

Learning Webs

In a previous chapter I discussed what is becoming a common complaint about schools, one that is reflected, for example, in the recent report of the Carnegie Commission: In school registered students submit to certified teachers in order to obtain certificates of their own; both are frustrated and both blame insufficient resources--money, time, or buildings--for their mutual frustration.

Such criticism leads many people to ask whether it is possible to conceive of a different style of learning. The same people, paradoxically, when pressed to specify how they acquired what they know and value, will readily admit that they learned it more often outside than inside school. Their knowledge of facts, their understanding of life and work came to them from friendship or love, while viewing TV, or while reading, from examples of peers or the challenge of a street encounter. Or they may have learned what they know through the apprenticeship ritual for admission to a street gang or the initiation to a hospital, newspaper city room, plumber's shop, or insurance office. The alternative to dependence on schools is not the use of public resources for some new device which "makes" people learn; rather it is the creation of a new style of educational relationship between man and his environment. To foster this style, attitudes toward growing up, the tools available for learning, and the quality and structure of daily life will have to change concurrently.

Attitudes are already changing. The proud dependence on

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school is gone. Consumer resistance increases in the knowledge industry. Many teachers and pupils, taxpayers and employers, economists and policemen would prefer not to depend any longer on schools. What prevents their frustration from shaping new institutions is a lack not only of imagination but frequently also of appropriate language and of enlightened self-interest. They cannot visualize either a deschooled society or educational institutions in a society which has disestablished school.

In this chapter I intend to show that the inverse of school is possible: that we can depend on self-motivated learning instead of employing teachers to bribe or compel the student to find the time and the will to learn; that we can provide the learner with new links to the world instead of continuing to funnel all educational programs through the teacher. I shall discuss some of the general characteristics which distinguish schooling from learning and outline four major categories of educational institutions which should appeal not only to many individuals but also to many existing interest groups.

An Objection: Who Can Be Served by Bridges to Nowhere?

We are used to considering schools as a variable, dependent on the political and economic structure. If we can change the style of political leadership, or promote the interests of one class or another, or switch from private to public ownership of the means of production, we assume the school system will change as well. The educational institutions I will propose, however, are meant to serve a society which does not now exist, although the current frustration with schools is itself potentially a major force to set in motion change toward new social arrangements. An obvious objection has been raised to this approach: Why channel energy to build bridges to nowhere, instead of marshaling it first to change not the schools but the political and economic system?

This objection, however, underestimates the fundamental political and economic nature of the school system itself, as well as the political potential inherent in any effective challenge to it.

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In a basic sense, schools have ceased to be dependent on the ideology professed by any government or market organization. Other basic institutions might differ from one country to another: family, party, church, or press. But everywhere the school system has the same structure, and everywhere its hidden curriculum has the same effect. Invariably, it shapes the consumer who values institutional commodities above the nonprofessional ministrations of a neighbor.

Everywhere the hidden curriculum of schooling initiates the citizen to the myth that bureaucracies guided by scientific knowledge are efficient and benevolent. Everywhere this same curriculum instills in the pupil the myth that increased production will provide a better life. And everywhere it develops the habit of self-defeating consumption of services and alienating production, the tolerance for institutional dependence, and the recognition of institutional rankings. The hidden curriculum of school does all this in spite of contrary efforts undertaken by teachers and no matter what ideology prevails.

In other words, schools are fundamentally alike in all countries, be they fascist, democratic or socialist, big or small, rich or poor. This identity of the school system forces us to recognize the profound world-wide identity of myth, mode of production, and method of social control, despite the great variety of mythologies in which the myth finds expression.

In view of this identity, it is illusory to claim that schools are, in any profound sense, dependent variables. This means that to hope for fundamental change in the school system as an effect of conventionally conceived social or economic change is also an illusion. Moreover, this illusion grants the school--the reproductive organ of a consumer society--almost unquestioned immunity.

It is at this point that the example of China becomes important. For three millennia, China protected higher learning through a total divorce between the process of learning and the privilege conferred by mandarin examinations. To become a world power and a modern nation-state, China had to adopt the international style of schooling. Only hindsight will allow us to

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discover if the Great Cultural Revolution will turn out to have been the first successful attempt at deschooling the institutions of society.

Even the piecemeal creation of new educational agencies which were the inverse of school would be an attack on the most sensitive link of a pervasive phenomenon, which is organized by the state in all countries. A political program which does not explicitly recognize the need for deschooling is not revolutionary; it is demagoguery calling for more of the same. Any major political program of the seventies should be evaluated by this measure: How clearly does it state the need for deschooling--and how clearly does it provide guidelines for the educational quality of the society for which it aims?

The struggle against domination by the world market and big-power politics might be beyond some poor communities or countries, but this weakness is an added reason for emphasizing the importance of liberating each society through a reversal of its educational structure, a change which is not beyond any society's means.

General Characteristics of New Formal Educational Institutions

A good educational system should have three purposes: it should provide all who want to learn with access to available resources at any time in their lives; empower all who want to share what they know to find those who want to learn it from them; and, finally, furnish all who want to present an issue to the public with the opportunity to make their challenge known. Such a system would require the application of constitutional guarantees to education. Learners should not be forced to submit to an obligatory curriculum, or to discrimination based on whether they possess a certificate or a diploma. Nor should the public be forced to support, through a regressive taxation, a huge professional apparatus of educators and buildings which in fact restricts the public's chances for learning to the services the profession is

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willing to put on the market. It should use modern technology to make free speech, free assembly, and a free press truly universal and, therefore, fully educational.

Schools are designed on the assumption that there is a secret to everything in life; that the quality of life depends on knowing that secret; that secrets can be known only in orderly successions; and that only teachers can properly reveal these secrets. An individual with a schooled mind conceives of the world as a pyramid of classified packages accessible only to those who carry the proper tags. New educational institutions would break apart this pyramid. Their purpose must be to facilitate access for the learner: to allow him to look into the windows of the control room or the parliament, if he cannot get in by the door. Moreover, such new institutions should be channels to which the learner would have access without credentials or pedigree--public spaces in which peers and elders outside his immediate horizon would become available.

I believe that no more than four--possibly even three--distinct "channels" or learning exchanges could

contain all the resources needed for real learning. The child grows up in a world of things, surrounded by people who serve as models for skills and values. He finds peers who challenge him to argue, to compete, to cooperate, and to understand; and if the child is lucky, he is exposed to confrontation or criticism by an experienced elder who really cares. Things, models, peers, and elders are four resources each of which requires a different type of arrangement to ensure that everybody has ample access to it.

I will use the words "opportunity web" for "network" to designate specific ways to provide access to each of four sets of resources. "Network" is often used, unfortunately, to designate the channels reserved to material selected by others for indoctrination, instruction, and entertainment. But it can also be used for the telephone or the postal service, which are primarily accessible to individuals who want to send messages to one another. I wish we had another word to designate such reticular structures for mutual access, a word less evocative of entrapment, less degraded by current usage and more suggestive of the fact that any such

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arrangement includes legal, organizational, and technical aspects. Not having found such a term, I will try to redeem the one which is available, using it as a synonym of "educational web."

What are needed are new networks, readily available to the public and designed to spread equal opportunity for learning and teaching.

To give an example: The same level of technology is used in TV and in tape recorders. All Latin-American countries now have introduced TV: in Bolivia the government has financed a TV station, which was built six years ago, and there are no more than seven thousand TV sets for four million citizens. The money now tied up in TV installations throughout Latin America could have provided every fifth adult with a tape recorder. In addition, the money would have sufficed to provide an almost unlimited library of prerecorded tapes, with outlets even in remote villages, as well as an ample supply of empty tapes.

This network of tape recorders, of course, would be radically different from the present network of TV. It would provide opportunity for free expression: literate and illiterate alike could record, preserve, disseminate, and repeat their opinions. The present investment in TV, instead, provides bureaucrats, whether politicians or educators, with the power to sprinkle the continent with institutionally produced programs which they-or their sponsors--decide are good for or in demand by the people.

Technology is available to develop either independence and learning or bureaucracy and teaching.

Four Networks

The planning of new educational institutions ought not to begin with the administrative goals of a principal or president, or with the teaching goals of a professional educator, or with the learning goals of any hypothetical class of people. It must not start with the question, "What should someone learn?" but with the

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question, "What kinds of things and people might learners want to be in contact with in order to learn?"

Someone who wants to learn knows that he needs both information and critical response to its use from somebody else. Information can be stored in things and in persons. In a good educational system access to things ought to be available at the sole bidding of the learner, while access to informants requires, in addition, others' consent. Criticism can also come from two directions: from peers or from elders, that is, from fellow learners whose immediate interests match mine, or from those who will grant me a share in their superior experience. Peers can be colleagues with whom to raise a question, companions for playful and enjoyable (or arduous) reading or walking, challengers at any type of game. Elders can be consultants on which skill to learn, which method to use, what company to seek at a given moment. They can be guides to the right questions to be raised among peers and to the deficiency of the answers they arrive at. Most of these resources are plentiful. But they are neither conventionally perceived as educational resources, nor is access to them for learning purposes easy, especially for the poor. We must conceive of new relational structures which are deliberately set up to facilitate access to these resources for the use of anybody who is motivated to seek them for his education. Administrative, technological, and especially legal arrangements are required to set up such web-like structures.

Educational resources are usually labeled according to educators' curricular goals. I propose to do the contrary, to label four different approaches which enable the student to gain access to any educational resource which may help him to define and achieve his own goals:

1. Reference Services to Educational Objects-which facilitate access to things or processes used for formal learning. Some of these things can be reserved for this purpose, stored in libraries, rental agencies, laboratories, and showrooms like museums and theaters; others can be in daily use in factories, airports, or on farms, but made available to students as apprentices or on off hours.

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2. Skill Exchanges--which permit persons to list their skills, the conditions under which they are willing to serve as models for others who want to learn these skills, and the addresses at which they can be reached.

3. Peer-Matching--a communications network which permits persons to describe the learning activity in which they wish to engage, in the hope of finding a partner for the inquiry.

4. Reference Services to Educators-at-Large--who can be listed in a directory giving the addresses and self-descriptions of professionals, paraprofessionals, and free-lancers, along with conditions of access to their services. Such educators, as we will see, could be chosen by polling or consulting their former clients.

Reference Services to Educational Objects

Things are basic resources for learning. The quality of the environment and the relationship of a person to it will determine how much he learns incidentally. Formal learning requires special access to ordinary things, on the one hand, or, on the other, easy and dependable access to special things made for educational purposes. An example of the former is the special right to operate or dismantle a machine in a garage. An example of the latter is the general right to use an abacus, a computer, a book, a botanical garden, or a machine withdrawn from production and placed at the full disposal of students.

At present, attention is focused on the disparity between rich and poor children in their access to things and in the manner in which they can learn from them. OEO and other agencies, following this approach, concentrate on equalizing chances, by trying to provide more educational equipment for the poor. A more radical point of departure would be to recognize that in the city rich and poor alike are artificially kept away from most of the things that surround them. Children born into the age of plastics and efficiency experts must penetrate two barriers which obstruct their understanding: one built into things and the other around institutions. Industrial design creates a world of things

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that resist insight into their nature, and schools shut the learner out of the world of things in their meaningful setting.

After a short visit to New York, a woman from a Mexican village told me she was impressed by the fact that stores sold only wares heavily made up with cosmetics." I understood her to mean that industrial products "speak" to their customers about their allurements and not about their nature. Industry has surrounded people with artifacts whose inner workings only specialists are allowed to understand. The nonspecialist is discouraged from figuring out what makes a watch tick, or a tele-phone ring, or an electric typewriter work, by being warned that it will break if he tries. He can be told what makes a transistor radio work, but he cannot find out for himself. This type of design tends to reinforce a noninventive society in which the experts find it progressively easier to hide behind their expertise and beyond evaluation.

The man-made environment has become as inscrutable as nature is for the primitive. At the same time, educational materials have been monopolized by school. Simple educational objects have been expensively packaged by the knowledge industry. They have become specialized tools for professional educators, and their cost has been inflated by forcing them to stimulate either environments or teachers.

The teacher is jealous of the textbook he defines as his professional implement. The student may come to hate the lab because he associates it with schoolwork. The administrator rationalizes his protective attitude toward the library as a defense of costly public equipment against those who would play with it rather than learn. In this atmosphere the student too often uses the map, the lab, the encyclopedia, or the microscope only at the rare moments when the curriculum tells him to do so. Even the great classics become part of "sophomore year" instead of marking a new turn in a person's life. School removes things from everyday use by labeling them educational tools.

If we are to deschool, both tendencies must be reversed. The general physical environment must be made accessible, and those physical learning resources which have been reduced to teaching

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instruments must become generally available for self-directed learning. Using things only as part of a curriculum can have an even worse effect than just removing them from the general environment. It can corrupt the attitudes of pupils.

Games are a case in point. I do not mean the "games" of the physical education department (such as football and basketball), which the schools use to raise income and prestige and in which they have made a substantial capital investment. As the athletes themselves are well aware, these enterprises, which take the form of warlike tournaments, have undermined the playfulness of sports and are used to reinforce the competitive nature of schools. Rather I have in mind the educational games which can provide a unique way to penetrate formal systems. Set theory, linguistics, propositional logic, geometry, physics, and even chemistry reveal themselves with little effort to certain persons who play these games. A friend of mine went to a Mexican market with a game called "Wff 'n Proof," which consists of some dice on which twelve logical symbols are imprinted. He showed children which two or three combinations constituted a well-formed sentence, and inductively within the first hour some onlookers also grasped the principle. Within a few hours of playfully conducting formal logical proofs, some children are capable of introducing others to the fundamental proofs of propositional logic. The others just walk away.

In fact, for some children such games are a special form of liberating education, since they heighten their awareness of the fact that formal systems are built on changeable axioms and that conceptual operations have a gamelike nature. They are also simple, cheap, and--to a large extent--can be organized by the players themselves. Used outside the curriculum such games provide an opportunity for identifying and developing unusual talent, while the school psychologist will often identify those who have such talent as in danger of becoming antisocial, sick, or unbalanced. Within school, when used in the form of tournaments, games are not only removed from the sphere of leisure; they often become tools used to translate playfulness into competition, a lack of abstract reasoning into a sign of inferiority. An

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exercise which is liberating for some character types becomes a straitjacket for others.

The control of school over educational equipment has still another effect. It increases enormously the cost of such cheap materials. Once their use is restricted to scheduled hours, professionals are paid to supervise their acquisition, storage, and use. Then students vent their anger against the school on the equipment, which must be purchased once again.

Paralleling the untouchability of teaching tools is the impenetrability of modern junk. In the thirties any self-respecting boy knew how to repair an automobile, but now car makers multiply wires and withhold manuals from everyone except specialized mechanics. In a former era an old radio contained enough coils and condensers to build a transmitter that would make all the neighborhood radios scream in feedback. Transistor radios are more portable, but nobody dares to take them apart. To change this in the highly industrialized countries will be immensely difficult; but at least in the Third World we must insist on built-in educational qualities.

To illustrate my point, let me present a model: By spending ten million dollars it would be possible to connect forty thousand hamlets in a country like Peru with a spiderweb of six-foot-wide trails and maintain these, and, in addition, provide the country with 200,000 three-wheeled mechanical donkeys--five on the average for each hamlet. Few poor countries of this size spend less than this yearly on cars and roads, both

of which are now restricted mainly to the rich and their employees, while poor people remain trapped in their villages. Each of these simple but durable little vehicles would cost \$125--half of which would pay for transmission and a six-horsepower motor. A "donkey" could make 15 mph, and it can carry loads of 850 pounds (that is, most things besides tree trunks and steel beams which are ordinarily moved).

The political appeal of such a transportation system to a peasantry is obvious. Equally obvious is the reason why those who hold power--and thereby automatically have a car--are not interested in spending money on trails and in clogging roads

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with engine-driven donkeys. The universal donkey could work only if a country's leaders were willing to impose a national speed limit of, say, twenty-five miles an hour and adapt its public institutions to this. The model could not work if conceived only as a stopgap.

This is not the place to elaborate on the political, social, economic, financial, and technical feasibility of this model. I wish only to indicate that educational considerations may be of prime importance when choosing such an alternative to capital-intensive transport. By raising the unit cost per donkey by some 20 percent it would become possible to plan the production of all its parts in such a manner that, as far as possible, each future owner would spend a month or two making and understanding his machine and would be able to repair it. With this additional cost it would also be possible to decentralize production into dispersed plants. The added benefits would result not only from including educational costs in the construction process. Even more significantly, a durable motor which practically anyone could learn to repair and which could be used as a plow and pump by somebody who understood it would provide much higher educational benefits than the inscrutable engines of the advanced countries.

Not only the junk but also the supposedly public places of the modern city have become impenetrable. In American society, children are excluded from most things and places on the grounds that they are private. But even in societies which have declared an end to private property children are kept away from the same places and things because they are considered the special domain of professionals and dangerous to the uninitiated. Since the last generation the railroad yard has become as inaccessible as the fire station. Yet with a little ingenuity it should not be difficult to provide for safety in such places. To deschool the artifacts of education will require making the artifacts and processes available--and recognizing their educational value. Certainly, some workers would find it inconvenient to be accessible to learners; but this inconvenience must be balanced against the educational gains.

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Private cars could be banned from Manhattan. Five years ago it was unthinkable. Now certain New York streets are closed off at odd hours, and this trend will probably continue. Indeed, most cross-streets should be closed to automotive traffic and parking should be forbidden everywhere. In a city opened up to people, teaching materials which are now locked up in store-rooms and laboratories could be dispersed into independently operated storefront depots which children and adults could visit without the danger of being run over.

If the goals of learning were no longer dominated by schools and schoolteachers, the market for learners

would be much more various and the definition of "educational artifacts" would be less restrictive. There could be tool shops, libraries, laboratories, and gaming rooms. Photo labs and offset presses would allow neighborhood newspapers to flourish. Some storefront learning centers could contain viewing booths for closed-circuit television, others could feature office equipment for use and for repair. The jukebox or the record player would be commonplace, with some specializing in classical music, others in international folk tunes, others in jazz. Film clubs would compete with each other and with commercial television. Museum outlets could be networks for circulating exhibits of works of art, both old and new, originals and reproductions, perhaps administered by the various metropolitan museums.

The professional personnel needed for this network would be much more like custodians, museum guides, or reference librarians than like teachers. From the corner biology store, they could refer their clients to the shell collection in the museum or indicate the next showing of biology videotapes in a certain viewing booth. They could furnish guides for pest control, diet, and other kinds of preventive medicine. They could refer those who needed advice to "elders" who could provide it.

Two distinct approaches can be taken to financing a network of "learning objects." A community could determine a maximum budget for this purpose and arrange for all parts of the network to be open to all visitors at reasonable hours. Or the community could decide to provide citizens with limited entitlements, ac-

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ording to their age group, which would give them special access to certain materials which are both costly and scarce, while leaving other, simpler materials available to everyone.

Finding resources for materials made specifically for education is only one--and perhaps the least costly--aspect of building an educational world. The money now spent on the sacred paraphernalia of the school ritual could be freed to provide all citizens with greater access to the real life of the city. Special tax incentives could be granted to those who employed children between the ages of eight and fourteen for a couple of hours each day if the conditions of employment were humane ones. We should return to the tradition of the bar mitzvah or confirmation. By this I mean we should first restrict, and later eliminate, the disenfranchisement of the young and permit a boy of twelve to become a man fully responsible for his participation in the life of the community. Many "school-age" people know more about their neighborhood than social workers or councilmen. Of course, they also ask more embarrassing questions and propose solutions which threaten the bureaucracy. They should be allowed to come of age so that they could put their knowledge and fact-finding ability to work in the service of a popular government.

Until recently the dangers of school were easily underestimated in comparison with the dangers of an apprenticeship in the police force, the fire department, or the entertainment industry. It was easy to justify schools at least as a means to protect youth. Often this argument no longer holds. I recently visited a Methodist church in Harlem occupied by a group of armed Young Lords in protest against the death of Julio Rodan, a Puerto Rican youth found hanged in his prison cell. I knew the leaders of the group, who had spent a semester in Cuernavaca. When I wondered why one of them, Juan, was not among them, I was told that he had "gone back on heroin and to the State University."

Planning, incentives, and legislation can be used to unlock the educational potential within our society's huge investment in plants and equipment. Full access to educational objects will not exist so long as business firms are allowed to combine the legal

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protections which the Bill of Rights reserves to the privacy of individuals with the economic power conferred upon them by their millions of customers and thousands of employees, stockholders, and suppliers. Much of the world's know-how and most of its productive processes and equipment are locked within the walls of business firms, away from their customers, employees, and stockholders, as well as from the general public, whose laws and facilities allow them to function. Money now spent on advertising in capitalist countries could be redirected toward education in and by General Electric, NBC-TV, or Budweiser beer. That is, the plants and offices should be reorganized so that their daily operations could be more accessible to the public in ways that would make learning possible; and, indeed, ways might be found to pay the companies for the learning people acquired from them.

An even more valuable body of scientific objects and data may be withheld from general access--and even from qualified scientists--under the guise of national security. Until recently science was the one forum which functioned like an anarchist's dream. Each man capable of doing research had more or less the same opportunity of access to its tools and to a hearing by the community of peers. Now bureaucratization and organization have placed much of science beyond public reach. Indeed, what used to be an international network of scientific information has been splintered into an arena of competing teams. The members as well as the artifacts of the scientific community have been locked into national and corporate programs oriented toward practical achievement, to the radical impoverishment of the men who support these nations and corporations.

In a world which is controlled and owned by nations and corporations, only limited access to educational objects will ever be possible. But increased access to those objects which can be shared for educational purposes may enlighten us enough to help us to break through these ultimate political barriers. Public schools transfer control over the educational uses of objects from private to professional hands. The institutional inversion of schools could empower the individual to reclaim the right to use

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them for education. A truly public kind of ownership might begin to emerge if private or corporate control over the educational aspect of "things" were brought to the vanishing point.

Skill Exchanges

A guitar teacher, unlike a guitar, can be neither classified in a museum nor owned by the public nor rented from an educational warehouse. Teachers of skills belong to a different class of resources from objects needed to learn a skill. This is not to say that they are indispensable in every case. I can rent not only a guitar but also taped guitar lessons and illustrated chord charts, and with these things I can teach myself to play the guitar. Indeed, this arrangement may have advantages--if the available tapes are better than the

available teachers, or if the only time I have for learning the guitar is late at night, or if the tunes I wish to play are unknown in my country, or if I am shy and prefer to fumble along in privacy.

Skill teachers must be listed and contacted through a different kind of channel from that of things. A thing is available at the bidding of the user--or could be--whereas a person formally becomes a skill resource only when he consents to do so, and he can also restrict time, place, and method as he chooses.

Skill teachers must be also distinguished from peers from whom one would learn. Peers who wish to pursue a common inquiry must start from common interests and abilities; they get together to exercise or improve a skill they share: basketball, dancing, constructing a camp site, or discussing the next election. The first transmission of a skill, on the other hand, involves bringing together someone who has the skill and someone who does not have it and wants to acquire it.

A "skill model" is a person who possesses a skill and is willing to demonstrate its practice. A demonstration of this kind is frequently a necessary resource for a potential learner. Modern inventions permit us to incorporate demonstration into tape, film, or chart; yet one would hope personal demonstration will

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remain in wide demand, especially in communication skills. Some ten thousand adults have learned Spanish at our Center at Cuernavaca--mostly highly motivated persons who wanted to acquire near-native fluency in a second language. When they are faced with a choice between carefully programmed instruction in a lab or drill sessions with two other students and a native speaker following a rigid routine, most choose the second.

For most widely shared skills, a person who demonstrates the skill is the only human resource we ever need or get. Whether in speaking or driving, in cooking or in the use of communication equipment, we are often barely conscious of formal instruction and learning, especially after our first experience of the materials in question. I see no reason why other complex skills, such as the mechanical aspects of surgery and playing the fiddle, of reading or the use of directories and catalogues, could not be learned in the same way.

A well-motivated student who does not labor under a specific handicap often needs no further human assistance than can be provided by someone who can demonstrate on demand how to do what the learner wants to learn to do. The demand made of skilled people that before demonstrating their skill they be certified as pedagogues is a result of the insistence either that people learn what they do not want to know or that all people--even those with a special handicap--learn certain things, at a given moment in their lives, and preferably under specified circumstances.

What makes skills scarce on the present educational market is the institutional requirement that those who can demonstrate them may not do so unless they are given public trust, through a certificate. We insist that those who help others acquire a skill should also know how to diagnose learning difficulties and be able to motivate people to aspire to learn skills. In short, we demand that they be pedagogues. People who can demonstrate skills will be plentiful as soon as we learn to recognize them outside the teaching profession.

Where princelings are being taught, the parents' insistence that the teacher and the person with skills be combined in one

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person is understandable, if no longer defensible. But for all parents to aspire to have Aristotle for their Alexander is obviously self-defeating. The person who can both inspire students and demonstrate a technique is so rare, and so hard to recognize, that even princelings more often get a sophist than a true philosopher.

A demand for scarce skills can be quickly filled even if there are only small numbers of people to demonstrate them; but such people must be easily available. During the forties radio repairmen, most of them with no schooling in their work, were no more than two years behind radios in penetrating the interior of Latin America. There they stayed until transistor radios, which are cheap to purchase and impossible to repair, put them out of business. Technical schools now fail to accomplish what repair men of equally useful, more durable radios could do as a matter of course.

Converging self-interests now conspire to stop a man from sharing his skill. The man who has the skill profits from its scarcity and not from its reproduction. The teacher who specializes in transmitting the skill profits from the artisan's unwillingness to launch his own apprentice into the field. The public is indoctrinated to believe that skills are valuable and reliable only if they are the result of formal schooling. The job market depends on making skills scarce and on keeping them scarce, either by proscribing their unauthorized use and transmission or by making things which can be operated and repaired only by those who have access to tools or information which are kept scarce.

Schools thus produce shortages of skilled persons. A good example is the diminishing number of nurses in the United States, owing to the rapid increase of four-year B.S. programs in nursing. Women from poorer families, who would formerly have enrolled in a two- or three-year program, now stay out of the nursing profession altogether.

Insisting on the certification of teachers is another way of keeping skills scarce. If nurses were encouraged to train nurses, and if nurses were employed on the basis of their proven skill at giving

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injections, filling out charts, and giving medicine, there would soon be no lack of trained nurses. Certification now tends to abridge the freedom of education by converting the civil right to share one's knowledge into the privilege of academic freedom, now conferred only on the employees of a school. To guarantee access to an effective exchange of skills, we need legislation which generalizes academic freedom. The right to teach any skill should come under the protection of freedom of speech. Once restrictions on teaching are removed, they will quickly be removed from learning as well.

The teacher of skills needs some inducement to grant his services to a pupil. There are at least two simple ways to begin to channel public funds to noncertified teachers. One way would be to institutionalize the skill exchange by creating free skill centers open to the public. Such centers could and should be established in industrialized areas, at least for those skills which are fundamental prerequisites for entering certain apprenticeships--such skills as reading, typing, keeping accounts, foreign languages, computer programming and number manipulation, reading special languages such as that of electrical circuits, manipulation of

certain machinery, etc. Another approach would be to give certain groups within the population educational currency good for attendance at skill centers where other clients would have to pay commercial rates.

A much more radical approach would be to create a "bank" for skill exchange. Each citizen would be given a basic credit with which to acquire fundamental skills. Beyond that minimum, further credits would go to those who earned them by teaching, whether they served as models in organized skill centers or did so privately at home or on the playground. Only those who had taught others for an equivalent amount of time would have a claim on the time of more advanced teachers. An entirely new elite would be promoted, an elite of those who earned their education by sharing it.

Should parents have the right to earn skill credit for their children? Since such an arrangement would give further advantage to the privileged classes, it might be offset by granting a

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larger credit to the underprivileged. The operation of a skill exchange would depend on the existence of agencies which would facilitate the development of directory information and assure its free and inexpensive use. Such an agency might also provide supplementary services of testing and certification and might help to enforce the legislation required to break up and prevent monopolistic practices.

Fundamentally, the freedom of a universal skill exchange must be guaranteed by laws which permit discrimination only on the basis of tested skills and not on the basis of educational pedigree. Such a guarantee inevitably requires public control over tests which may be used to qualify persons for the job market. Otherwise, it would be possible to surreptitiously reintroduce complex batteries of tests at the work place itself which would serve for social selection. Much could be done to make skill-testing objective, e.g., allowing only the operation of specific machines or systems to be tested. Tests of typing (measured according to speed, number of errors, and whether or not the typist can work from dictation), operation of an accounting system or of a hydraulic crane, driving, coding into COBOL, etc., can easily be made objective.

In fact, many of the true skills which are of practical importance can be so tested. And for the purposes of manpower management a test of a current skill level is much more useful than the information that twenty years ago a person satisfied his teacher in a curriculum in which typing, stenography, and accounting were taught. The very need for official skill-testing can, of course, be questioned: I personally believe that freedom from undue hurt to a man's reputation through labeling is better guaranteed by restricting than by forbidding tests of competence.

Peer-Matching

At their worst, schools gather classmates into the same room and subject them to the same sequence of treatment in math, citizenship, and spelling. At their best, they permit each student to

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choose one of a limited number of courses. In any case, groups of peers form around the goals of teachers. A desirable educational system would let each person specify the activity for which he sought a peer.

School does offer children an opportunity to escape their homes and meet new friends. But, at the same time, this process indoctrinates children with the idea that they should select their friends from among those with whom they are put together. Providing the young from their earliest age with invitations to meet, evaluate, and seek out others would prepare them for a lifelong interest in seeking new partners for new endeavors.

A good chess player is always glad to find a close match, and one novice to find another. Clubs serve their purpose. People who want to discuss specific books or articles would probably pay to find discussion partners. People who want to play games, go on excursions, build fish tanks, or motorize bicycles will go to considerable lengths to find peers. The reward for their efforts is finding those peers. Good schools try to bring out the common interests of their students registered in the same program. The inverse of school would be an institution which increased the chances that persons who at a given moment shared the same specific interest could meet--no matter what else they had in common.

Skill-teaching does not provide equal benefits for both parties, as does the matching of peers. The teacher of skills, as I have pointed out, must usually be offered some incentive beyond the rewards of teaching. Skill-teaching is a matter of repeating drills over and over and is, in fact, all the more dreary for those pupils who need it most. A skill exchange needs currency or credits or other tangible incentives in order to operate, even if the exchange itself were to generate a currency of its own. A peer-matching system requires no such incentives, but only a communications network.

Tapes, retrieval systems, programmed instruction, and reproduction of shapes and sounds tend to reduce the need for recourse to human teachers of many skills; they increase the efficiency of teachers and the number of skills one can pick up in

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a lifetime. Parallel to this runs an increased need to meet people interested in enjoying the newly acquired skill. A student who has picked up Greek before her vacation would like to discuss in Greek Cretan politics when she returns. A Mexican in New York wants to find other readers of the paper *Siempre*---or of "*Los Agachados*," the most popular comic book. Somebody else wants to meet peers who, like himself, would like to increase their interest in the work of James Baldwin or of Bolivar.

The operation of a peer-matching network would be simple. The user would identify himself by name and address and describe the activity for which he sought a peer. A computer would send him back the names and addresses of all those who had inserted the same description. It is amazing that such a simple utility has never been used on a broad scale for publicly valued activity.

In its most rudimentary form, communication between client and computer could be established by return mail. In big cities typewriter terminals could provide instantaneous responses. The only way to retrieve a name and address from the computer would be to list an activity for which a peer was sought. People using the system would become known only to their potential peers.

A complement to the computer could be a network of bulletin boards and classified newspaper ads, listing the activities for which the computer could not produce a match. No names would have to be given. Interested readers would then introduce their names into the system. A publicly supported peer-match network might be the only way to guarantee the right of free assembly and to train people in the exercise of this most fundamental civic activity.

The right of free assembly has been politically recognized and culturally accepted. We should now understand that this right is curtailed by laws that make some forms of assembly obligatory. This is especially the case with institutions which conscript according to age group, class, or sex, and which are very time-consuming. The army is one example. School is an even more outrageous one.

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To deschool means to abolish the power of one person to oblige another person to attend a meeting. It also means recognizing the right of any person, of any age or sex, to call a meeting. This right has been drastically diminished by the institutionalization of meetings. "Meeting" originally referred to the result of an individual's act of gathering. Now it refers to the institutional product of some agency.

The ability of service institutions to acquire clients has far outgrown the ability of individuals to be heard independently of institutional media, which respond to individuals only if they are salable news. Peer-matching facilities should be available for individuals who want to bring people together as easily as the village bell called the villagers to council. School buildings--of doubtful value for conversion to other uses--could often serve this purpose.

The school system, in fact, may soon face a problem which churches have faced before: what to do with surplus space emptied by the defection of the faithful. Schools are as difficult to sell as temples. One way to provide for their continued use would be to give over the space to people from the neighborhood. Each could state what he would do in the classroom and when, and a bulletin board would bring the available programs to the attention of the inquirers. Access to "class" would be free--or purchased with educational vouchers. The "teacher" could even be paid according to the number of pupils he could attract for any full two-hour period. I can imagine that very young leaders and great educators would be the two types most prominent in such a system. The same approach could be taken toward higher education. Students could be furnished with educational vouchers which entitled them to ten hours' yearly private consultation with the teacher of their choice--and, for the rest of their learning, depend on the library, the peer-matching network, and apprenticeships.

We must, of course, recognize the probability that such public matching devices would be abused for exploitative and immoral purposes, just as the telephone and the mails have been so abused. As with those networks, there must be some protection. I

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have proposed elsewhere a matching system which would allow only pertinent printed information, plus the name and address of the inquirer, to be used. Such a system would be virtually foolproof against abuse.

Other arrangements could allow the addition of any book, film, TV program, or other item quoted from a special catalogue. Concern about the dangers of the system should not make us lose sight of its far greater benefits.

Some who share my concern for free speech and assembly will argue that peer-matching is an artificial means of bringing people together and would not be used by the poor--who need it most. Some people become genuinely agitated when one suggests the setting up of *ad hoc* encounters which are not rooted in the life of a local community. Others react when one suggests using a computer to sort and match client-identified interests. People cannot be drawn together in such an impersonal manner, they say. Common inquiry must be rooted in a history of shared experience at many levels, and must grow out of this experience--the development of neighborhood institutions, for example.

I sympathize with these objections, but I think they miss my point as well as their own. In the first place, the return to neighborhood life as the primary center of creative expression might actually work against the re-establishment of neighborhoods as political units. Centering demands on the neighborhood may, in fact, neglect an important liberating aspect of urban life--the ability of a person to participate simultaneously in several peer groups. Also, there is an important sense in which people who have never lived together in a physical community, may occasionally have far more experiences to share than those who have known each other from childhood. The great religions have always recognized the importance of far-off encounters, and the faithful have always found freedom through them; pilgrimage, monasticism, the mutual support of temples and sanctuaries reflect this awareness. Peer-matching could significantly help in making explicit the many potential but suppressed communities of the city.

Local communities are valuable. They are also a vanishing reality as men progressively let service institutions define their

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circles of social relationship. Milton Kotler in his recent book has shown that the imperialism of "downtown" deprives the neighborhood of its political significance. The protectionist attempt to resurrect the neighborhood as a cultural unit only supports this bureaucratic imperialism. Far from artificially removing men from their local contexts to join abstract groupings, peer-matching should encourage the restoration of local life to cities from which it is now disappearing. A man who recovers his initiative to call his fellows into meaningful conversation may cease to settle for being separated from them by office protocol or suburban etiquette. Having once seen that doing things together depends on deciding to do so, men may even insist that their local communities become more open to creative political exchange.

We must recognize that city life tends to become immensely costly as city-dwellers must be taught to rely for every one of their needs on complex institutional services. It is extremely expensive to keep it even minimally livable. Peer-matching in the city could be a first step toward breaking down the dependence of citizens on bureaucratic civic services.

It would also be an essential step to providing new means of establishing public trust. In a schooled society we have come to rely more and more on the professional judgment of educators on the effect of their own work in order to decide whom we can or cannot trust: we go to the doctor, lawyer, or psychologist because we trust that anybody with the required amount of specialized educational treatment by other colleagues deserves our confidence.

In a deschooled society professionals could no longer claim the trust of their clients on the basis of their

curricular pedigree, or ensure their standing by simply referring their clients to other professionals who approved of their schooling. Instead of placing trust in professionals, it should be possible, at any time, for any potential client to consult with other experienced clients of a professional about their satisfaction with him by means of another peer network easily set up by computer, or by a number of other means. Such networks could be seen as public utilities

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which permitted students to choose their teachers or patients their healers.

Professional Educators

As citizens have new choices, new chances for learning, their willingness to seek leadership should increase. We may expect that they will experience more deeply both their own independence and their need for guidance. As they are liberated from manipulation by others, they should learn to profit from the discipline others have acquired in a lifetime. Deschooling education should increase--rather than stifle--the search for men with practical wisdom who would be willing to sustain the newcomer in his educational adventure. As masters of their art abandon the claim to be superior informants or skill models, their claim to superior wisdom will begin to ring true.

With an increasing demand for masters, their supply should also increase. As the schoolmaster vanishes, conditions will arise which should bring forth the vocation of the independent educator. This may seem almost a contradiction in terms, so thoroughly have schools and teachers become complementary. Yet this is exactly what the development of the first three educational exchanges would tend to result in--and what would be required to permit their full exploitation--for parents and other "natural educators" need guidance, individual learners need assistance, and the networks need people to operate them.

Parents need guidance in directing their children on the road that leads to responsible educational independence. Learners need experienced leadership when they encounter rough terrain. These two needs are quite distinct: the first is a need for pedagogy, the second for intellectual leadership in all other fields of knowledge. The first calls for knowledge of human learning and of educational resources, the second for wisdom based on experience in any kind of exploration. Both kinds of experience are indispensable for effective educational endeavor. Schools package

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these functions into one role--and render the independent exercise of any of them if not disreputable at least suspect.

Three types of special educational competence should, in fact, be distinguished: one to create and operate the kinds of educational exchanges or networks outlined here; another to guide students and parents in the use of these networks; and a third to act as *primus inter pares* in undertaking difficult intellectual exploratory journeys. Only the former two can be conceived of as branches of an independent profession: educational administrators and pedagogical counselors. To design and operate the networks I have been describing would not require many people, but it would require people with the most profound understanding of education and administration, in a perspective quite different from and even opposed to that of schools.

While an independent educational profession of this kind would welcome many people whom the schools exclude, it would also exclude many whom the schools qualify. The establishment and operation of educational networks would require some designers and administrators, but not in the numbers or of the type required by the administration of schools. Student discipline, public relations, hiring, supervising, and firing teachers would have neither place nor counterpart in the networks I have been describing. Neither would curriculum-making, textbook-purchasing, the maintenance of grounds and facilities, or the supervision of interscholastic athletic competition. Nor would child custody, lesson-planning, and record-keeping, which now take up so much of the time of teachers, figure in the operation of educational networks. Instead, the operation of learning webs would require some of the skills and attitudes now expected from the staff of a museum, a library, an executive employment agency, or a maitre d'hTM tel.

Today's educational administrators are concerned with controlling teachers and students to the satisfaction of others--trustees, legislatures, and corporate executives. Network builders and administrators would have to demonstrate genius at keeping themselves, and others, out of people's way, at facilitating en-counters among students, skill models, educational leaders, and

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educational objects. Many persons now attracted to teaching are profoundly authoritarian and would not be able to assume this task: building educational exchanges would mean making it easy for people--especially the young--to pursue goals which might contradict the ideals of the traffic manager who makes the pursuit possible.

If the networks I have described could emerge, the educational path of each student would be his own to follow, and only in retrospect would it take on the features of a recognizable program. The wise student would periodically seek professional advice: assistance to set a new goal, insight into difficulties encountered, choice between possible methods. Even now, most persons would admit that the important services their teachers have rendered them are such advice or counsel, given at a chance meeting or in a tutorial. Pedagogues, in an unschooled world, would also come into their own, and be able to do what frustrated teachers pretend to pursue today.

While network administrators would concentrate primarily on the building and maintenance of roads providing access to resources, the pedagogue would help the student to find the path which for him could lead fastest to his goal. If a student wanted to learn spoken Cantonese from a Chinese neighbor, the pedagogue would be available to judge their proficiency, and to help them select the textbook and methods most suitable to their talents, character, and the time available for study. He could counsel the would-be airplane mechanic on finding the best places for apprenticeship. He could recommend books to somebody who wanted to find challenging peers to discuss African history. Like the network administrator, the

pedagogical counselor would conceive of himself as a professional educator. Access to either could be gained by individuals through the use of educational vouchers.

The role of the educational initiator or leader, the master or "true" leader, is somewhat more elusive than that of the professional administrator or the pedagogue. This is so because leadership is itself hard to define. In practice, an individual is a leader if people follow his initiative and become apprentices in his

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progressive discoveries. Frequently, this involves a prophetic vision of entirely new standards--quite understandable today--in which present "wrong" will turn out to be "right." In a society which would honor the right to call assemblies through peer-matching, the ability to take educational initiative on a specific subject would be as wide as access to learning itself. But, of course, there is a vast difference between the initiative taken by someone to call a fruitful meeting to discuss this essay and the ability of someone to provide leadership in the systematic exploration of its implications.

Leadership also does not depend on being right. As Thomas Kuhn points out, in a period of constantly changing paradigms most of the very distinguished leaders are bound to be proven wrong by the test of hindsight. Intellectual leadership does depend on superior intellectual discipline and imagination and the willingness to associate with others in their exercise. A learner, for example, may think that there is an analogy between the U.S. antislavery movement or the Cuban Revolution and what is happening in Harlem. The educator who is himself a historian can show him how to appreciate the flaws in such an analogy. He may retrace his own steps as a historian. He may invite the learner to participate in his own research. In both cases he will apprentice his pupil in a critical art--which is rare in school--and which money or other favors cannot buy.

The relationship of master and disciple is not restricted to intellectual discipline. It has its counterpart in the arts, in physics, in religion, in psychoanalysis, and in pedagogy. It fits mountain-climbing, silverworking and politics, cabinetmaking and personnel administration. What is common to all true master-pupil relationships is the awareness both share that their relationship is literally priceless and in very different ways a privilege for both.

Charlatans, demagogues, proselytizers, corrupt masters, and simoniacal priests, tricksters, miracle workers, and messiahs have proven capable of assuming leadership roles and thus show the dangers of any dependence of a disciple on the master. Different societies have taken different measures to defend them-

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selves against these counterfeit teachers. Indians relied on caste-lineage, Eastern Jews on the spiritual discipleship of rabbis, high periods of Christianity on an exemplary life of monastic virtue, other periods on hierarchical orders. Our society relies on certification by schools. It is doubtful that this procedure provides a better screening, but if it should be claimed that it does, then the counterclaim can be made that it does so at the cost of making personal discipleship almost vanish.

In practice, there will always be a fuzzy line between the teacher of skills and the educational leaders identified above, and there are no practical reasons why access to some leaders could not be gained by discovering the "master" in the drill teacher who introduces students to his discipline.

On the other hand, what characterizes the true master-disciple relationship is its priceless character. Aristotle speaks of it as a "moral type of friendship, which is not on fixed terms: it makes a gift, or does whatever it does, as to a friend." Thomas Aquinas says of this kind of teaching that inevitably it is an act of love and mercy. This kind of teaching is always a luxury for the teacher and a form of leisure (in Greek, "*scholē*") for him and his pupil: an activity meaningful for both, having no ulterior purpose.

To rely for true intellectual leadership on the desire of gifted people to provide it is obviously necessary even in our society, but it could not be made into a policy now. We must first construct a society in which personal acts themselves reacquire a value higher than that of making things and manipulating people. In such a society exploratory, inventive, creative teaching would logically be counted among the most desirable forms of leisurely "unemployment." But we do not have to wait until the advent of utopia. Even now one of the most important consequences of deschooling and the establishment of peer-matching facilities would be the initiative which "masters" could take to assemble congenial disciples. It would also, as we have seen, provide ample opportunity for potential disciples to share information or to select a master.

Schools are not the only institutions which pervert professions

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by packaging roles. Hospitals render home care increasingly impossible--and then justify hospitalization as a benefit to the sick. At the same time, the doctor's legitimacy and ability to work come increasingly to depend on his association with a hospital, even though he is still less totally dependent on it than are teachers on schools. The same could be said about courts, which overcrowd their calendars as new transactions acquire legal solemnity, and thus delay justice. Or it could be said about churches, which succeed in making a captive profession out of a free vocation. The result in each case is scarce service at higher cost, and greater income to the less competent members of the profession.

So long as the older professions monopolize superior income and prestige it is difficult to reform them. The profession of the schoolteacher should be easier to reform, and not only because it is of more recent origin. The educational profession now claims a comprehensive monopoly; it claims the exclusive competence to apprentice not only its own novices but those of other professions as well. This overexpansion renders it vulnerable to any profession which would reclaim the right to teach its own apprentices. Schoolteachers are overwhelmingly badly paid and frustrated by the tight control of the school system. The most enterprising and gifted among them would probably find more congenial work, more independence, and even higher incomes by specializing as skill models, network administrators, or guidance specialists.

Finally, the dependence of the registered student on the certified teacher can be broken more easily than his dependence on other professionals--for instance, that of a hospitalized patient on his doctor. If schools ceased to be compulsory, teachers who find their satisfaction in the exercise of pedagogical authority in the classroom would be left only with pupils who were attracted by their style. The disestablishment of our present professional structure could begin with the dropping out of the schoolteacher.

The disestablishment of schools will inevitably happen--and it will happen surprisingly fast. It cannot be retarded very much longer, and it is hardly necessary to promote it vigorously, for this is being done now. What is worthwhile is to try to orient it

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in a hopeful direction, for it could take place in either of two diametrically opposed ways.

The first would be the expansion of the mandate of the pedagogue and his increasing control over society even outside school. With the best of intentions and simply by expanding the rhetoric now used in school, the present crisis in the schools could provide educators with an excuse to use all the networks of contemporary society to funnel their messages to us--for our own good. Deschooling, which we cannot stop, could mean the advent of a "brave new world" dominated by well-intentioned administrators of programmed instruction.

On the other hand, the growing awareness on the part of governments, as well as of employers, taxpayers, enlightened pedagogues, and school administrators, that graded curricular teaching for certification has become harmful could offer large masses of people an extraordinary opportunity: that of preserving the right of equal access to the tools both of learning and of sharing with others what they know or believe. But this would require that the educational revolution be guided by certain goals:

1. To liberate access to things by abolishing the control which persons and institutions now exercise over their educational values.
2. To liberate the sharing of skills by guaranteeing freedom to teach or exercise them on request.
3. To liberate the critical and creative resources of people by returning to individual persons the ability to call and hold meetings--an ability now increasingly monopolized by institutions which claim to speak for the people.
4. To liberate the individual from the obligation to shape his expectations to the services offered by any established profession--by providing him with the opportunity to draw on the experience of his peers and to entrust himself to the teacher, guide, adviser, or healer of his choice. Inevitably the deschooling of society will blur the distinctions between economics, education, and politics on which the stability of the present world order and the stability of nations now rest.

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Our review of educational institutions leads us to a review of our image of man. The creature whom schools need as a client has neither the autonomy nor the motivation to grow on his own. We can recognize universal schooling as the culmination of a Promethean enterprise, and speak about the alternative as a world fit to live in for Epimethean man. While we can specify that the alternative to scholastic funnels is a world made transparent by true communication webs, and while we can specify very concretely how these could function, we can only expect the Epimethean nature of man to re-emerge; we can neither plan nor produce it.