciences.

A major problem with contrasting institutions and networks is that they co-exist and are interwoven with each other in every human society. Although institutions have been studied extensively, they have not always been studied under that name. Many of the best insights into their nature and operation have come from the study of particular institutions such as the state, the church or the family. Such studies do not always ask what constitutes an institution, or what different institutions have in common with each other, or what makes institutions different from other social arrangements. Institutions as well as networks have been analysed by specialists in various disciplines such as political theory, jurisprudence, history, economics, sociology and social anthropology, and there is little uniformity in the use of terms across them.

In the sociological literature we encounter two somewhat different conceptions of the institution: they are different, but closely related. The first is the conception of the institution as an enduring group, a kind of corporation with a definite identity. Here we see it as a system of roles and relations set in a particular social framework. In this sense we may speak of the school, the temple or the court of law as an institution. But sociologists and social anthropologists speak not only of the school but also of

education as an institution; not only of the temple (or the church), but also of a cycle of rites, whether in the temple or the home, as an institution; and not only of the court of law, but also of the judicial process as an institution. Thus in the sociological conception, a pattern of activities is also an institution, provided it is recurrent, legitimate and meaningful¹.

In what follows I shall treat institutions as systems of enduring groups rather than as patterns of recurrent activities, because it is the former conception that brings out most vividly the contrast between institutions and networks. But one thing should be clear: whichever conception one favours, the deeper contrast between institutions and individuals remains. An institution has in general a different lifespan from the lifespan of the individual. Every individual goes through a process of birth, maturity and death. Institutions too develop over time, but the two cycles of development can be easily distinguished from each other, since an institution often survives without significant change in the passage of individuals through it.

The sociologist Erving Goffman² popularized the idea of ‘total institution’, of which the boarding school is a good example. It carries to an extreme point the morphological outline and identity of the institution viewed as a system of roles and relationships. It maintains clear physical and social boundaries by which it is insulated from the outside world. Anyone who has lived in a boarding school will remember that its physical spaces are assigned social values and that many of these are ‘out of bounds’ to some, if not most, of its members. The regulation of space is matched by the regulation of time according to which daily, weekly and annual cycles of activities are maintained^{3,4}.

Not all institutions, not even all educational institutions, have such clearly defined physical or social boundaries. The ‘total institutions’ to which Goffman (and Foucault) have given prominence are extreme, not to say pathological cases, and the definition of institutions as

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'organizations which *contain* people as in the case of hospitals, prisons, mental hospitals, homes for the mentally handicapped and the like'⁵ is tendentious. At the same time, having a definite physical location contributes a great deal to the identity of the institution, whether a family, a temple, a monastery, a college or a court of justice.

Institutions in the sense of corporate groups are presumed to exist in perpetuity. If we take a long historical view of institutions, we will find that this is not always, or even generally, the case, that they too are subject to growth, decay and even decease, but the presumption of perpetual existence is of considerable symbolic as well as material significance. Many institutions celebrate their anniversaries and jubilees, and when an institution is able to celebrate its centenary or even its bicentenary, the presumption of perpetual existence is reinforced.

A network, by contrast, is an individual- or ego-centred social arrangement. Each individual has his or her own network of social ties which expands or contracts with his or her passage through life. Unlike the corporate group which is presumed to exist in perpetuity, the network ceases to exist with the decease of the individual who is at its centre. Networks of interpersonal relations play an important part in the linkage of different institutions with each other. Even the most closely-bounded institutions provide room for individuals to interact across their boundaries. Trade and commerce create linkages between individuals belonging to far-flung groups, and in some societies matrimonial alliances are associated with extensive networks of interpersonal relations.

Since the network is an individual-centred arrangement, in theory at least there can be as many networks in a society as there are individual members of it. In practice there are both social and psychological constraints that act against the indefinite extension of an individual's network. Some societies allow greater latitude than others to individuals to construct networks of their choice, according to their own interest or inclination, but in no society is the scope of individual initiative in these matters unlimited.

Networks of interpersonal relations not only stretch across the boundaries of well-defined groups, but they are also found within those boundaries. Human groups have formal as well as informal structures⁶. Anyone who has observed the extended family in India will know that there are informal arrangements within it, whose mode of operation is often at variance with, and sometimes contrary to, the institutional structure of the family. Such networks of interpersonal relations are a common feature of every human society and co-exist with the institutionalized structure of roles and relationships. They may acquire great salience in certain spheres of activity, but they can scarcely operate effectively without the support of the established and acknowledged institutional structure.

Centres of learning

The growth of knowledge has played an important part in the advance of human society. But the movement of knowledge is a disorderly movement. There have been for a long time small, and often dispersed, centres such as monasteries, seminaries and colleges where individuals gathered together for the cultivation and dissemination of knowledge. In medieval times, itinerant mendicants and preachers played a part in this process. Sometimes colleges grew up and became established, as at Paris, Oxford, Cambridge and Cairo, but their scale of operation was limited, and the pace at which knowledge grew in them was slow. The aim of preserving traditional knowledge took precedence over that of creating new knowledge. Some knowledge, perhaps a large part of it, also grew outside the confines of institutions specifically established for the creation and transmission of knowledge.

This began to change from the beginning of the 19th century onwards. Science and scholarship came to be organized in a different way and on a different scale, and they grew at a rapidly accelerating pace. The old universities were reorganized and new ones were established throughout the world. By the beginning of the 20th century, the establishment of universities had become an objective of state policy in most countries, and their expansion continued apace all through that century. This expansion was propelled not only by academic considerations, but also by the political demand to make science and scholarship accessible to all members of the society.

It is important to understand the twofold nature of the modern university as it came to be by the middle of the last century, as a centre of learning and as a social institution. New knowledge began to grow in the 19th century and to spread rapidly from one country to another. The growth of new knowledge was driven in part by the economic, political and social changes brought about by the industrial revolution, the democratic revolution and the exploration of the world. New branches of learning began to emerge, and specialized disciplines began to differentiate themselves from the broad umbrellas of natural and moral philosophy. By the end of the 19th century, the universities had begun to play an important part in the formation and promotion of the various academic disciplines, first in Europe and America and then, in the course of the 20th century, also in other parts of the world.

It tends to be forgotten that much of the intellectual ferment of the time was taking place outside the universities, which were often moribund and intellectually unexciting. In the 18th century, neither Henry Cavendish at Cambridge nor Edward Gibbon at Oxford found the universities to be particularly congenial places for serious study. They worked on their own, using their own resources. Cavendish no doubt had inherited a fortune, but it was not uncommon for a person with serious intel-

lectual ambitions to seek out a wealthy patron and secure financial support for his work from him.

Pursuing an intellectual career outside the university continued into the 19th century, particularly in the humanities and social sciences. Many of those who in the 19th century laid the foundations for what became established academic disciplines in the 20th century, had had their own intellectual formations outside the universities. Notable examples would be David Ricardo, John Stuart Mill and Herbert Spencer. It is true that Karl Marx had acquired a sound intellectual formation in the University of Berlin, in his time far ahead of other universities in the world, but had little to do with any university after he ceased to be a student. It is astonishing how much intellectual work he could do without any institutional support, other than what was available at the British Museum.

Such major intellectual disciplines as sociology, anthropology, demography, social statistics and even economics and political science as we know them today, had their origins outside the universities, which then came to adopt them in the course of time. Like-minded scholars developed networks of interpersonal relations and formed associations devoted to the promotion of particular branches of study. With the expansion of science and scholarship, specialization became inevitable. New disciplines and new professions grew hand in hand. Professional associations and learned societies organized periodical meetings and conferences, and published journals for a readership that was becoming increasingly specialized.

The 19th century saw the gradual displacement of the amateur by the professional in the fields of science and scholarship. Writing at the end of that century, Émile Durkheim⁷ observed, 'The time lies far behind us when philosophy constituted the sole science. It has become fragmented into a host of special disciplines, each having its purpose, method and ethos', and further, 'the functions of the scientist which formerly were almost always exercised alongside another more lucrative one, such as that of doctor, priest, magistrate or soldier, are increasingly sufficient by themselves'. Later, from his own important position as the first professor of sociology at the University of Paris, Durkheim sought to define the boundaries of the discipline so that he could act as a kind of gatekeeper for entry into the profession. By then sociology had begun to make a home for itself within the university.

The universities took time to reorganize themselves to cope with the onrush of new intellectual developments. Britain, France and Germany followed different trajectories, but by the beginning of the 20th century, their universities had all undergone significant transformation as both centres of learning and social institutions. The first step in the creation of a new type of university was taken with the foundation in 1812 of the University of Berlin now known, after its main architect, as the Humboldt

University. The Humboldt University provided the blueprint for a new type of university based on the principle of 'the unity of teaching and research'. This blueprint influenced the design of many universities and was carried over into the United States with the foundation in 1875 of the Johns Hopkins University, now recognized as the first research university in the New World. Today the research university has acquired its most successful form in the United States at Harvard, Stanford, Chicago and elsewhere.

England adopted a more gradual path of change. Its two old universities, Oxford and Cambridge, which had held the field between them for some six hundred years, underwent a process of reform. Throughout the 19th century new universities were created in the larger cities such as London, Manchester, Leeds, Liverpool and Bristol, as well as in other countries in the British empire, including Canada, Australia and India. The new universities placed great emphasis on the examination system as a way of ensuring that their graduates had reached a certain academic standard.

France had embarked on a somewhat different course. Instead of trying to reform the existing universities, Napoleon sought to promote a set of new institutions which came to be known as the *grandes écoles* or the great schools. The *grandes écoles* are small and compact institutions with demanding standards of scholastic achievement. They were designed to be meritocratic institutions where admission is by open national competition. In some respects they are more like our IITs than the standard universities which are expected to cover all branches of study in the sciences and the humanities. Advancement through open competition introduced a new way of linking together careers in education and employment in accordance with Napoleon's idea of 'careers open to talent'.

The expansion of the universities since the middle of the 19th century took place in part in response to the expansion of knowledge in the society as a whole. Once they were set up, the universities themselves took the initiative in exploring and promoting new areas of enquiry and analysis. The motto of the University of Calcutta, established in 1857 is 'Advancement of Learning'. The universities provided unprecedented scope for opening up new branches of study through collective, and not simply individual effort that could be pursued methodically and systematically.

The shift in emphasis from introspection and speculation to empirical investigation altered the character of the universities. The change in focus and orientation, and, hence, in habits of work first became manifest in the experimental sciences, and the term 'natural science' displaced the older 'natural philosophy'. By the beginning of the 20th century, the university had become the ideal setting for the kind of investigation that the scientists were conducting in association with their students,

assistants and colleagues. The pressure to expand the scale of work and to specialize began to come increasingly from within the institution.

As the life and work of Durkheim demonstrate, the university offered an ideal setting also for work in the social sciences. It was in such a setting, first at Bordeaux and then at Paris, that Durkheim built up a team of able and dedicated scholars, which came to be named after the *Année sociologique*, the scientific periodical that he established to act as a vehicle for publication of the new kind of research that he had initiated. Durkheim strongly advocated the view that scientific activity had to be specialized, collective and organized in accordance with a plan. He maintained that specialization in science, as in society itself, contributed to the benefit of the whole, provided there was a proper institutional setting for the coordination of tasks that were becoming increasingly, and perhaps inevitably, differentiated. He had created such a setting for himself in the University of Paris⁸ between 1902 and 1917.

The new disciplines, whether in the natural or the social sciences, acquired an increasingly secular cast. Theology is still taught in some contemporary universities, but it is not regarded as a modern subject in the sense in which astrophysics or plant genetics, or even sociology is. In most countries outside the Islamic world, its presence in the university is at best tolerated, and it long ceased to have the pride of place it once held in the universities of Paris and Oxford. The universities may have started as places of religious learning, but in most parts of the world today they serve as places of secular study and research. This change in the focus of learning could not have come about without some change in the organization of the university as a social institution.

The modern university

The 19th century saw the transformation of the university into a secular institution. In the older universities, such as Oxford and Cambridge, which were started on strong religious foundations, this transformation was often a slow and tortuous process. The situation is somewhat different for those that were established after the middle of the 19th century, which is the case with the vast majority of universities in the contemporary world. When the first universities in modern India were established at Calcutta, Bombay and Madras in 1857, it was taken for granted that they would be secular institutions and not religious foundations. They did not have to carry with them the kind of baggage that the universities set up in an earlier age had to carry into the modern world.

The modern university is a secular institution to the extent that its activities are not regulated by religious rules or religious authorities. This means that a scientist in a modern university does not have to fear incurring the

censure of any religious authority in designing or conducting his experiments. It was very different in Cambridge in the 17th and 18th centuries. Accounts of Newton's life in Trinity College reveal that he performed his experiments and kept his notes in utmost secrecy for fear of falling foul of the Church of England, which maintained a strict control over his college⁹. The same Trinity College has recently had a reformed Hindu as its Master.

The transformation of the university into a secular institution had long-term consequences for its social composition and character. So long as religion was the major focus of thought and action in it, there was reason to confine its membership to a single faith or denomination. In a Christian or a Muslim university, there could be little place for either teachers or students professing any faith other than the established one. Well into the middle of the 19th century, Oxford and Cambridge required adherence not only to the Christian faith generally, but specifically to the 39 articles of the Church of England. Such a requirement will appear anachronistic in an institution devoted to the pursuit of secular science and scholarship.

The modern university is not only mixed in the composition of its membership, but diversity in both intellectual standpoint and social background now tends to be actively pursued in it as a value. In that sense it is both a secular and an open institution. The opening of the universities to all sections of society created vast opportunities for social and economic advancement through higher education. As they opened their doors to all sections of society, more and more demands began to be made on them to contribute to the promotion of equality not only in principle, but also in practice.

The admission of women has transformed the character of the university, directly as a social institution and indirectly as a centre of learning. Until virtually the end of the 19th century, the universities were male-dominated institutions. The traditional universities, with their close involvement in religious ideas and practices were not designed to accommodate both men and women. The gradual incorporation of women undermined from within the cloistered character of the university and made its boundaries with the outside world more porous.

Till the middle of the 19th century the universities remained largely insulated from the wider society. They were meant to be hierarchical and not democratic institutions. With the advance of democracy in the 20th century, the hierarchical model became increasingly anachronistic. The older universities in the Western countries took time to dismantle the structures of hierarchy carried over from the past, and their traces can still be seen in many of them. But it is one thing to dismantle obsolete structures of hierarchy, and quite another to install new structures based on equality in their place.

Expanding the scope for equality of opportunity became a major concern of universities in the 20th century.

The idea of equality of opportunity itself began to undergo change. At the beginning of the 19th century, the meritocratic principle appeared as a regenerative principle and many looked forward to a new social order based on Napoleon's vision of 'careers open to talent'. But by the middle of the 20th century, John Rawls¹⁰ was pointing his finger at the flaws inherent in a 'callous meritocratic society'.

What is equality of opportunity? Tawney¹¹ had already observed in a much acclaimed book, 'In reality, of course, except in a sense which is purely formal, equality of opportunity is not simply a matter of legal equality. Its existence depends, not merely on the absence of disabilities, but on the presence of abilities'. The universities became increasingly engaged in the creation of those abilities without which, according to some, equality of opportunity would remain largely a legal fiction. Pressures to undertake their creation came both from outside, particularly the Government, and from within, among politically engaged students and professors. However, the passage from 'formal' to 'fair' equality of opportunity was full of unforeseen snares and pitfalls.

In what came to be known in the wake of decolonization as the 'developing' or 'less developed' countries, creating new universities and expanding existing ones became a part of the policy for all-round development. As such, the universities became directly accountable to the political establishment, including both Government and Opposition, and only indirectly to the public. The political establishment in a developing country is concerned primarily with what the universities can contribute to economic development and social equity. The maintenance and advancement of standards in teaching and research are lesser concerns. If the universities are producing more graduates from every community and class, one does not have to look too closely at how those degrees are secured and what kind of learning they are based on.

The political pressure to become socially more inclusive has led many universities to expand recklessly beyond their capacity to function effectively as centres of learning. Libraries and laboratories have languished, while student admissions and faculty appointments have grown steadily. The regularity and routine of teaching and research are disregarded. Examinations are not conducted on time and the declaration of examination results is fraught with tension. Strikes, rallies and demonstrations erupt with unflinching regularity. Unions of students, teachers and other staff make demands that are at first ignored and then conceded under pressure. Postgraduate students are frequently absent from class and research scholars use the facilities of the university, such as its libraries, canteens and hostels to pursue their interest outside the university. Senior teachers use their appointments as sources of rental income.

Those who are responsible for the management of university affairs today – vice-chancellors, rectors, deans

and others – know very well that they have to sail in troubled waters. Their typical response is to create a battery of rules – statutes, ordinances and regulations – which are ineffectual and at the same time obstructive. Many scientists and scholars have begun to feel that the mounting social and political pressures on the university have fatally undermined the possibility of sustained academic work in it. Much of what happens in the university today appears to them to be not only without legitimacy, but also without meaning.

Pressures on universities

It is generally agreed that the best universities today are to be found in the US, which has outstanding private ones such as Harvard, Stanford and Chicago, as well as good public ones such as the University of California at Berkeley and the University of Michigan at Ann Arbor. Yet at a roundtable on 'Universities of the 21st century' held in the University of Chicago in 1991 and attended by luminaries from the best American universities, the mood was elegiac rather than euphoric¹². The participants spoke about the contradictory aims and tendencies of the university, the erosion of morale in it, and the decline of academic citizenship indicated by the reluctance of its most distinguished members to take responsibility for their institution.

The modern university has evolved continuously during the last two hundred years, and that evolution has not come to an end and is not likely to come to an end in the foreseeable future. Universities have grown not only in number, but also in variety. The University Grants Commission (UGC) publishes a list of what it calls 'university institutions'. It includes, in addition to the universities proper, what are called 'deemed to be universities' and 'institutes of national importance'. Whereas until recently these institutions were all under the care of the Central and the State Governments, there are now private universities recognized as such by the UGC.

IIT Delhi differs in many ways from the Jawaharlal Nehru University, which is its neighbour. Yet they are both institutions established with broadly the same objectives. It is true that some of them are more orderly, cohesive and purposeful than others. But they all have to work under constraints that have begun to appear burdensome to their members. One has only to spend a couple of days at an IIT to be told by both teachers and students of the plethora of rules that appear to be meaningless, obstructive and perverse, and can lead only to confusion and disorder and a decline in the commitment to the institution.

Not everyone enters an academic institution, even a premier one, from a strong commitment to the objectives of science and scholarship. But what about those – and there are many – who are genuinely committed to the vocation of science and scholarship, but find existing academic

institutions uncongenial because they have become at the same time inflexible and disorderly?

Today the pursuit of science and scholarship cannot be taken very far by the single individual through his own unaided effort. But he does not have to commit himself fully or even mainly to an institution with well-defined boundaries and rules of membership in order to pursue his work. The institution in the sense that I have given to the term here, is not the only kind of social arrangement available to the individual for the pursuit of science and scholarship. He or she can pursue his or her objectives also through networks of interpersonal relations that cut across various institutions and disregard the boundaries between them. Networks have the advantage over institutions in being flexible and free from the kind of disorder and turmoil that have come to prevail increasingly in academic institutions.

Networks of interpersonal relations

It is my surmise that individual scholars are making increasing use of networks of various kinds. Many persons now find networks better adapted to the demands of a rapidly changing world than institutions whose adaptive capacities are constricted by bureaucratic and political pressures. Networks provide greater flexibility to individuals, but they also demand greater individual initiative. In the university some individuals are more adept at 'networking' than others. The more adept are viewed by the less adept with a mixture of envy and scorn.

At no time was academic life confined entirely within the boundaries of the institution responsible for its care and advancement. The metaphor of the 'container' used in the context of the total institution is misleading even for the medieval university, not to speak of the modern one. The 20th century university was a liberal rather than a cloistered institution. As the universities expanded the scope and scale of their activities, linkages with other institutions became indispensable. Some of these linkages, for instance, representation of external members on boards and committees or appointment of external examiners are required by the rules of the institution itself. Linkages established to meet institutional requirements provide opportunities to individuals with initiative to construct their own networks independently of the requirements of their institutions.

The proliferation of networks and their increasing use for the pursuit of science and scholarship are the outcome of various factors. I have already referred to the atrophy of innovative academic activity in many universities that is leading individuals to look for alternatives outside and across established institutions. Their search for alternatives has received an enormous stimulus from new developments in technology, particularly the technology of information and communication. The individual can now

access vast, almost unlimited quantities of information on his own, and communicate with other individuals across the world.

The internet provides opportunities for networking that would be beyond the imagination of even the most enterprising academic fifty to sixty years ago, when the worldwide expansion of university institutions began to gather momentum. Today it is possible to write a paper, submit it for publication and read it on-line in published form without leaving one's home. Telephonic communication has become so inexpensive that one can easily double check on the progress of one's publication by asking the persons concerned in a different city or even a different country. The laptop and the mobile phone have become indispensable tools for many persons in professional life, and they travel with the person wherever he goes.

The internet is a relatively recent invention, and its extensive use even more recent. Its invention goes back to the mid-1970s, but it was not until the last decade of the 20th century that its use became widespread. At first it drove a wedge in the university between those who became adept at its use and those who had to struggle to understand what it portended. This was largely a matter of generation and age. By the beginning of the present century school children were familiar with its use, while professors who had retired or were about to retire were left stranded. Soon there will be very few dinosaurs left in the academic profession without the basic skills required for using the internet.

These developments have led to changes in the work habits of academics and other professionals and in the social organization of their work. For those who are academically active and wish to remain connected with their profession, retirement does not entail the kind of break in one's activities that it generally did in the past. Until a decade or so ago, retirement from the service of the institution generally meant withdrawal from active professional work. Only a fortunate few who had achieved great success or renown were allowed to retain the privileges of institutional membership. Today, there are many more possibilities for the superannuated professor to remain professionally connected.

It may well be the case that women are even more at ease than men in operating through networks of interpersonal relations. It certainly gives them greater freedom and flexibility in combining the two roles of women, at home and at work¹³. Wherever academic work requires confinement for long periods of time in an institution away from home, women are at a disadvantage. That disadvantage is substantially reduced where they have more freedom in constructing their own networks for pursuing their work in a socially meaningful way and in settings whose choice is at least partly in their hands.

Universities and other academic institutions were designed mainly for men, and not for women and men

equally: when Napoleon spoke of 'careers open to talent', he did not think of women as aspirants for those careers. Women were hardly present in university institutions till the end of the 19th century. Thereafter, they came into them slowly and gradually, and not without having to face resistance of many different kinds. It is perhaps no accident that their increasing participation in academic activities has come at a time when those activities are being organized differently, with an enhanced role for networks, and perhaps a reduced one for institutions.

Those who are academically active today invest an increasing amount of time and energy in the organization and conduct of seminars, workshops and conferences. These would not be successful without some financial and administrative support from one or another institution. But their real success comes from the ability to make use of networks extending far and wide across institutions. Such occasions or events provide opportunities to extend existing networks and create new ones. The time and energy available to each individual is finite, and the more actively one is engaged in extra-institutional activities, the more the obligations of academic citizenship owed specifically to one's own institution are likely to be neglected. Whether the cause of science and scholarship as a whole is advanced better by steadfast loyalty to those obligations or by operating through extensive and flexible networks of interpersonal relations is a separate question that cannot be addressed here.

Apart from access to the internet which is now available to the academic in even the most remote university with very limited material resources, travel, including international travel, has become easier. Even in India there are now many more high-flying academics who live out of their suitcases than there were fifty years ago. Not all academic travel justifies its costs, but travel to far flung places to participate in academic gatherings does enable individuals to establish or renew contacts with persons working on new and unfamiliar topics in their discipline or in an adjacent one.

In the 1950s and 1960s, organizing a seminar or a conference was generally the prerogative of the head of a department or institution. He might know little about the topic of the seminar or conference, but without his authorization and guiding presence, little could be done. Today, an academic in even a junior position can organize or at least participate in many such gatherings at many different places, if he has the drive and initiative to establish, maintain and extend his contacts, either through face-to-face interaction or through the internet.

Interaction through conferences, seminars and workshops at various locations affects the volume and form of academic publication. Here I may speak from personal experience only about the social sciences. Fifty years ago one wrote less and took more time to write it. The paper had to be typed, usually by someone else and then presented at one or two seminars before submission for pub-

lication. Today, a young scholar types the paper into his personal computer and, with the click of a few buttons, circulates it to as many persons across the world as he chooses. Networking is an important aid to the publication of what one produces.

My impression is that in disciplines such as sociology and social anthropology fewer monographs are now published than collections of papers that originate in conferences. At many conferences one finds displays of publications, including some by reputed publishers, outside the conference room. I have been struck by the number of conference volumes among the publications on display. Not all such volumes have a long shelf-life, but I am told that today, with the great advances achieved in the technology of book production, a publisher can break even and make a small profit with a print run of as few as 250 copies. The rapid expansion of networks among scientists and scholars enables science and scholarship to move a little faster.

The fiduciary element

I have in the foregoing contrasted institutions with networks, defining an institution as a corporate group with a distinct boundary that exists, or is presumed to exist, in perpetuity, and describing as a network an ego-focussed or ego-centred arrangement that ceases to exist with the decease of the individual at its centre. What I would now like to stress is that institutions and networks are both social facts, although they are not social facts of the same kind.

The interpersonal relations that constitute a network are social relations. As such, they are governed by rights and obligations that are socially defined and supported by sanctions that may be legal, customary or conventional. It is true that the individual has some freedom in deciding which network he will join and which one he will quit, but this freedom is not unlimited. An individual who is unmindful of his obligations to others, or, what is the other side of the same coin, makes too many demands on them, will find his network shrinking. Further, the individual has some choice also in entering one institution and leaving it for another. The institution may exist in perpetuity, but its individual members are, in one sense or another, transients.

The social aspects of inter-personal networks have been explored and examined from many angles by sociologists, social anthropologists and many others. One of the founders of modern sociology, Georg Simmel¹⁴ was struck by the significance of networks in social life, particularly as it operated in the modern city. But their existence or significance is by no means confined to the modern urban environment. Networks operate extensively in bands and tribes whose members live by hunting, gathering and rudimentary agriculture.

Anthropologists engaged in field studies of kinship and marriage in the simpler societies turned their attention to kinship networks in the 1940s. Starting with the study of enduring groups based on unilineal descent, they soon came to recognize the significance of the cross-cutting ties which linked distinct, and sometimes mutually hostile, descent groups with each other. The enormous significance of such cross-cutting ties was brought to light through the study of politics in stateless societies, such as the Nuer and the Tallensi in Africa¹⁵.

Meyer Fortes published two books on the Tallensi of Ghana, bringing out the significance of both corporate descent groups and networks of interpersonal relations. He was familiar with the work of Simmel, and called his second book *The Web of Kinship among the Tallensi*¹⁶. It is true that the formation of networks of kinship and marriage is not free from genealogical constraints. At the same time, genealogical proximity is only one of the factors by which the operation of such networks is governed.

Elizabeth Bott's study¹⁷ of family and social network was made in a very different setting in the city of London. She was interested in exploring networks of different kinds and their degrees of connectedness. Husband and wife may have more or less overlapping networks, or their networks may be distinct and separate. Bott's study found that this varied significantly according to social class. In the working class, husband and wife tended to have separate networks, whereas in the middle class their networks were interlinked to a greater extent. But the main difference is that in London ties outside the domain of kinship were far more important in the creation and maintenance of networks than in Ghana.

More recently, networks have received a great deal of attention from students of economic life under advanced capitalism, particularly in the US. There is a large and somewhat specialized literature dealing with the operation of networks in production, trade and finance. A major focus of attention is the manner in which networks are constructed and used in order to secure economic advantage in competitive markets. Today, networks are studied most actively in business schools and centres of management studies.

A turning point in the sociological study of networks was the work of Mark Granovetter¹⁸, acknowledged as one of the founders of the New Economic Sociology¹⁹. In a remarkable monograph based on a case study in the Boston area, Granovetter showed how individuals use contacts to further their careers. The study showed that in professional, technical and managerial occupations, individuals used personal contacts more frequently than formal means or direct application for securing employment. Such contacts originate in diverse sources: family, neighbourhood, school and office. Not unexpectedly, personal contacts are used more frequently for getting a job by older than by younger persons.

Granovetter's study throws doubt on the utility of a stark contrast between 'universalism' and 'particularism' in the classification of societies. The view that the use of particularistic ties is specific to traditional societies and disappears with the modernization of society is not borne out by the facts. The wheels of trade, commerce and finance would come to a halt if they were not greased by known, reliable and trustworthy personal contacts.

As a social arrangement, the ego-focussed network, no less than the institution with a corporate identity has a fiduciary component or a component of trust built into it. They both presuppose a universe of common values and a set of regulatory rules for their continued operation. This is readily seen in the case of the institution, but it is no less valid for the network. Interpersonal relations, with or without the envelop of an institution, cannot be sustained in the absence of trust between persons, and that, in turn, presupposes a universe of common moral values.

Networks and institutions exist in all human societies and they operate in a common medium of norms and values. It is a mistake to believe that individuals use networks only in the pursuit of self-interest, whereas in institutions they act primarily in the common interest. There are free riders in institutions just as there are individuals for whom networks are nothing but instruments for the reckless pursuit of personal gain.

Interpersonal relations do not operate solely through the adjustment of interests between individuals with which those individuals and they alone are concerned. The interests of the individual are not *sui generis*: they evolve in and through social interaction. Even if the individual creates his own network, he does not create it out of nothing or put it to work in a vacuum. All economic relations, including interpersonal relations in the most dynamic of financial markets, are socially embedded. The fiduciary component in such relations is often taken for granted and ignored until there is a crisis created by the breakdown of trust. As Gordon Brown, the Prime Minister of the United Kingdom pointed out at the height of the economic crisis of 2008–09, the words 'credit' and 'trust' have the same meaning, and no financial system can remain viable without them.

Institutions and networks are connected differently with each other in different domains of activity. Financial markets need banks which are institutions and without which networks, no matter how extensive their reach, cannot function. Likewise, networks among scholars and scientists require institutions such as universities and laboratories in order to do their work. Very few scientists or scholars, no matter how active they may be in creating and maintaining interpersonal networks, can operate without using the facilities available in the institutions of science and scholarship. I am not speaking now only of the benefits that secure employment in an institution provides, for the facilities available in an institution may be used also by those who are not employed in them or

GENERAL ARTICLES

enjoy full membership in them. At the same time, the degree of commitment to an institution may wax or wane among its members, and that in turn will depend upon the opportunities it is possible to create in the interstices between institutions.

Some say that the university is ceasing to be an institution since more and more of its members have begun to use it as a means only and not as an end in itself. To be an institution in the proper sense of the term, a university has to be something more than a mere convenience. People who disparage the university still need it if only because it is such a great convenience. Everywhere people say that the universities are in a crisis. But this does not mean that they will become fewer in number or smaller in size. In India they are much more likely to increase in number and variety, and become larger in size. But they will also provide more scope to their more enterprising members to bypass their daily demands and create innovative arrangements for pursuing their own academic and other interests.

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