

SCIENCE FOR THE PEOPLE

50¢



WHICH SIDE ARE WE ON?

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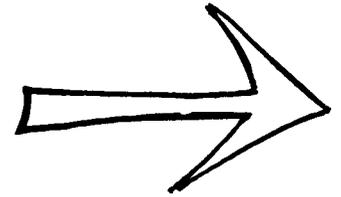
MAY
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THIS ISSUE



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Technology Review, M.I.T.
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Project Physics Course,
Holt, Rhinehart and Winston,
pp. 15, 27

Man and Machine by Cartier-Bresson, Viking Press,
pp. 19, 28

American Labor, A Pictorial Social History by M.B. Schnapper, Public Affairs Press,
pp. 8, 18, 21, 32

WHICH SIDE ARE WE ON ?

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A forum of sorts on the class position of technologists consisting of an article by Andre Gorz (p. 6) followed by several critiques (pp. 12-15), a substantial related article by Fischer and Lesser (p. 16), and a piece by Weinrub on scabs and firings in the University (p. 22)—all set to music on pp. 24-25.

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A discussion on SESPA/Science for the People consisting of Szejman's analysis of the reasons and proposed correctives for the lack of adequate political life in SESPA (p. 31), Westman's critique of our lack of unity in thought and action (p. 33), and the editors' political history of SESPA offered as a critique-by-example of a draft flyer (p. 34).

WHAT'S HAPPENING ?

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Reports and announcements of SESPA/Science for the People activities consisting of a description by the Women's Issue Group of their research and forthcoming special issue (p. 39), a report on the Science Teaching Conference (p. 40), and eight chapter reports (pp. 42-43).

LETTERS

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In the middle room, the one where most meetings are held, the group is gathered. Posters cover the walls. Boxes of magazines are stacked at two sides, some on top of the bench, sharing it with a man and a woman. Other persons are seated opposite on the couch under the blackboard or at the table by the window. One lies on the floor. From outside the voices of neighborhood children are heard; a beer can strikes the pavement. Everyone knows everyone and they greet each other warmly.

As usual, it's about eight-thirty when the meeting scheduled for seven-thirty begins. Six to ten of the thirty-odd members are there. Discipline is not this group's *forte*. A little shuffling—Who's gonna be chairperson? What's on the agenda? Who's gonna take notes?—and the meeting begins. Several topics are discussed; decisions are made, most of which will never be carried out; and finally comes the topic of who is to be on the next editorial collective. For this is a meeting of the Bagholders, that rather select group composed of members of editorial collectives for one year past.

"Anybody have any candidates?" "A fellow worker, a new guy, he's been coming to our study group. I've already talked with him, he wants to do it." Other suggestions are made. Maybe three or four of the attendees have candidates to suggest. Some are questioned: "What is the person's political qualification?" "Does she have the time?" Etc. Finally, a collective having been agreed upon, someone accepts the task of *initiator*—the one who calls them to their first meeting and "initiates" them for maybe two meetings.

By such a process we came to be an editorial collective. We were supposed to be five (already too few). One never showed. Two who started found it necessary to leave for family or personal reasons. A volunteer made us three—a woman computer programmer who works at "the other computer company", a physicist who works at "the largest acoustical firm", and a graduate student at MITool with part-time employment. Not too many. Putting out a magazine is a full-time task and this issue has taken its toll on our minds, bodies and spirit. Fortunately, we had a lot of help from our friends, patience from those with whom we live, and gallons of tea and coffee.

We'd like to tell you some of the work that was involved, and what we learned. Not all of the work was necessary. Not all was fun. Much that we would have liked to do we haven't been able to do, in part, because many out there didn't do what they should have done. Let us explain.

The three of us are in workplace study groups. Always these groups end up using everything but *Science for the People*. It hasn't seemed to have the quality, relevance or depth required for a serious study/action group. We didn't think we could change that right away, but we wanted to begin. Our ideas took shape as we solicited articles via a letter accompanied by the Gorz article (p. 6) and distributed to chapters, contacts and friends; and then by a questionnaire which helped us get an idea what the various chapters are doing. Some articles such as the Fischer/Lesser study (p 16) and the article by Alex Szejman (p. 31) were written specifically for this issue, at our request. We received articles accompanied by letters that we felt to be of greater interest to the readership than the articles themselves, and consequently printed the letters. Another case is the Weinrub article (p. 22): things came in bits and pieces, none of which made an acceptable article, but because the content was important, we asked Al to patch the stuff together. (Al also put in about a hundred hours of typing, stripping, and organizing same.)

On a par with the idea that our movement doesn't need leadership is the misconception that editing is "elitist." We have changed submitted material because we took the role of editors of a political magazine seriously. We hope you will take our work seriously enough to give us comradely criticism where needed. When an article was received early enough, substantial changes were discussed with the authors. Often, however, we stretched our deadlines for people who ended up giving us illegibly scribbled or single-spaced copy, which we felt could not have even been cursorily proofread. This division of labor (much of our time was spent getting first drafts into readable form) is poor political practice. It implies that our time is less valuable than the author's. At the same time, we felt duty-bound to rephrase passages and even major segments which expressed valuable ideas but were vague, misleading, verbose, and in some cases, factually inaccurate. Where our desired changes were in clear conflict with the intended meaning, we separated our own ideas into italicized editorial comments. We strongly urge people before submitting an article (double spaced, typewritten, and in several copies) to show it to their friends, discuss it and request constructive criticism.

It is difficult to create a magazine that is serious but not humorless, substantial but not "heavy", thorough but not boring, balanced but not liberal . . . In fact, the whole trip has been difficult and, under the stress, our feelings have been sharpened. For example, that a U.S. president has proclaimed May Day into Law Day infuriates us; he thus attempts to deny us the commemoration of heroic struggles for the 8-hour day, and implicitly honors the brutal legal hanging in 1886 of four Chicago working class leaders. How different from treating POW war criminals like heroes. We are also angry about a lot of other things like "self justifying ideology" and "peace" in Cambodia. But what really brings tears to our eyes is the impotence born of ignorance which so often characterizes our movement. There can be no coherent class struggle without class analysis specific to the culture, historical conditioning and present stage of our society. Yet we've barely begun this task. We need to take our historic responsibility seriously. We need to integrate political struggle into all aspects of our lives through study and action. How long will May 1 be Law Day? When will it be May Day, the workers' holiday? To win the struggle we have to know what the struggle is and *which side we are on*.



In the following pages we present, for the first time in *Science for the People*, a forum—a group of articles and commentaries that are directed to the same question. That question is, “What is the class position of technical workers (technicians, computer programmers, scientists, engineers, etc.) and what is their social, economic, and political function?” That we find it necessary to have two clauses in the question is itself part of the basis for the discussion. A determination of class must include not only status with respect to property relations but also other aspects of social existence.* For example, the fact that tactical police are propertyless wage workers (most often of traditional working class origin) does little to mitigate against their objective function as the violent instruments of class rule by the very class that underpays, exploits, and abuses them. Neither can a simple formula about who directly produces surplus value provide an unambiguous class distinction.† Thus, in short, class analysis of technical workers (ourselves) must transcend the description of us as propertyless wage workers and requires careful consideration of our role in maintaining the system—in particular, in determining to what extent we (as technical workers) are important and necessary instruments in maintaining capitalist class rule.

The origin of this forum should be of interest to our readers. SESPA/Science for the People stimulates the formation of, and provides support to, workplace study/action groups. In the course of their study, one such group of technical workers (at a technical firm in the Boston area) got into an intensive discussion over their own roles. Should we consider our capabilities as advanced technical workers to be a productive force that is “fettered”** by the present property relations? Some argued that we were not even familiar with (let alone trained or experienced in) the technical tasks needed in a socialist society—that we were, as presently trained, a cancerous product of capitalism. Their position questioned our fundamental political outlook—that as technical workers we should emphasize and assert our identity with all workers; that objectively we are working class, the problem being to develop that consciousness among our colleagues.

In the course of the (several-meeting-long) discussion, Gorz’ article was introduced.†† It helped to focus and raise the level of the discussion. It was passed along to other SESPA/SftP people. Most were critical of the article, but found it relevant and provocative. Since it raised such fundamental questions, it seemed certain to be a firm basis for a forum.

Gorz begins with a critical look at what he calls “simplistic views” that he describes as “traditionally assumed by most Marxists”. Since a few of our correspondents seem to hold this against him, we would like to endorse Gorz’ irreverence as being in the best Marxist tradition.

Orthodox Marxism, therefore, does not imply the uncritical acceptance of the results of Marx’ investigations. It is not the “belief” in this or that thesis, nor the exegesis of a “sacred” book. On the contrary, orthodoxy refers exclusively to method.†*

That is why we find some of the other articles so useful—they derive their analyses from concrete experience, without the self-justifying ideology so common in engineers’ self-descriptions. Some articles rely on extensive interviews, others on specific examples of abuses in factory situations. There are accounts of personal work experience in which the hierarchical structure itself is oppressive. The role of university academics is questioned by comrades in that situation. The ambiguous nature of the class role of technical intelligentsia is stressed, both in terms of how they should be treated by the left, and also in terms of their need (especially in groups like SESPA) to develop a coherent political line.

Revolutions are not brought about by ambiguous people. On the other hand, those who recognize their ambiguous situation do not respond to propaganda which denies that ambiguity. It seems, therefore, that our primary tasks are:

- (1) to develop cadre whose subjective class position is unambiguous
- (2) develop strategies to sharpen class conflict at the workplace and hence remove the source of the ambiguity.

In the last analysis (the revolution) one can only be on one side. Then, we will have to know which side we are on.

* What we are emphasizing here is the inclusiveness of the term “social existence” in Marx’ well-known thesis, “It is not the consciousness of men that determines their social existence, but, on the contrary, their social existence determines their consciousness.” (Karl Marx, *A Contribution to the Critique of Political Economy*, see R.C. Edwards, M. Reich, T.E. Weisskopf, *The Capitalist System*, Prentice Hall (1972) p.52)
 † Consider for example, one of Marx’ musings on the subject, “One individual works with his hands, another

with his head, one as manager, engineer, technologist, etc., the other as overseer, a third as direct manual laborer or mere helper. . . . the activity of this combined labor power is . . . creation of surplus value.” (Karl Marx, *Resultate des unmittelbaren Produktionsprozesses* referenced in H. Marcuse, *Counter Revolution and Revolt*, Beacon Press (1972) p. 13)
 ** “From forms of the development of the forces of production [the property] relations turn into their fetters” Karl Marx, *Contributions to the Cri-*

tique of Political Economy, (see above)

†† The article that begins on the next page first appeared in *Telos*, no. 12, Summer 1972. Because of the scab position taken by the editors of this elite journal (see “Marxist Scabs”, p. 22), we are ambivalent about recommending it in spite of an occasional worthwhile piece.

*† G. Lukacs, *History and Class Consciousness*, (originally published 1922) translated by R. Livingston, Merlin Press (1971).

TECHNICAL INTELLIGENCE AND THE CAPITALIST DIVISION OF LABOR

Up to recent years, it was traditionally assumed by most Marxists that the development of productive forces was something intrinsic and intrinsically positive. Most Marxists held the view that capitalism, as it matured, was producing a material base which could be taken over by a socialist society and upon which socialism could be built. It was widely held that *the higher* the development of productive forces, *the easier* the building of socialism would be. Such productive forces as technology, science, human skills and knowledge, and abundant dead labor were considered assets that would greatly facilitate the transition to socialism.

These views were based somewhat mechanically upon the Marxian thesis regarding the deepening contradiction between productive forces on the one hand, and social relations of production on the other hand. Most orthodox communist parties clung to the view that capitalist relations of production were stifling the development of productive forces and that socialism, by tearing down the so-called superstructure of the capitalist state and of capitalist social relations, could set free at one blow a tremendous potential for socio-economic development and growth.

This view still pervades the political attitude of the Western European communist parties. They usually consider all available productive capacity, all available manual, technical, professional and intellectual skills as forces that will be valuable and useful during the transition period: socialism, so the story goes, will be capable of putting them to *good* social uses and of rewarding their labor, whereas capitalism either misuses them or puts them to no use at all.

I shall try to illustrate that these simplistic views no longer hold true. We can no longer assume that it is the

productive forces which shape the relations of production. Nor can we any longer assume that the autonomy of productive forces is sufficient for them to enter *spontaneously* into contradiction with the capitalist relations of production. On the contrary, developments during the last two decades rather lead to the conclusion that the productive forces *are shaped* by the capitalist relations of production and that the imprint of the latter upon the first is so deep that any attempt to change the relations of production will be doomed unless a radical change is made in the very nature of the productive forces, and not only in the way in which and in the purpose for which they are used.

This aspect is by no means irrelevant to the topic of "technical intelligence" dealt with here. It is, on the contrary, a central aspect. In my view, we shall not succeed in locating technical and scientific labor within the class structure of advanced capitalist society unless we start by analyzing *what functions* technical and scientific labor perform in the process of capital accumulation and in the process of reproducing capitalist social relations. The question as to whether technicians, engineers, research workers and the like belong to the middle class or to the working class must be made to depend upon the following questions:

1. (a) Is their function required by the process of material production *as such*, or (b) by capital's concern for ruling and for controlling the productive process and the work process from above?
2. (a) Is their function required by the concern for the greatest possible efficiency in production technology or (b) does the concern for efficient production technology come second only to the concern for "social technology", i.e., for keeping the labor

force disciplined, hierarchically regimented and divided?
3. (a) Is the present definition of technical skill and knowledge primarily required by the technical division of labor and thereby based upon scientific and ideologically neutral data or (b) is the definition of technical skill and knowledge primarily social and ideological, as an outgrowth of the social division of labor?

Let us try to examine these questions. And to begin with, let us focus attention on the supposedly most creative and most sought after area of employment by asking ourselves: what is the economic purpose of the quickening pace of technological innovation which, in turn, calls for an increasing proportion of technical and scientific labor in the fields of research and development?

We may consider that up to the early 1930s, the main purpose of technological innovation was to reduce production costs. Innovation aimed at saving labor, at substituting dead labor for living labor, at producing the same volume of goods with a decreasing quantity of social labor. This priority of labor-saving innovation was an intrinsic and classical consequence of competitive capitalism. As a result, most innovation was concentrated in the capital goods sector.

But this type of innovation, while keeping a decisive importance, has been overshadowed from the early 1950s onwards by innovation in the consumer goods sector. The reason for this shift is quite clear: sooner or later, increasing productivity will meet an external limit, which is the limit of the market. If the market demand becomes saturated for a given mix of consumer goods, the wider reproduction of capital tends to grind to a halt and the rate of profit to fall. If innovation were to remain concentrated mainly on capital goods, the outlets for consumer goods production could be made to grow only by lowering prices. But falling prices would slow down the cycle of capital reproduction and rob monopolies of new and profitable opportunities for capital investment.

The main problem for monopolies in a virtually saturated market is therefore no longer to expand their production capacities and to increase productivity; their main problem is to prevent the saturation of the market and to engineer an on-going or, if possible, an expanding demand for the very type of commodities which they can manufacture at maximum profit. There is only one way to reach this result: constant innovation in the field of consumer goods, whereby commodities for which the market is near the saturation point are constantly made obsolete and replaced by new, different, more sophisticated products serving the same use. The main function of research is therefore to accelerate the obsolescence and replacement of commodities, i.e., of consumer as well as capital goods, so as to accelerate the cycle of reproduction of capital and to create profitable investment opportunities for a growing mass of profits. In one word: *the main purpose of research and innovation is to create new opportunities for profitable capital investment.*

As a consequence, monopolist growth and the growth of the GNP no longer aim at or result in improved living

conditions for the masses. In North America and tentatively in Western Europe, growth no longer rests on increasing physical quantities of available goods, but, to an ever larger extent, on substitution of simpler goods by more elaborate and costly goods whose use value is no greater—it may well be smaller.

This type of growth is obviously incapable of eliminating poverty and of securing the satisfaction of social and cultural needs; it rather produces new types of poverty due to environmental and urban degradation and to increasingly acute shortages in the fields of health, hygiene, and sanitation, to overcrowding, etc.

The point I am driving at is that the type of productive forms which we have at hand, and more specifically the type of technical and scientific knowledge, competence, and personnel, is to a large extent functional only to the particular orientation and priorities of monopolist growth. To a large extent, this type of technical and scientific personnel would be of little use in a society bent on meeting the more basic social and cultural needs of the masses. They would be of little use because their type of knowledge is hardly relevant to what would be needed to improve the quality of life and to help the masses to take their destiny in their own hands. E.g., technical and scientific workers, though they may know a lot about the technicalities of their specialized fields, know very little nowadays about the ways to make the work process more pleasant and self-fulfilling for the workers; they know very little about what is called “ergonomics”—the science of saving effort and avoiding fatigue—and they are not prepared to help workers into self-organizing the work process and into adjusting production technology to their physical and psychic needs. (Moreover, they are not generally capable of conveying their specialized knowledge to workers holding less or different training and of sharing it with them.) In other words, technical and scientific knowledge is not only to a large extent disconnected from the needs and the life of the masses; it is also culturally and semantically disconnected from general comprehensive culture and common language. Each field of technology and science is a typical sub-culture, narrowly specialized in its relevance, generally esoteric in its language and thereby divorced from any comprehensive cultural concept. It is quite striking that though a large majority of intellectual workers are engaged in technical and scientific work, we do not have one scientific and technical culture, but a great number of fragmentary sub-cultures, each of which is bent on devising technical solutions to technical problems, and none of which is qualified to put its specialized concern into a broader perspective and to consider its general human, social, and civilizational consequences. Hence this paradox that the main intellectual activity of advanced industrial societies should remain sterile as regards the development of comprehensive popular culture. The professionals of science and technology, and more specifically of research and development, must be seen as a kind of new mandarins whose professional pride and involvement in the particular fields of their activity is of little rele-

vance to the welfare and the needs of the community and of humanity generally: most of their work is being done on problems that are neither the most vital nor the most interesting as regards the well-being and happiness of the people. Whether in architecture, medicine, biology, or physics, chemistry, technology, etc., you can't make a successful career unless you put the interest of capital (of the company or corporation or the State) before the interest of the people and are not too concerned about the purposes which the "advancement of Science and Technology" is to serve. The so-called concern about Science and Technology *per se*—the belief that they are value free and politically neutral, and that their "advancement" is a good and desirable thing because knowledge *can* always be put to good uses, even if it is not, presumably—is nothing but an *ideology* of self-justification which tries to hide the subservience of science and technology—in their priorities, their language, and their utilization—to the demands of capitalist institutions and domination. This fact, of course, should not surprise us: technical and scientific culture remains fragmented and divorced from the life and the overall culture of the people because the object to which it relates, that is, the means and processes of production, is itself alienated from the people. In a society where the means and processes of production are estranged from the people and erected to the status of *die Sache selbst*, in such a society it is not astonishing that the knowledge about the means and processes of production should be an estranged knowledge, a knowledge as reified (*verschlicht*) as its object itself, a knowledge that forbids, through its narrow concern for a particular aspect of *die Sache*, a comprehensive understanding of what everything is about (*worum es im Gesamten geht*).

Technical and scientific culture and competence thus clearly bear the mark of a social division of labor which denies to all workers, including the intellectual ones, the insight into the system's functioning and overall purposes, so as to keep decision-making divorced from productive work, conception divorced from execution, and responsibility for producing knowledge divorced from responsibility for the uses knowledge will be put to.

But however estranged technical and scientific workers may be from the process of production, and however significant their role in producing surplus value or, at least, the conditions and opportunities for profitable investment, this stratum of workers *cannot* be immediately assimilated to the working class, that is, to the class of productive workers. Before making such an assimilation—and before speaking a propos the technical worker of a "new working class"—we have to distinguish

a) situations where plants are run by an overwhelming majority of technicians doing repetitive or routine work and holding no authority or hierarchical privilege over production workers; and

b) situations where technical workers supervise, organize, control and command groups of production workers who, whatever their skills, are credited with inferior knowledge, competence, and status within the industrial hierarchy.

A great number of misunderstandings have arisen

owing to the fact that sociologists like Serge Mallet have focused attention on situation a), whereas situation b) is, for the moment and for the near future, still much more widespread and sociologically relevant, at least in Europe. I shall therefore start by examining situation b) and comment later on the ambiguity of the technical workers' protest movement, a movement which can hardly be understood unless it is related to the ongoing transition from situation b) to situation a).

II.

To understand the function of technical workers in manufacturing industries, we have to see that their role is both technical and ideological. They are entrusted not only with keeping production to certain pre-determined technical standards; they are also and mainly entrusted with maintaining the hierarchical structure of the labor force and with perpetuating capitalist social relations, that is, with keeping the producers estranged from the product and from the process of production.

There is ample documentary evidence for the fact that this second aspect of their role takes precedence over the first. But this fact has usually escaped the attention of capitalist societies, and only the Chinese cultural revolution has led Western observers to pay attention to it. Until recently, it was most commonly assumed that since industrial production in factories or large mechanical plants requires the division, specialization and separation of tasks, it was quite natural that minutely divided repetitive and unskilled tasks needed to be coordinated, supervised, planned and timed by people responsible either for part or for all of the complex final product, or for part or all of the work process: these people had to have both superior technical skills and intellectual and hierarchical authority.

But if we look into it more closely, we must ask: why must labor be minutely divided? Why must the narrowly specialized tasks be performed separately by different workers? The reasons usually given are: (1) narrow specialization requires less skill and training; (2) repetitive tasks enable the workers to work faster and more efficiently.

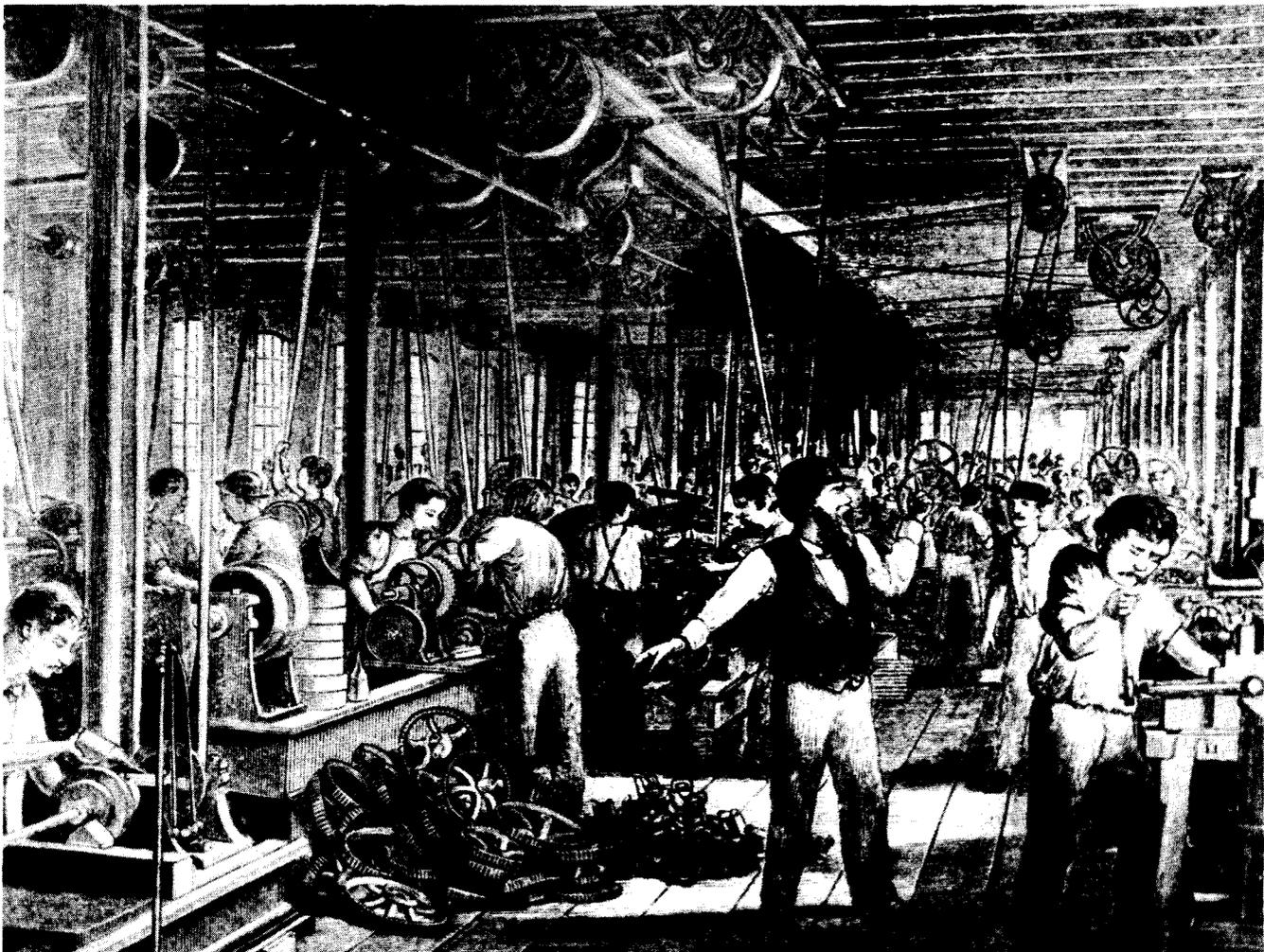
In truth neither of these reasons holds true.[1] Experiments conducted mainly in the U.S. have demonstrated that productivity can be greatly enhanced by enlarging the jobs and replacing repetitive assembly line work by team work, i.e., by giving teams responsibility for a complex product and allowing each team to organize production as it deems most convenient. In this system, the repetitiveness and separation of tasks are abolished and workers are incited to achieve and to display a spectrum of skills, and to take over the coordination, planning, timing and even the testing of their production. Of course, the coordination of the different work teams and technicians or engineers undergoes a fundamental change: it ceases to be hierarchical and authoritarian. It cannot remain such. The system, in order to work, must rest on

the workers' consent, initiative and sense of responsibility; relations of cooperation and mutual trust between work teams and technicians or engineers become indispensable; the latter can no longer give orders and demand obedience; they must seek the workers' consent and therefore have to explain and discuss each of their concerns. Moreover, they must be at the workers' disposal, ready to help them solve problems they meet and to achieve improvements, modifications and innovations of the work process, the tools and the products.[2]

In this type of organization, as enacted in China and envisioned in Europe (mainly in Italy) by political and labor activists, sharp differences between workers on the one hand and technicians and engineers on the other hand tend to disappear. Production work and the acquisition of new skills and knowledge proceed together; working and learning or studying cease to be separated. From his [or her] early adolescence onward, everyone is at the same time both a producer and a student. No one is meant to remain blocked in unskilled, stupid and "inferior" jobs: an "evolutive profile" (or "career") is sketched out in each industry whereby each worker's work

is to be progressively enriched, the reduction of working time being designed to allow free time for studying. The work process and production technology of course must be radically reshaped so as to allow for the maximum display of the producers' capabilities and creativity.[3]

That such a reshaping of production technology should be possible without increasing the *social* costs of production to the *whole* economy is a demonstrable fact; experiments in the U.S. even demonstrate the superior micro-economic efficiency of the type of work organization that abolishes hierarchical authority and control and appeals to team spirit and creativity. The question to which we have to revert then is: why is such a type of technology not generally available? Why has capitalism consistently promoted a technology that rests on the minute and stupefying fragmentation of tasks: a technology that requires the hierarchic structure of the work force and the hierarchic separation of manual and technical and intellectual labor? Why does "rationalization" and "modernization" keep replacing skilled work and work teams with unskilled repetitive work that leaves most workers' capabilities unemployed, that denies them



the possibility of thinking and developing into complete human beings? Why does the capitalist system instead transfer most of the intellectual, creative and skilled dimensions of production work onto a pyramidally structured personnel of supervisors, technicians and engineers who receive an essentially abstract training and are instrumental in making and keeping the workers stupid?

There is one main, fundamental reason: the hierarchical division of labor destroys the power of the workers over the work process and maximizes the bosses' (or their representatives') power of control over the work force. The minute division of labor renders the process of production totally extraneous to the workers; it robs them of the possibility of determining how much work they want to do, it prevents them from tampering with work speeds. It makes them work to the limits of their physical and nervous capabilities — a thing no one would do unless personally committed to the purpose of his work, and even then not permanently. In a word, the capitalist division of labor is functional to a system that rests on *forced labor* and that therefore can rely only on regimentation and hierarchical control, not on the workers' consent and cooperation. To sum it all up, we have the following vicious circle:

(1) Since the purpose of production is not the satisfaction of the producers' needs, but the extortion of surplus labor, capitalist production cannot rely upon the workers' willingness to work;

(2) the less capitalist management wishes to rely upon the willingness of the workers, the more extraneous, regimented and idiotic work has to become;

(3) the more extraneous, regimented and idiotic work becomes, the less capitalist management *can* rely upon the workers' willingness.

Hierarchical regimentation thus *appears* to be a necessity that flows from production technology; but in truth it is built into production technology insofar as the latter is itself a reflection of the social division of labor.

Whether we like it or not, we must see technicians in the manufacturing industries as key instruments of the hierarchical regimentation required by the capitalist division of labor. Their role is to oversee the domination of mechanical processes over living labor; their role is to make sure thereby that the maximum labor and surplus value is extracted from each worker. The role is to dequalify workers by monopolizing the technical and intellectual skills required by the work process. They embody the dichotomy between manual and intellectual work, thought and execution. They hold significant financial, social and cultural privileges. They are the workers' most immediate enemy: they represent the skill, knowledge and virtual power of which workers have been robbed. In a machine tool shop, every one technician that is hired will turn five, ten or twenty hitherto skilled workers into unskilled underdogs, thereby enabling the boss to pay them unskilled wage rates.

I shall conclude this chapter by reporting a recent conversation with a young technician in a machine tool factory. He had been to a technical school and was very

proud of his knowledge. He earned twice as much as the workers he was supervising. When asked what he knew which the workers did not, he replied: "I have studied calculus, mechanics, and am a good draftsman." I asked him: "Do you ever use calculus in your work?" "No," he said, "but I am glad I have learned it. It's good training for the mind."

I then asked him: "What skills, besides calculus, do you have which workers have not?" "I have a more comprehensive insight," he said, "into what it's all about."

"Could workers acquire such an insight," I asked, "without having been to a technical school?"

He replied: "They might get it through experience, but it would take them time."

"How long?" I asked.

"Oh, at least five to six years," he said.

This technician had been to a technical school for three years. You will have noticed that, in his view, his hierarchical and social privileges and superiority rested mainly on his knowledge of calculus. But he had never used calculus in his work. Calculus was the *cultural status symbol* that made him *socially* different from the workers. Because it was the only thing he knew which the others could not learn from experience, calculus gave him a sense of authority and of superiority over them. We have here a crystal clear illustration of the way in which the school system is instrumental in building social hierarchization. Indeed, in our example, the technician's superiority did not stem from superior *useful* knowledge. In his own words, the useful knowledge he held could be acquired by workers in five to six years. His hierarchical superiority stemmed from superior *useless* knowledge. He had been trained in calculus *not* to become more efficient than a worker, but to become *superior* to a worker. And the workers had *not* learned calculus not because they were too stupid to learn it, but because they were meant to *remain* culturally and therefore hierarchically inferior, whatever their skill.

From a political viewpoint, we must therefore consider that there is an unbridgeable *objective* class distinction between technical supervisory staff and production workers. This class barrier can be overcome *only* by a powerful ideological thrust enhancing class consciousness. Mainly in situations of acute crisis and upheaval, technical supervisory personnel can be brought to side with the working class and to feel one with it. This possibility rests on the fact that technical and engineering personnel, though they hierarchically oppress the workers, are themselves frustrated, estranged and oppressed from above. Vis-a-vis their superiors, they are in the same situation as are their inferiors vis-a-vis themselves. When, during radical outbreaks in factories, the workers attack the capitalist division of labor and demand or even practice self-rule and equal pay for all, the sheer ideological appeal of their demand can win over technical and scientific personnel. I saw this happen in May 1968 in the Thomson-Houston plant near Paris, where research engineers came out in fa-

Continued on page 26

VIETNAMESE CHILDREN'S SONG

The enemy is not people
Kill people, who shall we live with then?

The enemy's name is cruelty
The enemy's name is no conscience
Its name is hatred; Its name is bitterness
It's a group of phantoms

The enemy wears a coat of doctrine
The enemy wears the false front of freedom
It wears a deceiving appearance
It sifts our words

People, oh people have compassion for the weak
People, oh people have compassion for the innocent
Have compassion for the sellouts
Have compassion for the cheats
Have compassion for those who pity us

The enemy is no stranger
It lies here, inside each one of us

The enemy's name is unjust accusation
The enemy's name is ignorance
Its name is ambition
Its name is jealousy
Its name is jealous hatred

The enemy is desiring eyes
The enemy is an arrogant head
In a lonely head
In a narrow mind
In the dream of conquering

People, oh people love people more and more
People, oh people love people as people
Love people forever
Love people night and day
Love people as hand in hand

The enemy is not people
Kill people, who shall we live with then?

The enemy is no stranger
It lies here inside each one of us

CRITIQUE “. . . privileged status does not negate the concrete reality of the proletarianization of scientists and technologists.”

Gorz strangely takes an undialectical view of the transformation of consciousness when he concludes that because technical and scientific workers *currently* “are not prepared to help workers into self-organizing the work process and into adjusting production technology to their physical and psychic needs,” they “would be of little use in a society bent on meeting the more basic social and cultural needs of the masses.” (p. 7) Individualistic, competitive, racist, and sexist workers would also be of little use in a communist society. But the revolution does not await the coming of the socialist person. The socialist person is produced by the revolutionary struggle [1]:

Both for the production on a mass scale of this communist consciousness, and for the success of the cause itself, the alteration of men on a mass scale is necessary, an alteration which can only take place in a practical movement, a revolution; this revolution is necessary, therefore, not only because the ruling class cannot be overthrown in any other way, but also because the class overthrowing it can only in a revolution succeed in ridding itself of all the muck of ages and become fitted to found society anew.

I have participated in a wildcat strike in which so-called “racist” workers struggled arm-in-arm with their black comrades. Their common class interest and need for each other in their struggle forced the whites to overcome their racist ideologies. Likewise, as the proletarianization of the technological workforce progresses and is resisted, awareness of the common enemy, increasing interdependence among fragments of the working class, and development of a revolutionary party program will overcome the elitist attitudes and privilege-seeking behavior of engineers, scientists, and technicians.

Although Gorz does employ dialectical reasoning to clarify how the role of technologists has changed from being essential for the development of the forces of production to maintaining the capitalist relations of production, his dialectical analysis curiously stops before the period of conglomeration. The tremendous financial-administrative concentration now taking place has been made possible by the very engineers and scientists whose function it is to maintain the hierarchic control necessary for capitalist production. It is they who have developed the hardware and software necessary for

centralized control over thousands of decisions about what to produce, where, and in what quantities. But the very success of these scientists and engineers is leading to their proletarianization. By merging enterprises, fewer technologists are required to maintain the control necessary for capitalist production. Contrary to Gorz, then, the productive forces developed by the technologists are making possible the restructuring of capitalist relations of production and rendering many scientists, engineers, and technicians superfluous. For example, when England’s three biggest electrical companies were merged, about two thousand scientists lost their jobs. This story is being repeated throughout Europe according to the *New York Times* (3/13/73). Although we may conclude that most of those scientists were not essential to the material process of production and were attempting to create “new opportunities for profitable capital investment,” once they are fired, they become a reserve army of technologists, helping to drive down wages of scientists, engineers, and technicians who are “required by the process of material production as such . . .” (p. 6&7) This is because the laid-off scientists and technologists must now compete for jobs with those in production. Once re-employed (now in technological work materially required by production) the scientists and technologists formerly in non-productive work become a privileged stratum within the class of wage workers who *produce* surplus value. Previously, those laid-off *shared* in the surplus value produced by blue collar workers and productive scientists and technologists.

Gorz would disagree that the technologists displaced by the increasing concentration of capital into larger merged corporations become part of the working class and consequently, an important part of the revolutionary struggle. [Gorz is referring to their consciousness. He recognizes the objective fact that “they experience the proletarianization of their labor.” (p. 26), Eds.] Gorz believes that those displaced who were not essential to material production as such cannot transfer their skills to become essential and must remain unemployed or enter another occupational stratum outside the working class, such as the service occupations, e.g., insurance, real estate. But Gorz is just plain wrong. There have been several studies showing that the skills of the highly specialized defense engineer, whose primary function has been to create new markets by designing elaborate and costly weapons and thereby rendering previous weapons obsolete, is quite

transferable to civilian industry. The major problem in finding employment for laid-off defense engineers is the reluctance of civilian-oriented companies to hire technologists who are not cost-conscious but are primarily quality-conscious. That is, non-defense companies are afraid former defense engineers will hurt profits. But such a problem could hardly be of concern in a communist society.

Their privileged status does not negate the concrete reality of the proletarianization of scientists and technologists. The reality provides the basis for the transformation of consciousness in common struggle with blue collar workers. Gorz himself admits that

such a transformation has occurred in France. Cooperative resistance among blue collar workers and technologists to large-scale layoffs may not go beyond the militance recently exhibited by Dutch workers who occupied a factory for eight days and succeeded in saving 6,000 privileged and unprivileged jobs. It will take a revolutionary party to present a program for eliminating the routine, the fragmentation, the meaninglessness, and lack of control over the choice of projects that the growing mass of engineers and scientists face.

J.S.

[1] K. Marx and F. Engels, *The German Ideology*, R. Pascal, ed. International Publishers, N.Y. (1947)

CRITIQUE “We must find a common interest in the overthrow of capitalism, instead of appealing to some problematic sense of equality.”

Some British comrades sent us a 10,000 word transcription of their discussion of Gorz’ “Technical Intelligence and the Capitalist Division of Labor”. Though we could not handle material in that form (we really need publishable articles), we are printing here a summary by one of the discussants of his views. We hope the British group will continue the discussion and collectively synthesize an article; for there may be important differences among the advanced capitalist nations with respect to the class position of technical workers and the function of their work (see also the West Germany chapter report, p. 43).

Gorz’ very stimulating article provides some useful starting points for analysis—but that’s all; it fails to follow through and come up with a complete or even adequate analysis. It points a finger at nasty effects of capitalism, but it does not come to grips with the problem of establishing socialism.

There is a general tendency in Gorz’ article to focus on problems none of which *in practice* are necessarily beyond the adaptive capacity of welfare-state capitalism, enlightened by policy research, organization theory, and job-satisfaction technology. For example, he calls for ending the alienation of research from production and use. But this demand is not revolutionary; on the contrary, it is a demand that bourgeois science attempts to fulfill. As Gorz himself points out, research and development *are* important aspects of production in modern capitalism. The capitalists and their government bureaucrats are also calling for a closer connection between R&D and production and use.

The danger with this kind of analysis is that it could go the same route as the radical analyses of the 1930’s. Thus J. D. Bernal [*Britain’s leading Marxist scientist of*

the thirties. See, for example his The Social Function of Science, MIT Press. Eds.] became the father of science policy in the postwar growth period. None of the problems have to be tackled in a way which must lead to the development of revolutionary socialist praxis among scientific and technical workers. Granting that these demands ought to be employed by socialist revolutionaries as cracks to drive wedges into, still the outcomes are far from being necessarily revolutionary as Gorz (and I) would like. Gorz does not help us to weigh the mystifying potential of new capitalist rationalization strategies, the problems of unmasking bourgeois ideology, and of creating a vital socialist (as distinct from reformist) praxis.

The difficulty remains to understand exactly how technical theory and practice must be transformed if we are to transcend the capitalist structuring of these in a way that is fundamentally in contradiction to the continuance of capitalism and therefore revolutionary. To begin with, we must know how they are presently structured. For example, which of the following are structured by capitalist social relations, in what way, to what extent; and how necessary to capitalism is the structure:

1. technical/experimental practice (behaviorally defined in terms of information, material, and symbol manipulation),
2. the theory behind/in technical practice,
3. the total repertoire of technical practices,
4. social practice in technical and economic institutions,
5. social relations in technical institutions.

The attacks on economic and technical determinism pleased me; but the ever-present problem with theories of proletarianisation—the question of false consciousness—remains. Gorz indicates potential sources of revolutionary

energy, not potentially revolutionary classes. Consequently, his suggestions amount to counter-ideology mongering: "Try to destroy the mental workers' consciousness of otherness and superiority in whatever ways possible." While this is necessary, if we cannot go further than that, then we have abandoned Marxian strategy and fallen back on Utopianism. We must find a common interest in the overthrow of capitalism, instead of appealing to some problematic sense of equality.

Strategically, I suggest exposing the limits of rationalization and participation, thus demonstrating the class structure—the division of society into "decision makers" who make the decisions that sustain capitalist social relations, and "others" who carry out these decisions at all levels. The present tendency towards decentralization of technical decisions results in technical workers being required to obtain operational solutions to problems of adaptation, stabilization, and communication—problems,

the solution of which are *instrumental* for carrying out the basic decisions. But the technicians *do not participate* in the basic decisions—on what to produce, at what cost, in what quantity, at what quality, for whom. We must develop and propagate an analysis showing how these basic decisions are systematically divorced from technical questions such as how to coordinate production processes within preset constraints, etc.

The fragmentation of the worker—into voter, consumer, parent, pupil, worker, etc.—must be shown for what it is, a strategy of "divide and rule" at the level of the individual subject. This apparent irrational fragmentation of the whole person can then be contrasted with the system of manipulations of these fragments (polls, advertising, educational system, family hierarchy, personnel departments, job satisfaction, etc.) in accordance with a specifically capitalist rationality of control and exploitation in order to realize surplus value for capitalist interests. M. H.

**CRITIQUE “. . . increasing proletarianization
. . . cannot be answered by innovation . . .
The attempt to resolve one set of contradictions heightens another.”**

The Stonybrook group submitted some notes on a discussion they had of the Gorz article. The following is a distillation of a few points:

1. The article proposes that technical innovation is the means by which the capitalist system avoids the saturation of demand. But saturation of demand and overproduction is only one of the contradictions inherent in capitalism. Another contradiction—the increasing proletarianization and pauperization of the proletariat—cannot be answered by technical innovation. That the U.S. capitalist system has managed to postpone the critical point of this contradiction is evident. How was this possible? Perhaps the temporary alleviation of internal crises of capitalism is to be found in imperialism, which is the logical outcome of capitalism's struggle for survival.

But the system has its difficulties. The military and government spending abroad necessary to maintain imperial control accounted for two thirds of the current deficit in the U.S. balance of payments. The trade tariffs and devaluation, used to address the balance of payments problem, is bound to reduce the levels of consumerism (due to increased prices)—and hence saturate demand. So the attempt to resolve one set of contradictions heightens another.

2. The discussion of the role of the school system in laying the basis for capitalist exploitation was important, especially Gorz' comments on the meritocracy myth and its reinforcement. The ruling class, by emphasizing individual success and peer competition, tries to restrict the development of a class identity. If the role of intellectuals and the technical intelligentsia is ambiguous, as the article claims, then we must ask how they are to be treated within the left?

3. Given the entrance of the lower elite, engineers and scientists, into the ranks of the working class, what practical political conclusions can we draw from Gorz' analysis?

* The myths referred to earlier must be exposed as such. We must actively fight the hierarchical organization, based on economic and social inequality, of capitalist institutions. The People's Republic of China could be cited as a positive example to counter several current fallacies about the inevitability of certain relationships.

* As an application of theoretical study, we should criticize, from a Marxist perspective, events occurring today and then publicize these critiques.

* Since education is the daily practice of most SESPA people here, we should create study programs that show how the individual is coopted into the capitalist framework.

* Question: should we continue to do the kind of sci-

entific research that we are now performing?

* We should participate in the everyday struggles of working people, even if they are not scientific workers. In particular, contact with the Eastern Farmworkers Association should be established.

4. Some of us made the criticism that unless SESPA developed a definite political line, our activity would remain as random actions by well-meaning individuals.



CRITIQUE “*The Gorz article needs to be distilled . . . simplified, turned out for mass culture use.*”

Gorz reflects my own opinions about work. Some time ago I accepted the fact that many boring, repetitive industrial tasks were necessary, but they drove me insane at the 40-48 hour week level. I have a B. A., but cannot accept the hierarchical regimentation required of me in jobs I could take (I have had three fellowships for graduate work and dropped out of all three). So I work manually and feel insane. I have repeatedly been offered “promotions” in line with the Gorz idea of getting people to squeeze out a better profit for the bosses. I have said “No” because I don’t take bribes. Plus, I believe Gorz is right about the elitism of schools, turning out more elites while acculturating the masses to do the boring work. The arrogance of class divisions in work is at the center of sloppy, unhappy, half-ass, bullshit work. I know this and know, from prolonged working at mindless tasks (dishwashing at large restaurants), that it isn’t necessary except to maintain the capitalist yacht.

The Gorz article needs to be *distilled* and used by the whole group and movement for it deals with the center of the work crisis. Distilled—simplified, turned out for mass culture use.

J. N.

Although individual moralistic acts seldom contribute to political struggle, class consciousness is raised when a worker in the context of a collective struggle affirms her/his identification with fellow workers by an exemplary refusal of privilege. We hope this is what Joe means. The last paragraph brings up a paradoxical aspect of Gorz’ article: it is “culturally and semantically disconnected from general comprehensive culture and common language” (p. 7) and was published in an abstract academic philosophical journal edited by persons of questionable political practice (see the article, “Marxist Scabs . . .”, p. 22 in this issue).

NARMIC needs any information, pictures, or films on the continuing efforts to make the war less visible, by automation, RPVs (remotely piloted vehicles), Vietnamization, using mercenaries from other countries; changing military commands to “civilian” agencies, “civilian” DoD advisors, reorganizing U.S. AID pacification efforts and any other information about the current state of the war. Also, information about and pictures of the uses to which U.S. aid is put by Saigon and information about mistreatment or elimination of neutralist and PRG prisoners by Saigon since talk of a ceasefire began. For a better idea of the kind of information they are looking for, see their article, “Civilianization of the War, or the Empire’s New Clothes.”

CONTRIBUTIONS APPRECIATED

NARMIC (National Action/Research on the Military Industrial Complex), 112 S. 16th St., Philadelphia, Pa. 19102

The Civilianization of the War, or the Empire’s New Clothes—A NARMIC report on the changing nature of the war in Indochina and American plans for continued, less visible involvement in the political and military affairs of Southeast Asia. 8 pp. \$.20 each

Dollars to Saigon, or An Elephant and his Thieu—The significance of American aid to the Thieu government. NARMIC documents the crucial role U.S. aid to the Thieu government plays in the maintenance of the present regime and the implications for the future. 8 pp. \$.20 each

The Pentagon Top 100 (Fiscal Year 1972)—The Pentagon’s list of top defense contractors and their subsidiaries in fiscal year 1972, including dollar amounts awarded to each company. 4pp. \$.10 each

ENGINEERS

AN EXAMINATION OF SOME MYTHS AND CONTRADICTIONS CONCERNING ENGINEERS

Engineers are a highly stereotyped group. Non-engineers tend to view them as thing-oriented rather than people oriented or more pejoratively as uninteresting, compulsive and non-verbal. Engineers themselves often subscribe to this stereotype too. Thus a mathematician who had once worked as an engineer commented about our work, "Studying engineers? Isn't that really dull?" When we first embarked on a study of engineers we were deep down operating with similar preconceptions, although one goal was to shed some light on these notions and to explain them. Stereotypes tend to include some common elements of a group. If they bore no resemblance to reality they would not be used, but they often represent one-sided or exaggerated views. Few other occupational groups are seen as containing such a narrow range of personality types. We would here like to examine some of the common myths about engineers, to show what basis there is in reality and to attempt a sociological explanation of that reality. As already mentioned engineers are frequently viewed as primarily object oriented; they are also seen as overspecialized and as apolitical.

Object Orientation

The engineers' self-identification as object or thing-oriented often implies that they do not relate well to other people. The most extreme example of such alienation from others is the *Lockheed syndrome*, primarily found in the defense industry. Aerospace engineers, in particular, are said to suffer from this affliction. It is characterized by such single-minded pursuit of one's engineering work that relations with others and leisure time pursuits are heavily colored by work experience. As fathers and husbands these engineers withdraw to only minimal communications with their families, putting them on an emotional starvation diet, which is then blamed for other problems that may occur in the family. These patterns are almost exclusively looked upon as psychological disorders, and the recommended cure is individual or group therapy. Little attention is paid to the dehumanized work environment in which engineers are expected to put in 50 to 60 hours a week (at no extra pay) in the service of primarily destructive technology, when the ideology of training has stressed the design and creation of useful things.

Although the Lockheed syndrome refers to a rather extreme case, preoccupation with things rather than with people is in large measure expected of and preferred by engineers. Moreover, it is not confined to engineers. Present day American culture with its emphasis on acquisition

and consumption is in fact very materialistic. Where "Canada Dry tastes like love" and Coca Cola creates "perfect harmony", all problems can be treated as being technical. Particularly males in this society are supposed to be unemotional; to conform to this image it is safer to manipulate objects rather than to relate to people. There are strong pressures early in life that equate masculinity with knowing how to fix and build things.

Thus although object-orientation is to some extent required of all men, engineering tends to encourage those who identify particularly strongly with this value. This selective process assures that those who go through the prescribed training process in engineering are well-adapted to the technical requirements of industry. The lack of emphasis upon or total absence of the humanities in our technical schools is quite consciously designed to turn out people who are completely devoted to their job. As a result such training produces, in the words of an MIT (Massachusetts Institute of Technology) professor, "social Neanderthals." The personal costs of such one-sidedness are considerable and very painful once the source of one's supposed fulfillment is removed, i.e., when engineers become unemployed. It is in this situation that the shortcomings and contradictions of dehumanizing work become particularly apparent. In our study we found that, despite their lowered self-esteem and economic insecurity unemployed engineers seemed somewhat more expressive and people-oriented than the employed ones. Despite the relative lack of options in terms of real jobs available, the unemployed are in a position where they can and must consider a wider variety of alternatives, whereas the employed engineers are under even more pressure to conform now that the economic squeeze is on. In conclusion there is a great deal of truth to the description of engineers as object-oriented. This behavior is functional and necessary for the performance of their jobs, but it is dysfunctional to their relationships with others. If job pressures are removed or modified, as they are in the case of the unemployed, engineers may in fact begin to place an increased value on their social relations, thus lending support to the idea that extreme object-orientation is a form of alienation.

Rising unemployment also puts pressures on those who remain employed. But without unions engineers are inclined to compete among one another to remain employed. As long as thing-orientation makes them "better engineers" then, we cannot assume that unemployment will significantly alter the thing-orientation of engineers as a group. On the other hand, insecurity of employment is just one of

the many factors that can erode the sense of gratification engineers need to feel in their work. Other aspects of proletarianization that tend to remove the possibility of gratification from engineers' work bring into play the contradiction between the dysfunctional role of thing-orientation on their social relations and its functional role in their engineering work. An explosive situation can thus arise as the rewards of thing-orientation on the job are eroded; a powerful reservoir of anger can be released as engineers discover that the jobs they have loved return them neither sufficient wages, nor security, nor a craftsman's gratification, and yet have alienated them from human relations.

Specialization

Newspaper accounts, articles in journals of the engineering professions, and stereotypes popular among engineers and non-engineers, had predisposed us to expect very limited flexibility in skills. We were therefore quite surprised to find a lot of evidence in the interviews that defense engineers are not nearly as overspecialized as they are made out to be. Before examining the function performed by the persistent myth of specialization and showing in what ways it does not hold, let us first distinguish between specialization and fragmentation.

Engineers are affected by fragmentation as much as are production workers. The objective causes of this are twofold: (1) The increasing complexity of technology requires the breakdown of work processes into ever smaller components which can be handled by an unskilled workforce and also transformed into machine processes, but, (2) as Gorz [1] and Marglin [2] point out, it may not merely be the requirements of technology that dictate this fragmentation, but also the need to control the workforce and make it dependent on the capitalists. Fragmentation is thus not only technologically required but also ideologically necessary. Both workers and engineers do fragmented jobs; how their work fits into an overall scheme is not generally known by them. The engineers may be working on a larger fragment, that's all. Whereas fragmentation is a characteristic of the organization of the work process, specialization is a property of the worker. An engineer who remains capable of doing only one or a few fragments of the work is specialized. However because of the relatively high skill level required to accomplish an engineer's work fragment there is a tendency for this expertise to become a source of status. Not so, of course, with less skilled workers; no prestige is derived from being an expert at the lowest end of the totem pole, because the training period is short and inexpensive, and the worker is therefore easily replaced. As a result continued performance of a job fragment takes on quite a different meaning depending on its place in the total hierarchy.

Engineers find themselves today caught in the middle between workers and management. The carrot held out to them, and reinforced by the professional ideology that most still adhere to, is the possibility of moving up into a management position. Working against this is the stick of increased proletarianization. The proletarianization of en-

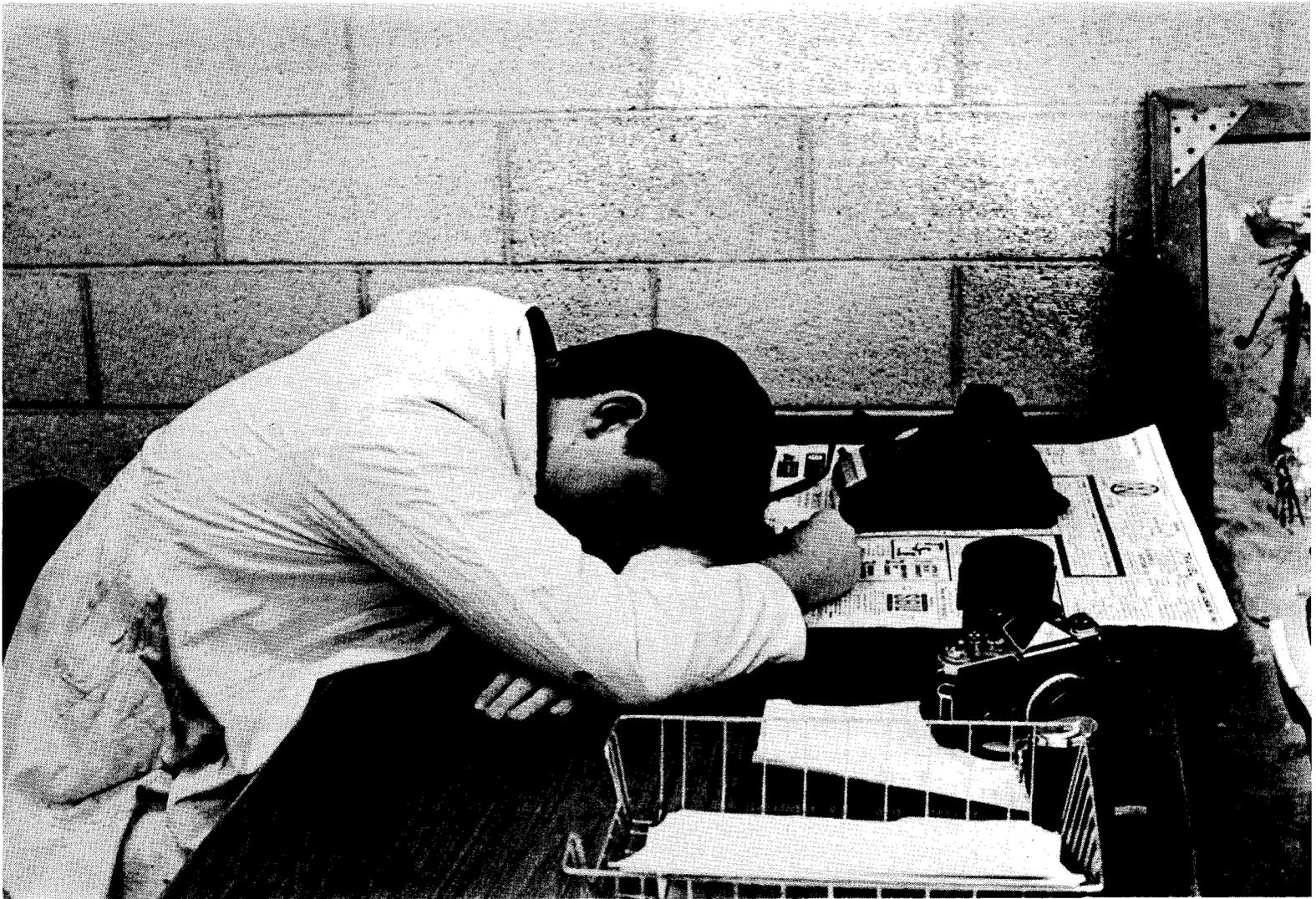
gineers, frequently remarked upon, is related to their great increase in numbers due to the requirements of complex war technology. But (as Gorz points out) in their self-perception engineers do not yet (at least in the U.S.) see themselves as having more interests in common with production workers than with professionals as a separate category or with management. Interestingly enough, the appeal of becoming part of management is not only the higher wages and (apparent) greater security but also the opportunity to participate in the production process in a less fragmented way. Corporate management thus plays the contradictory role of fragmenting the work, consequently requiring more specialization, while rewarding those who "see the whole"—and are willing to manipulate others.

In the war and space industry of the U.S. there is little long-term production of any one product. Consequently fragmentation that may serve corporate purposes for control and profit maximization also would tend to make a corporation less flexible in its ability to respond to the never ending innovation for war. The two ways this problem has affected engineers are (1) an unusual mobility from firm to firm selling their specialization and (2) considerable non-specialization (actually *serial* specialization) as engineers complete their fragment of one project and retrain for a new fragment of a new project.

The cutbacks that created the recent increase in unemployment among engineers resulted in corporations contributing to the specialization myth to the benefit of their own profits. They blame the engineers for overspecialization and refer to the "rapid obsolescence of engineers", thereby justifying the practice of hiring newly graduated engineers, on the grounds that they have just learned the latest techniques. Most of the engineers who had experienced unemployment were aware of the economic motivation of corporations that lay off highly paid middle-aged men and replace them with people whom they pay 50% less. (They also spoke of a practice called "recycling of engineering salaries" which involves dismissing engineers and rehiring them a few months later with a several thousand dollar cut in salary.) Actually most of the people we interviewed stressed the importance of on-the-job training which contradicts the image of the recent graduate as expert.

How deep the specialization myth goes is plain from the fact that virtually all engineers believe it and see it as a source of limitation. At the same time, in the course of our interviews they invariably gave strong evidence of flexibility and adaptability. For example, on the average they had 20 years work experience and had changed employment four to five times. The list of different areas within engineering in which each had worked was impressive, and they noted furthermore that with every new contract they had partially to retrain. One of the questions we asked was whether they would need retraining for civilian-oriented jobs. Most considered themselves already qualified.

Surely one important function of the myth of overspecialization—whether this is intended does not matter—is that a particular type of person is more frequently drawn to engineering. This is not to say that they are born that



way but that the pressures to adapt are strong. It is very useful for companies to have engineers who accept the self-image of problem-solver within a relatively narrow domain and whose tolerance for ambiguity is low (another attribute of thing-orientation). They are therefore more committed to the status quo even though they may see themselves as innovators within its constraints.

In light of the above, engineers do fragmented work but are not specialized in the sense that their careers consist of doing one type of work. The failure to make this distinction accounts for some of the confusion among engineers and the persuasiveness of companies when they use the term overspecialization.

Apolitical Behavior

It is not surprising that a lack of interest in politics accompanies a narrow technical education. In our society where specialization is a virtue and generalists are suspect (unless they are managers) there is little encouragement

from the authorities (or anyone else for that matter) for engineers to become political. However, often apolitical behavior is found to be coupled with a conservative outlook. We asked our engineers some questions about what the role of government should be in the economy, how they viewed the current economic crisis and what might change it, and also how they classified themselves politically. Contrary to our expectations we found a lot of New Deal liberals who did see it as the government's responsibility to solve the economic crisis. Liberalism was also evident in their support of conversion from a war economy to a civilian economy that would look after the needs of the cities and the environment. The interviews were held shortly before the 1972 election, and we found quite a few McGovern supporters. None of this, we believe, is adequately explained by the fact that we were interviewing in Massachusetts. Their tolerance of or support for government intervention was undoubtedly influenced by their having eaten at the federal trough for years. They could hardly be expected to bite the hand that feeds them. Particularly the unemployed



had had occasion to assess the economic and political situation and consequently had more coherent analyses, but very few looked toward political action as a solution to their problems. At least two of the fifteen unemployed could be considered radical, though they were not activists.

Apolitical behavior is a means of self-protection for employed engineers. Defense work usually requires security clearance. That is often deterrent enough from any political activity. Also, engineering has been the field in which a young man from a working-class background was more likely to gain upward social mobility. In order to achieve this goal he must adapt to and accept the status quo. This requires, as already mentioned, accepting specialization and the work ethic of "keeping your nose to the grindstone." It was our observation that among engineers confusion and contradiction abound in their political views. This is not unusual nor confined to engineers. The government and the educational system quite consciously foster political ignorance and substitute respect for symbols (flag fad) for genuine understanding. That the political options offered

by the system do not muster enthusiastic support can be seen from the fact that 47% of those eligible did not vote.

Are engineers so entrapped in myths that nothing can be expected from them in the way of social change? Does the above examination of the myths serve as an apology for their inaction?

We don't think so. Actually many changes are already occurring, although in the United States, unlike France and Italy, engineers are not (yet?) in the forefront of the movement of professionals to join in the protest against an oppressive system. Nonetheless, the complacency of several years ago has been severely shaken by high unemployment. Our interviews show that quite a few engineers have moved toward a more liberal position. They have felt the direct impact of high level government decisions on their daily lives. Most of the unemployed would prefer not to work in defense again, not primarily because of moral objections but because of the insecurity. Most striking is that they are being forced to reassess their views about society, the economy and politics and the result is utter confusion.

This confusion is the manifestation of contradictions that have objectively always existed but which current conditions make impossible to ignore. An education that compartmentalizes and imposes upon people a narrowly circumscribed domain becomes a real liability in such a situation. For those in power it is desirable to prevent the people from seeing the system as an integrated whole. As a result protest is either stifled altogether (we came across quite a bit of fatalism) or it directs itself toward small reforms (e.g. pressuring one's professional association to lobby in Congress).

The main contradiction is between ideology which manifests itself in beliefs about individualism and professionalism and the socio-economic reality in which engineers are treated much the same as blue-collar workers. (In fact, unionization is increasing among engineers because professional privileges are a poor substitute for a transferable pension plan—a minimal security measure that most engineers don't have). The ideology to which engineers adhere is not an isolated delusion unique to them. It is the system of beliefs which all Americans are taught and which until recently went unchallenged. It makes a virtue of competitiveness and individualism to the point where these qualities are seen as the only way, as part of human nature. The realization of the limitations of this ideology and its exposure as a myth is a very slow process which is nevertheless happening. At first it manifests itself as resentment of being treated like a worker, when the person doesn't conceive of himself as a worker but as someone who has the American dream within his grasp. Perhaps the most difficult step is the acquisition of working-class consciousness. This is what political organizing among engineers has to address, not in sermons but in action programs, (e.g. coffee houses, study groups, underground newspapers).

Postscript on Sociological Research

... if the form in which things appear and their reality exactly coincided, there would be no need for science.

Karl Marx

As we have tried to show, the relationship between ideology and reality can be clarified to some extent by a discussion of some of the myths about engineers, why they exist and why they reinforce major contradictions. Because the ideology is so pervasive and is communicated to us in so many and often subtle ways, it is all the more important that in our research and writing we address ourselves to that relationship.

Much of sociological research in this country has avoided dealing with that problem by being purely descriptive or analytical within a very limited framework. The dominant sociological tradition of the last twenty years, structural functionalism, operates on the premise that a tendency toward equilibrium and stability is universal and normal in all societies. This in itself has clear ideological implications, and in fact the *status quo* orientation of modern sociology has been pointed out repeatedly by its cri-

tics. In addition, the current practice of sociology is in itself an example of what a *critical sociology* should be able to overcome and enlighten us about. It is a reflection and perpetuation of the general fragmentation of our society, maintaining a strict separation between theory and empirical research. For example, a recent study published in *Society* (formerly *Transaction*) used data similar to ours; it was based on interviews with unemployed engineers at the Professional Service Center of the Massachusetts Division of Employment Security—one of the places where we conducted interviews. The authors confined themselves to identifying four vague periods of behavior after layoff: relaxation and relief, concerted effort, vacillation and doubt, malaise and cynicism. The study is completely descriptive, making no attempt to relate the engineers' responses to the economic situation which is at the root of such behavior. This illustrates the prevalent practice among empiricists of using interviews as the whole story without reference to or explanation of the false consciousness, rationalizations or contradictions between the data and the societal context of the interview.

Moreover (as can be seen from the above example), sociology divorces economics and history from the study of society. This is in part the result of the strong anti-Marxian bias within sociology.

An isolated discipline cannot be a critical discipline. In our view critical sociological research must fulfill some basic requirements: it must seek to further consciously the ability of people to gain control over their own lives; it must have a commitment to contributing to the transformation of society; it must therefore recognize that social change is normal. Not only is this a call for the combination of theory and methodology but more importantly for the combination of theory and practice. The pursuit of sociology must become social change. In this study (of which we reported only a small portion—"Fragmentation rearing its ugly head?, We don't think so.") we confined ourselves to the task of demystification which can be undertaken within the confines of academic work. By the kind of questions we asked our interviews may have caused some engineers to think in different ways about their lives, but we have no way of knowing. This points to another serious shortcoming of traditional sociological research, including ours. Interviewees are treated as objects; the research benefits the researcher and does nothing to overcome the isolation of the engineers; the results of such research are generally not accessible to those interviewed; the research thus provides no basis for collective action.

We must conclude that social research of the kind we would like to see become the rule cannot be carried out in an academic setting and for academic purposes. It should probably be done by people who can identify with those studied and with whom those studied can identify, (i.e. that may mean that we as women, one unemployed and one college teacher, would not be the best researchers of industrially employed engineers.) The people about whom we want to learn have to be drawn into this process as much as possible as active participants. The re-

search in the end would be a self study and inseparable from community organizing, industrial organizing or some other form of political action appropriate to the situation.

B.F. & M.L.

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HEALTH WORKERS vs SUPERVISORS

“Whenever they try to do a good job (which calls for slowing down production) they get yelled at or told they don’t know what they’re talking about.”

ABBOTT LABORATORIES is a large pharmaceutical plant in North Chicago. It manufactures hospital products and drugs and maintains a research division. The parent company is international in scope. We are printing an Abbott worker’s comments that appeared in an article in Rising Up Angry (Vol.4, no.10). We believe they offer a good commentary on the struggle of working people to make their work meaningful and socially useful, a reflection of how alienation of itself is becoming as oppressive as material privation. The article also deals with the workers’ struggle over their own conditions of work; but as the part we excerpt demonstrates, there is a clear sense of the need to identify with all oppressed people. We see a major function of Science for the People to develop the same level of class consciousness among scientific workers at places like Abbott Laboratories.

I thought the management really cared about the quality of the products. But, I soon learned different. Abbott is cleaner, by far, than most factories—but in reality it’s very unsanitary working conditions if you’re supposed to be making sterile hospital equipment. Whether you’re making blood bags or intravenous needle sets, or inspecting I.V. solution bottles, the only thing they care about is the quantity each worker puts out—not quality.

For example, in one department we made blood bags. It is very important that the blood bags are one hundred percent reliable because when a doctor or nurse has to give a patient blood transfusions every second counts. A faulty blood bag may mean a patient’s life. But the machines we make the blood bags on are always breaking down or in the process of breaking down. This means the quality of the product is going down too, because the seals on the sides of the bags aren’t as strong and the chance of

bad bags getting in with the good ones are greatly increased. The working area should be as clean as possible, but in the process of making the bags it’s not unusual to look at your hands and find them black with dirt. We receive materials necessary for making these bags from other factories. Again, Abbott doesn’t seem to care about checking the quality of these materials either. It’s not unusual at all to find fibers or very tiny scratches, or tears, or worse yet, dead flies and insects melted in the rolls of plastic used to make blood bags. It takes a long time to look at the bag and check for all the possible defects. But no matter how hard we strain our eyes, the speeds of the machines are too high for us to be able to inspect the product step by step as it’s being made.

There is a quality control division in every department which checks to make sure the product meets certain standards. Making sure these standards are met usually means slowing down production. The women in quality control do care about how good the products are, but they are always being intimidated by the supervisors or foremen and managers. Whenever they try to do a good job (which calls for slowing down production) they get yelled at or told they don’t know what they’re talking about. When this happens the supervisors say the women in quality control are making our jobs harder—in order to try to turn us against them. After a while the women feel it’s just not worth the hassle because the foremen usually end up getting their way and production goes on as usual.

We have already demanded that Abbott put out better quality sanitary products. People all over are raising the urgent need for good health care. We need more and better hospitals, and doctors who help people instead of ripping us off. But health can’t improve unless companies which make health care products change too. We must demand corporations like Abbott serve the people!

* 30 *

THE INTELLIGENTSIA

“MARXIST” SCABS AT THE UNIVERSITY

Most everyone in or around the universities these days is aware of the cleansing operations which are going on in academia. Not only political activists, but also those in intellectual sympathy with leftist thought are being purged from faculties. The political firings range from that of activist Bruce Franklin, tenured faculty member at Stanford, to four untenured Harvard faculty (two economists, a sociologist, and an anthropologist) whose writings and teachings are leftist. What conditions allow these purges to take place with so little fanfare or opposition?

The situation in universities is complicated by the fact that while the administrators and boards of directors—those who have power—make the decisions about hiring and firing, the faculties themselves (tenured faculties, that is) are responsible for making recommendations as to their colleagues' future. These recommendations have been generally antagonistic to those on the left. For this reason it is not simply a question of evaluating the conflicting interests of university management vs. the academic work force, but rather one of assessing the role of the tenured faculty itself in promoting the interests of those who hold power. Were faculties to put into *practice* the principles of intellectual and academic freedom they supposedly espouse, political firings could not take place with such ease.

Before looking in some detail into two recent cases of political firings, it is worth noting the general context in which these dismissals have been taking place. The universities, whose main function has been to provide a docile, skilled work force, ideologically conditioned to accept its (traditional) role in the society, have recently been producing a somewhat imperfect line of products. Universities have been breeding grounds for the rejection and denial of society's values, and have themselves come under attack (e.g., the aftermath of the Cambodia invasion, spring 1970) as instruments of an oppressive social system. The reaction of the universities to this situation has been twofold: to alter the nature of the student body by changing admission standards or suspending students, or both; and to alter the nature of their faculties by intimidating them and cleansing them of dissidents.

Control over faculties has been made easier in the last several years by the ever growing surplus labor force. With teachers, researchers and degree holders hungry for work, universities have little difficulty in hiring part-time faculty or postdocs where previously they would have hired assistant professors. Not only do the former get paid less than the latter (both in salary and fringe benefits) but they do not get to take part in departmental decision making, i.e., they are powerless. For those who *do* become assistant professors, conditions are not much different. In either

case job insecurity is so high that diligence and compliance with faculty norms is a must. Lest this situation be still not restrictive enough, universities have recently shortened the average term of contract (from three years to fewer), thus heightening job insecurity. Publish or perish. Don't rock the boat. We can always replace you (and will).

To drive the point home, administrators and tenured faculty have been more overtly political in taking action against young faculty who by challenging various practices pose a threat to the corporate university. A case in point is that of Mark Green, assistant professor of chemistry at the University of Michigan, Ann Arbor. Early in October, Green showed the NARMIC slide show on the automated air war to his organic chemistry classes. The chairman of the department, Thomas Dunn, claiming that the showing of the slide show was a “misuse of class time” and “irrelevant” to the subject matter of the course [1], suspended Green, relieving him of his teaching duties, pending an investigation. A departmental committee was then set up to “review Prof. Green's performance of teaching duties assigned to him in connection with Chemistry 227” [2]. In response to student protests, Green was temporarily reinstated and a few students were added to the review committee, but repression had already set in.

At issue fundamentally was Green's position that “any professor of science in this university who is imparting technological knowledge to his students has the obligation to point out the relevancy of their potential skills such as how scientifically based corporations use them” [3]. The report of the investigatory committee disagreed, calling the showing of the NARMIC slide show “an inappropriate use of class time” and claiming further that “some action by the chairman was indeed required since he felt that the welfare of the students of Chemistry 227 and the entire chemistry staff was now at stake” [4]. At stake really was the conception of science as a politically neutral entity—an ideological position central to present day science. Of course this ideological position has direct political overtones; it justifies to many the conduct of research that is systematically used for oppressive purposes, and it serves to obscure the real political relations of science.

Why should the welfare of the chemistry department hinge upon this ideological question? The review committee correctly understood that given the present realities, a university which challenges and attacks the present form of science—a university which fails to produce scientific automatons—is designed for extinction in the present system. Better that Green should go than the department. And sure enough, a couple of months later, Green's tenure committee decided to terminate his appointment. In the meantime, he has been assigned to teach independent study

courses in which there are no lectures or recitations (or students?).

The issues raised in the Green case assume a special significance with regard to a struggle waged last year in Washington University's sociology department over the jobs of three faculty members who were political organizers and activists. The three, Dave Colfax, Jeff Schevitz, and Henry Etzkowitz, were finally fired and George Rawick, a tenured faculty member, left the department as the result of the political repression there. What gives the case special significance is the fact that this department has been attempting to build a reputation for radical sociology. And what is more, those who filled the vacancies created by the political firings (in defiance of a boycott called during the struggle), Paul Piccone, David Sallach, and Richard Ratcliffe, are self-avowed "Marxists".

Afraid that the presence in the faculty of political activists* would jeopardize their department, the sociology department adopted the expedient of removing them. These activists had been challenging, among other things, the corporate control of Washington University. In essence this meant a challenge to the entire university structure, including (and especially) the sociology department, and the corporate interests it served. The response of the department's radical sociologists was to opt for the maintenance of their privilege within such a university.

Even more distressing was the refusal of "Marxists" Piccone, Sallach, and Ratcliffe to provide comradely support or solidarity with those struggling for their jobs. Piccone (editor of *Telos*), for example, defended the department's position by asking, "where else could we be supported to do our important theoretical work?" Sallach and Ratcliffe suggested that Colfax and Schevitz remain in St. Louis with no income if they were really so concerned about organizing there. Neither offered to split their salaries to make this possible.

Common in these two cases, to both the chemistry department at Michigan and the sociology department at Washington University, is the unprincipled character of their action. Both faculties acted solely to maintain their privileges within the system and within the institutions that now exist. Thus they shared with university administrators a strong desire to maintain the status quo. What makes the sociologists at Washington University and their "Marxist" scabs so repugnant however is that they justified political repression in *leftist* terms—claiming that *their Marxist theory* was more important than principled political action.

This kind of political hypocrisy runs rampant through the circles of intellectual "Marxists" in U.S. universities. These "Marxists" will support radical causes and other groups which attempt to legitimize leftist *thought* in the universities. But when it comes to political actions which bring the university itself into question, such as various student anti-war activities or

* Colfax was active in anti-ROTC activities, welfare rights, Lead Coalition, draft resistance, civil rights groups and the Union of Radical Sociologists. See *Science for the People* Vol. III, No. 2, May 1971, Pg. 17.

those that challenge the privilege structure of the intellectual elite, than these "Marxists" are found on the other side of the barricades preaching their own self-justifying ideology.

In analyzing the political betrayal of the Washington University sociologists and those who scabbed on their behalf, Schevitz has commented that:

Academics as a group are dependent upon the surplus value extracted from the working class and bestowed upon the universities by the members of the ruling class who control the universities. Academics will not be able to overcome their dependence and the individualism, elitism, and careerism fostered by their working conditions until a mass revolutionary movement demonstrates that they will be held accountable for their failure to support the movement in their actions. [5]

To the extent that leftist political activities as yet are still individual acts and individual commitments to change, it cannot be surprising that academics behave as they do. The pressing question raised by Schevitz is whether these academics can ever be *part of* that mass revolutionary movement. Will they as a group, take action to change their working conditions, and adopt a revolutionary practice?

Certainly those who experience the insecurity and the exploitative nature of working as a graduate student, postdoc, or untenured professor can identify with the need for radical change. But for them to take meaningful action will require a new outlook—a new conception of intellectual work. It must be work not divorced from practice, not divorced from the struggle, not individualistic, in short, not professional. Rudi Dutschke's *long march through the institutions* (working against the established institutions while working in them)[6] can be successful only if a revolutionary *practice* is part of that march.

Those who have invested in the careerism of academia—in the privilege of security—cannot be looked to for exemplary action or guidance. But those who have not yet achieved such status, those who every day experience the proletarianization of intellectual work, have a direct interest in radical changes, in taking the principled action that will make their work meaningful. As Marx pointed out, the role of the intellectual is not merely to understand the world, but to change it. With others, of course.

A.W.

After the above article was accepted we received the report that David Colfax's long struggle has resulted in a settlement of \$24,150 from Washington University. He was not, however, rehired with tenure.

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Which Side Are We On?



Which side are we on Which side are



fa - ther was a wor - ker He worked his whol
sit - tin' in the grade school Sput - nik in



when he told me what to do He said, "That's not
fore me lay the grand new math "Child you bet

3. I went up to the high school,
Prosperity in the air.
Couns'lor told me what to do:
"Enter the Science fair."

4. Commies at the border.
Subversives all around.
You better study, get those grades,
Or you'll be diggin' ground.

5. My mother was a worker,
Worked, but got no pay.
Broken by the burden,
"Go find some other way."

6. I went then to the college,
Studied for the test.
Figured I'd work my ass off now,
White collar is the best.

7. My parents, they were workers.
I'll be no worker too.
I'll be the Boss's right-hand man.
The rest of you go screw.

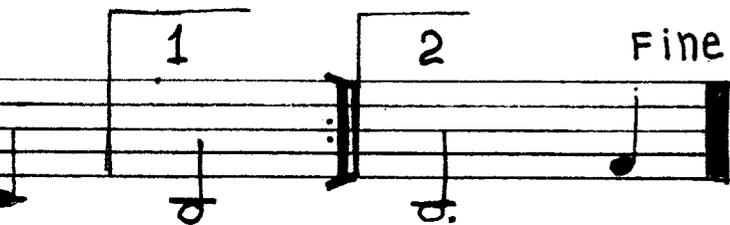
8. Now down in Indochina,
No neutrals there they say.
You're either for the Vietcong
Or a thug for the CIA.

9. Got my draft deferment,
Hooray for the U.S.A. !
Gotta beat those commies
While I sit right here and play.

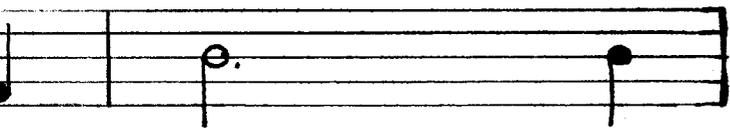
10. Worked for my country's glory
With science and slide rule.
Thought I had it all worked out,
Didn't know I was a tool.

11. Work, it was a pleasure,
Learnin' all the time.
Glory for the workers' child,
Eats with the boss lunchtime.

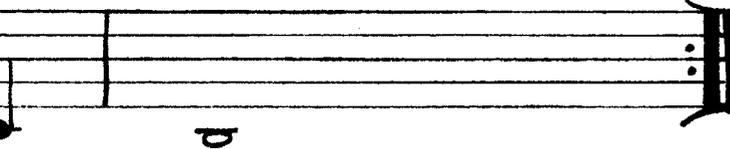
12. Bought a brand new auto,
A house in the best suburbs,
Brushed my teeth with TV,
Saw the doctor for my nerves.



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or you."
er try."

13. Solvin' my equations,
Pushin' my slide rule,
Boss says he needs some problems solved,
And he calls on his good tool.

14. Workin' in the mornin'
Work in the evenin' too.
Workin' weekends—what d'ya know,
I'm gonna be a boss like you.

15. Dyin' in the jungle,
Crushed by work like dad.
Broken like my mother.
Those poor fools been had.

16. Woke up in the mornin'
Spirits were so low,
Wonderin' what I'm doin'
Lookin' for the big rainbow.

17. Went to find my children,
Looked them in the eye,
Saw they saw a stranger,
Oh Lord, I'm gonna die.

18. Went down to the factory
To see what I could see,
Saw the worker's broken backs
Lookin' strange at me
19. Oh dad, I love you dearly.
Mom, how you bear it still.
Your child has learned a brand new trade,
But worker he is still!
20. Found my brothers and sisters
Workin' at less pay,
Workin' like their parents,
Long hours in each day
21. Looked at what they're doin',
Not building a world for us,
Makin' big fat profits
For the boss who's got too much.
22. Boss called me to the office,
Said, "Something got you down?
How come you've been working less?
I hardly see you 'round."
23. I tell him that I'm livin',
That this is just a job.
My collar's white, my hands are clean.
Still a worker he's out to rob.
24. The workers they were listenin',
Technicians were there too.
Sisters, brothers stood around
And told the boss go screw.
25. The boss, he called the cops in.
They came with mace and guns.
"Break the workers' heads," they said
And I knew then I was one.
26. Now listen you technicians,
The stakes are gettin' big.
You either are a Mayday Lass/Ladd
Or a law and order pig.
27. Now come all you good workers,
Good news I have to tell
Of how we're goin' to build a world,
Let the bosses rot in hell
28. Oh, Mom and Sis and brother Bob,
And dear old Dad, poor Joe,
Struggle is the only way,
Forward we must go.

H.F.

Continued from page 10

vor of equal pay for all. It must be added, of course, that some of them were highly politicized. We cannot expect, however, that such a demand should spring up in normal times. All we can do in times of uneasy and restless "peace" is to impress upon technical personnel that they have more to win than to lose by the abolition of hierarchical regimentation and privilege. To prepare the ground for this abolition, both culturally and materially, technicians must be stimulated to question their role on the following basis:[4]

(1) they must endeavor to distinguish between their particular technical or scientific skills on the one hand, and their role in the hierarchical division of labor, on the other hand;

(2) they must endeavor to "socialize" their particular skills, that is, to look for the ways and means whereby their superior knowledge could be made accessible to all, could cease to be a privilege, could cease to be *professionally* exercised by a few to the detriment of all, which entails the reshaping of the language of science and technology, a new definition of skills, of the learning process, and of the work process;

(3) they must refuse the social privileges and the hierarchical position of power attached to professionalism in the capitalist division of labor.

In short, the sharpest possible line must be drawn between specialization and privilege. Whereas specialization cannot be abolished in the foreseeable future, privilege can. There is no intrinsic necessity to attach privileges of status, power and money to certain skills. The basis for such privileges cannot be considered to be the scarcity of the more intellectual skills or of the capability to acquire them. It is questionable whether this scarcity has ever existed and it certainly has virtually ceased to exist: on the contrary, there is an actual or potential overabundance of intellectual skill. Scarcities that can still be observed cannot be ascribed to scarce talent or lack of capability to learn, but are a result of the class character of educational institutions: as we have seen in the example of the young technician, so proud of his mathematical skills, education aims at imbuing a minority with a feeling of elitism and is instrumental thereby in reproducing the hierarchic stratification of labor required by capitalist social relations. This result is reached through teaching methods that make the acquisition of abstracted intellectual skills difficult for children of less educated parents and by identifying good school grades with a right to privilege and to social promotion. The schooling system is a key instrument of social hierarchization: it *registers* a differentiation of skills and learning capabilities because it *produces* it.[5]

III.

It may seem at first that the class analysis which we have outlined so far does not apply at all to the growing stratum of technical and scientific personnel which, work-

ing in big engineering firms and in so-called scientific industries, is itself subjected to the capitalist division of labor. In Italy, France, and Great Britain, we have witnessed in recent years mass rebellions and strikes by draftsmen, engineering and technical personnel of the computer industry, research workers in the laboratories and research institutes, project engineers in large firms of consultants, etc.

In many instances, mass rebellion was motivated by the technical and scientific workers' frustration and humiliation at being submitted in their work to the same job evaluation, fragmentation and hierarchical regimentation as ordinary workers. Where intellectual workers no longer hold hierarchic authority over manual labor but are themselves producers of non-material commodities such as information, projects, patents, and innovations, they experience the proletarianization of their labor and their alienation through extraneous work processes and stupefying specialization.

But we must be careful not to jump to hasty conclusions and not to miss the inherently *ambiguous* character of most intellectual workers' rebellions. We cannot consider these right away as proof that intellectual workers' join the struggle of the proletariat because they in fact tend to be proletarianized. Such a conclusion would be legitimate only if intellectual workers actually joined up with manual workers on a class basis and fought together with them for common goals. Though there are cases where this has happened, it is far from being the rule. In most instances, intellectual workers have not revolted *as* proletarians, but *against* being treated as proletarians. They have rebelled (1) against the hierarchical division, fragmentation and meaninglessness of their work and (2) against their proletarianization and the loss of all or part of their social privileges. The anti-hierarchical and anti-authoritarian dimension of their rebellion was, in most cases, inextricably linked with demands aiming at recovering some of the privileges that were attached, in earlier times, to the intellectual workers' middle class status. Hence the ambiguity of their protest movement, a movement that may be said to be anti-monopolist rather than anti-capitalist, corporatist rather than proletarian.

To make clear this ambiguity, we have to examine the kind of training most technical workers are receiving, and their motivation in accepting such training.

Post-secondary education, in almost all countries, is sharply divided into two branches: the more traditional liberal universities, on one hand, and the technical and engineering schools, on the other hand. The content and the methods of education differ significantly in these two branches. Whereas the teaching process in universities may be rather informal, it is quite strict and disciplinarian in technical and engineering schools. Whereas universities as a rule aim at conveying a certain knowledge and at training students to become intellectually self-reliant, technical and engineering schools aim at conveying both knowledge and practical skills, and at shaping the personality of the student so as to make him or her fit into the hierarchical and authoritarian order of the factory or the laboratory. University graduates are supposed to acquire and develop

a critical intelligence that should enable them to work independently as free professionals, research scientists, private entrepreneurs or teachers; their degree does not prepare them for a definite job and, actually, may leave them jobless. Technicians and engineers, on the contrary, are trained for a job they have chosen and which they know will position them in a definite place within the social hierarchy and the division of labor. They have chosen this particular kind of training and this particular job for two reasons: (a) their social origin leaves them little hope of becoming anything but salaried employees; they do not have enough time and money to attempt an independent career and to run the risk of not finding a job as soon as they graduate; (b) they are "upwardly mobile" and aim for a salaried position which will be better than that of an ordinary worker or employee, but which will hardly carry them to the "top."

They may therefore be described as being essentially lower middle class. Their hope of positioning themselves on an intermediate level between top and bottom implies that they are prepared to serve unquestioningly the goals and purposes of the ruling class. And this is precisely what the technical and engineering schools prepare them to do. Technical training, in its essence, is indifferent to goals and purposes; it specializes in paying attention to the ways and means to reach preset goals and purposes. It dispenses a typically subordinate culture: not one that deals with defining the so-called higher values of society and the meaning of things; but one that prides itself on being value-free and therefore capable of devising efficient means to enact any values others may set. The divorce between so-called higher culture—the humanities, the liberal arts—and technical skill and knowledge is an essential part of the social division of labor as embodied in technical education.

Technical schools and institutions are thus instrumental in producing a particular type of individual. Or, to put it the other way around, those who will put up with the regimentation, repressiveness, discipline and deliberately unattractive programs of technical schools are the kind of persons capitalist industry needs. They are a hand-picked minority. As you know, a very large proportion of young industrial workers dream of improving their qualifications and becoming technicians and engineers. They dream of this to escape the dreadful embarrassment and boredom of repetitive work. They *could* become well qualified if the education and programs were rendered attractive and pedagogically efficient. But the programs are devised in such a way as to discourage, repel and eliminate between one-half and three-fourths of the youngsters who would have liked to learn.

In Europe and, to a lesser degree, in the U.S., the highly selective character of high schools and technical and engineering schools is something deliberate: as long as manual and unskilled jobs in industry and the service sector represent a significant proportion of all available jobs, the schools must produce a sufficient proportion of failures for whom the "low level" jobs will remain the only choice. The production of failures and school drop-



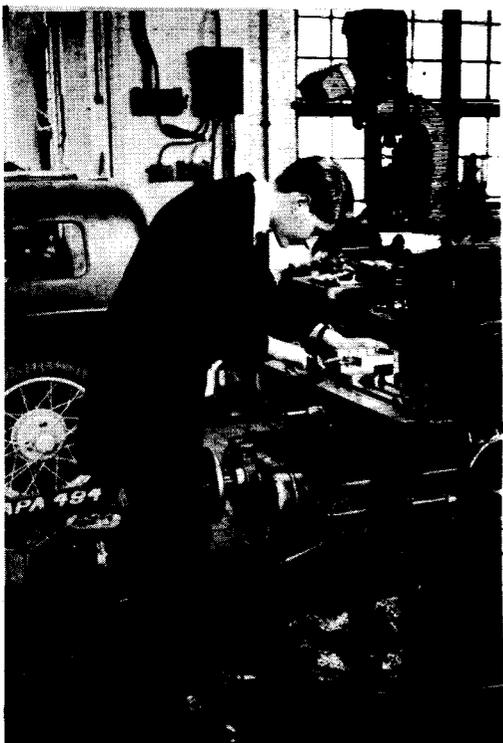
outs is as important to the reproduction of hierarchical social relations as the production of school graduates: a set proportion of adolescents must be persuaded by the impersonal process of schooling that they are incapable of becoming anything better than unskilled labor. They must be persuaded that their failure to learn is not the school's failure to teach them but their own personal and social shortcoming. (Conversely, those who do well at school must be convinced that they are something like an elite, that they will rise above the working class and that their success is due to their hard work, self-denial and ambition. Technical schools make sure that the successful graduate will feel condescending towards workers and submissive towards those above him.)

Consciously or not, such a selective schooling system aims at dividing the manual and technical workers into two distinct strata, persuading the latter that they really belong to the middle classes and are entitled to some social and financial privileges. This attempt at socially upgrading the technical worker is not only a hangover from earlier times, when technicians were working as supervisors rather than as production workers: it is also motivated by capitalist management's need to have costly and highly productive machines supervised and served by reliable, trustworthy people who will feel loyal to the corporation and the system and not be inclined to take the technical power they wield into their own hands, or even to demand political and economic power for the working class. People who actually control the more or less automatic processes of vital production must to some extent be co-opted into the system's privileged strata and made blind to their class position, lest the system's smooth and safe functioning be jeopardized.

The effectiveness of this strategy of co-optation is dependent, however, on the (subjective) reality of the priv-

ilege it can confer. No great difficulties may be encountered as long as the stratum of technical workers is only a minority. But when the proportion of skilled versus unskilled jobs becomes reversed, contradictions tend to explode. This situation has presently been reached in the U.S. and, potentially, in most of Western Europe. Student and high school rebellions must be seen in this perspective. Most advanced capitalist societies are presently in a period of uneasy transition: schools must keep producing a proportion of failures—about two-thirds in Western Europe versus about one-third in the U.S.—so as to provide the necessary unskilled labor to the economy. But it is already clear to most that unskilled jobs are disappearing rapidly and that post-secondary education is becoming a prerequisite to finding any—however boring, narrowly specialized and repetitive—job. The arbitrariness of the schooling system's inbuilt selectiveness is therefore becoming obvious: the schools reject a certain proportion of students not because it would be impossible to educate them—the contrary has become quite clear—but because, for the reasons indicated above, the system does not care to educate them: it must prevent them from acquiring skills and knowledge that would make them “unfit” for the low grade jobs.

On the other hand, as the majority of jobs tend to require some post-secondary training, the link between such training and the privileges it conferred in the past can no longer be maintained. According to recent American statistics [6] the expected lifetime income of youngsters with one to three years of college is only 6.24% higher (i.e., \$119,000 against \$112,000) than that of youngsters who have a high school education. Hence the following explosive contradiction: post-secondary education remains selective, competitive and requires the kind of social



attitudes that would be expected from upwardly mobile adolescents, but the jobs onto which junior college and technical education lead hold hardly any privilege—whether financial or social or intellectual—over unskilled jobs: most trainees of technical school or of junior colleges are clearly destined to become the laborers of the technically advanced industries and to perform the so-called “post-industrial society's” ungratifying and frustrating work.

The choice confronting young technical workers is therefore quite obvious: either, having put up willingly with the regimentation and selectiveness of a schooling system that promised them privileges and promotion, they rebel against their regimentation at jobs that do not fulfill the system's promises and frustrate their desire for respectability, initiative and creativeness; or, they find out while still in training that the schooling system's promises and values are a big swindle anyhow, and they rebel against regimentation at school first and against regimentation at work later. Why indeed should they put up with the disciplinarian and authoritarian training methods since “learning” at school will secure them neither a “higher” social position nor gratifying work allowing for some display of initiative and creativity? Since good performance at school is irrelevant in both respects, well then, fuck the school and fuck the system and instead let's do and learn things that are enjoyable and hold some intrinsic interest. In one word, the motivations that could incite youngsters to put up with the school and with the jobs it prepares them for are going bankrupt; the present crisis of and revolt against the educational system and work organization is the consequence of this bankruptcy.

Only the last of these two attitudes holds real radical potentialities. It goes beyond (*depasse*) the inherent ambiguity of the first attitude, which is a rebellion against both the alienation of work and the proletarianization of the technical workers. When Serge Mallet and others wrote about the “new working class” ten years ago, they missed this ambiguity and still drew a line (legitimately, at that time) between the “old” working class, caring mainly about wages, and the “new” one, caring mainly about “qualitative goals”. As technical or post-secondary education and the technicization of work become the rule, the distinction between the “old” and “new” working class is becoming obsolete, at least with younger workers. To them, technical work no longer holds much, if any, privilege over traditional production work. They know or sense that the technical worker, whatever his skill, is the underdog and the proletarian of “technological society”. They have learned in schools, in their early teens, that the system channels towards technical disciplines, studies, and professions, those whom it condescendingly considers “unfit for anything better”. They rightly feel their teachers or professors to be the prefiguration—or the valets—of the bosses and cops who will exploit them and beat them down in the near future; and their revolt against the stupidity of regimentation at school goes hand in hand with the revolt against the work organization and the hierarchical division of labor. They know that their technical skills, which will be obsolete within five years, anyhow, are no better

than traditional manual skills and hold no hope of escape from working class boredom and oppression.

The ground is thereby laid for the political and ideological unification of technical and manual workers of the "new" and the "old" working class—at least in the younger generations, and for a common onslaught against the capitalist division of labor and the capitalist relations of production.

But this objective possibility for unification must still be made conscious by actions for the proper goals and on the proper ground (terrain). The goals must of necessity be those of a "cultural revolution": destroying the inequalities, hierarchizations and divisions between manual and intellectual work, between conception and execution; liberating the creative potentials of all workers which the schools as well as the work organization stifle. The ground must be both and at the same time the factor where the work force is oppressed, intellectually mutilated and psychically destroyed, and the school where the "human material" is shaped so as to fit into the hierarchical factory system. The crisis of the reproduction of capitalist social relations and of the capitalist division of labor—i.e., the crisis of the school—must reach down to a direct attack against the hierarchical division of labor in the factory; conversely, the attack must reach up to an attack against the educational system, which is the matrix of the division of labor. Education and production, learning and working were separated from the means of production and from culture and society overall. Therefore the re-unification of education and production, of work and culture, [7] is the only correct approach in a communist perspective.

A.G.

NOTES

[1] The point I am trying to make here, and which has been very convincingly documented by Prof. Stephen Marglin of Harvard University in a forthcoming essay, is that technology has been shaped by capitalism so as to secure maximum control over and exploitation of labor, *not* to secure maximum production of goods.

Control and exploitation are obviously inseparable, but the distinction between maximum exploitation and maximum production is a crucial one: it implies that *capitalism uses the most efficient production technology only so far as the latter is compatible with maximum control and exploitation*. Capital's goal is maximum profit, and since the latter requires total power to dispose over the work force's labor, it may well be attained—and actually has been attained—to the detriment of the greatest possible technological efficiency and productivity.

The point Prof. Marglin has documented is that—contrary to most historians' belief and contrary to Marx's assumption—industry did not develop from a new and more efficient technological base, but, on the contrary, new technologies developed *after* the concentration of artisanal production in large factories. The motive of this concentration was *not* the factories' superior technology—they used the same technology as the artisans—but the capitalist bosses' (the outputters') desire to (1) control and market the weavers' total production which, if not physically controlled in the factories, would have been partly embezzled; (2) maximize the input of work, i.e., compel the weavers to work longer hours at greater speed than they would have done had they remained the owners of their tools; (3) take control of all technological innovation so as to use it for the sake of capital accumulation and not for purposes of more immediate interest; (4) organize production in such a way that the cycle of production could not dispense with the capitalist's function.

It is undeniable, of course, that capitalist industry did result in more efficient and more productive technology. But the point that must be stressed is that production technology has borne from the beginning the imprint of capitalist relations of production and was shaped by them. And that, therefore, it is by no means absurd to infer that a quite different production technology may have developed—and may develop—if not maximum control over and exploitation of the work force, but—as seems to be the case in China—maximum collective initiative and responsibility in the maximization of social production is the main goal.

Fragmented and repetitive assembly line work must be re-examined from this angle. It is quite certain that assembly line production contained some significant technological advancements and the mechanization of hitherto manual tasks. But it must also be seen that increased mechanization has always served a double purpose: the introduction of more efficient machinery had usually gone hand in hand with increased *intensity* (or input) of work by *each* laborer. It is not at all certain that the increased productivity achieved through repetitive assembly line technology could not have been achieved *without* the fragmentation of work into repetitive jobs. The latter served the obvious purpose of eliminating the quite significant control which the *skilled* worker had over his working speed and working time, a control which enabled him to withhold a good part of his labor force from the capitalist employer. (On the very dubious effectiveness of monetary incentives on piece work productivity and the practical impossibility of extracting maximum production effort from piece workers, see William F. Whyte, *Money and Motivation* [Harper and Row, 1955; Harper Torchbooks, 1970].)

The minimization of skill has been a consistent policy of capitalist management, since it maximized the workers' dependence and manageability and reflected the *social* division of labor in its *technical* division. It is therefore no accident that bourgeois social relations should have re-emerged in all those so-called "socialist" countries where the capitalist technical division of labor was used as a standard method. (On the originality of the Chinese revolution in this respect, see Marco Maccio, "Parti, Techniciens et Classe Ouvriere dans la Revolution Chinoise," *Les Temps Modernes*, August-September 1970; and Jean Daubier, *Histoire de la Revolution culturelle* (Maspero, 1970).

[2] These experiments are known in the U.S. as "job enlargement" and Scanlon Plan Y. They do *not* imply far reaching technological changes and rest mainly on a different work organization using traditional technologies, e.g., assembly line work. But they give the workers control and responsibility over the work process and the product and allow them to display their inventiveness.

Among the more accessible writings on the subject see: Judson Goodlin's articles in *Fortune*, July 1970 and September 1970; "Getting at the Root of a Labor Crisis", in *Business Week*, Oct. 17, 1970, pp. 56-57; William F. Whyte, *Money and Motivation* (op. cit.) chap. 10 and 14; Charles Hampden Turner, *Radical Man* (Schenkman, Cambridge, Mass., 1970), chap. VIII.

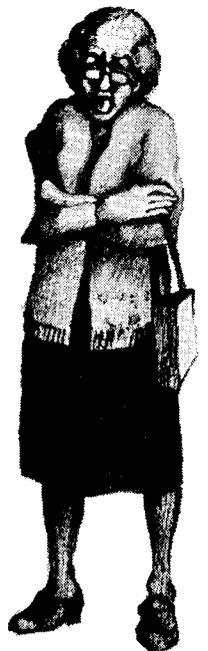
[3] See Antonio Lettieri, "Qualifiche, Scuola e Orari di Lavoro", *Problemi del Socialismo*, no. 49, November-December, 1970.

[4] I am borrowing these propositions from Eduarda Masi, "Sur l'auto-contestation des Intellectuels," *Les Temps Modernes*, no. 295, February 1971. See also the discussion on technicians and the division of labor in *Quaderni Piacentini*, nos. 37, 38, 39, 40 and 41, and "Division du Travail et technique du pouvoir", in *Les Temps Modernes*, no. 285 (April 1970).

[5] Cf. Pierre Bourdieu and J.C. Passeron, *La Reproduction* (Minuit, 1970).

[6] "Population Characteristics" in *Current Population Reports* series p-20 and p-60, no. 207, Nov. 30, 1970, quoted in a forthcoming study by Sam Bowles, professor of economics at Harvard University.

[7] "No full time studying, no full time working" is a *mot d'ordre* of Il Manifesto. See the *Tesi del Manifesto* ("Per Il Comunismo") and Rossana Rossanda, "Scuola e Societa", *Il Manifesto*, no. 12, 1970.



HOW DOES POLITICAL CHANGE TAKE PLACE ?

“We must cease to look at each constituent of Science for the People as ‘doing its own thing’ and try to forge an organization with unified perspective and purpose.”

One of the distressing characteristics of Science for the People is the lack of political life within it—lack of political discussion, lack of rapport between the various constituents, absence of any attempt to relate present activities to more general political perspectives and reluctance either to give or to accept criticism.

Our organization, as several letters in the March issue of *Science for the People* point out, fails to convey a sense of political purpose. Instead it projects an amorphous image, an amalgam of a counter-culture group and moral outrage. An organization of that sort may well provide its members with moral satisfaction but it is not well suited to effective political work. The purpose of this article is to argue:

1. that the central aspect of the problem is our failure to understand properly the relations between everyday politics and the larger political perspectives;
2. that the above failure is rooted in an incorrect conception of the manner in which social and political processes take place;
3. that this incorrect conception is a manifestation of the dominance of a variant of the bourgeois ideology in our midst, and that it reflects the ambiguous class position of our membership;
4. that the way to correct this is to encourage political discussion, criticism, and ideological conflict in the organization;
5. that the proper starting point for the above is to insist that all SftP activities, from organizational to outward oriented, be subjected to political scrutiny (i.e., that everything we do be publicly discussed from the point of view of its relationship to the larger political perspective).

The concept of political perspective has two components. The first refers to the overall political objectives, the second to certain background notions concerning the way political and social processes take place. Usually, we tend to be articulate (though not necessarily precise) about our objectives. One is, say, for or against socialism, abolition of the draft, comprehensive health insurance, etc. But we usually have a much less explicit conception of the way things happen. For many of us such a question may

not even seem to be of practical political importance. It seems to belong to the realm of academic sociology or political science. Yet this background conception not only determines in large measure what we conceive to be our political purposes, but, even more so, it defines the manner in which we conduct our political activities. It makes us prefer some approaches rather than others, and it makes us choose one area of activity as preferable to another. Consider some examples: some people may be drawn to the politics of demonstrations whereas others are repelled by such politics; for some, committees are the main arena of political action; for others, the classroom. In my opinion, all of these are largely manifestations of this (more or less inarticulated) background conception of social processes. The fact that this is not politically articulated is responsible for the dominance of certain outlooks which I would like to characterize as bourgeois-idealistic.

What are the characteristics of this background conception? Vastly oversimplified in schematic form they can be summarized as follows:

1. The existence and change of social institutions is voluntary in that it depends upon the attitudes of people, and that these attitudes are of the nature of preferences. (Example: “The reason why hierarchical structures exist in schools and factories is because people think (because they don’t yet know better) the present division of labor is necessary.”).
2. To effect political change requires that these attitudes be changed. (“We have got to *convince* all those people that the hierarchical structure isn’t necessary, that an egalitarian structure is preferable.”).
3. Changing attitudes is an educational (in the academic sense of the word) process; that is, it depends upon the presentation of well-informed and well-documented views which would eventually replace the erroneous views (“Compare the benefits of an egalitarian society to an hierarchical one, taking into account the improved quality of life for all, etc.”).
4. The process of persuasion is limited to indi-

vidual opinions; it is possible to change a person piecemeal—one opinion at a time—leaving, at each stage, everything else intact.

5. The whole process is private; that is, after the individual is furnished with all the arguments, the decision is hers or his alone.

6. Social conflicts are amenable to solutions which are best for everybody (a kind of Pareto Optimum).

I do not suggest that the above describes the actual views of any particular individuals. It is rather a sketching of a system of operative attitudes, working, so to say, behind the scenes.

What is the origin of these background attitudes?

From one perspective they represent a distillation of bourgeois political thought—a view of society as an aggregate of individuals bound together or divided—by opinions. From another perspective they represent the life experience of certain professional people, academics, research scientists, highly skilled and highly paid technicians, etc. It is natural for example for teachers to stress the educational aspect of human relations, again not necessarily consciously. Likewise, scientists may find it natural to think in terms of problem elements and mathematicians or psychologists in terms of rules for resolving conflict situations. The outlook described above establishes its dominance by default, precisely because it is so deeply rooted in the experience (and desires) of the kind of individuals who are most prominent in organizations like ours.

Political perspectives in SESPA/SftP (and in many organizations similar in social composition and ideology) revolve around the notion of explicit goals. The hegemony of bourgeois ideology expresses itself in the fact that the background concepts (the one relating to one's view of social processes) remain dominated by attitudes derived from the middle class position of intellectuals and professionals.

How can we correct these ills? First and foremost I believe that we must insist on political accountability. All of our activities must be discussed from a broad political perspective. We must allow for a wider range of criticism and insure that it is a part of our organizational life, not a sporadic activity. We must cease to look at each constituent of SftP as doing "its own thing" and try to forge an organization with unified perspective and purpose. I do not believe, however, that the habit of systematic discussion and criticism is sufficient.

Inherent in the social composition of our organization is a tendency to see it as oriented towards general social issues. Since many of us do not directly feel our oppression in the day by day activity and environment of the workplace, we do not struggle there intensively. We do not strive for unity with other employees there in unambiguous antagonism to those institutions and individuals which oppress us as a group. We struggle *outside* of our workplace for a better society. To dispel the ambiguity that incapacitates and confuses many of us it is necessary to replace our idealistic, extra-workplace "struggle for a better society" by unified direct activity (and discussion) concerning the concrete problems we have in common with our fellow workers, problems that also make us have the same enemies. Perhaps we can prepare ourselves better for unambiguous class struggle at the workplace by a bit of class struggle among ourselves; a struggle to establish SftP as an organization of *working* scientists, teachers and technicians striving for their own liberation against the corporate institutions and the individuals representing them.

A.S.

[We hope persons who read this article will be "convinced" to "change their attitudes!!", Eds.]



DOES OUR PRACTICE STAND UP TO SCRUTINY ?

“Extraordinary competence is not a license to control and dominate others; instead, it confers the responsibility to show them the way you have already found.”

According to Margaret Mead [*Science*, vol. 179, pg. 164] we in SESPA “haven’t developed, . . . haven’t matured”. She also made the crack to me that we “were a bore.” Has SESPA/Science for the People indeed become boring? Have we failed to show any development over the last few years?

At the 1970 meeting of the American Association for the Advancement of Science (AAAS) in Chicago we passed out the New University Conference analysis, *People’s Science* by Zimmerman *et al* [*Science for the People*, vol. III, no. 1, Feb. 1971]. Last year at the 1971 AAAS meeting in Philadelphia we passed out the pamphlet *Censored**, which contains a more developed version. And more recently at the 1972 AAAS meeting in Washington, D.C. the “Science and Survival” section of the SESPA leaflet was a reprint of part of this same essay. Published in *Liberation* under the title “Science for the People” it remains the only proclamation which purports to represent the group. It would have been fruitful to analyze the essay. It lacks clarity and has other defects. To my mind, by not doing so, we lost the chance to reflect upon ourselves. The fact that this essay could be used in the 1972 AAAS pamphlet, with perfect agreement from those who oversaw publication (although others of us disagreed) attests to its continued relevance.

As defined by the essay, Science for the People has not changed. Yet, does that essay really define Science for the People? It is generally known that some of the Boston group (for instance) do not agree with it in every respect. I myself find that the “programs” at the end leave something to be desired, and that the political analysis is based on hidden assumptions, which I will explore later, but I don’t find much to disagree with fundamentally.

The answer is not ready to-hand because of the lack of critical discussion of the essay. The general lack of criticism and political discussion has just begun to be remedied in the last few months and in the last two issues of *Science for the People*. My essay is meant as a continuation of that discussion.

Some of those opposed to the programmatic statement by Zimmerman *et al* have asserted that SESPA is defined

by its actions. What, in light of three years of actions does this actually mean? SESPA actions have several characteristics, and I shall criticize these and our performance in the past:

Direct Action. We do not seek to represent anyone but ourselves in our actions, nor do we permit others to represent SESPA, except in the role of sympathizer. This seems to be based upon a desire by many in the group to be their own agent in matters of politics. Yet, although we have maintained this course in the realm of practice, in the realm of theory many have been content to let Boston and certain leading individuals carry the ball. Is political theory, unlike political practice, the rightful property of a few? Certainly, the answer is no! Just as we assert that it is necessary to make the specialized knowledge of science widely available, so should we also make available the hidden assumptions of those who do theoretical politics for Science for the People.

Systematic Political Analysis. When we hold that the Vietnam War, AAAS in Latin America, and the behaviour of war contractors are all of a piece, we are implying a class analysis—a fundamental concept in Marx. To what extent, then, is SESPA Marxist? We seem to use Marxist categories, we align ourselves with Marxist groups, and many of the leading individuals are Marxists, or at least some form of socialist revolutionary. Why do we not discuss this in SftP? We should heed Freire’s† assertion about the dialogical nature of political education, the necessity for both reflection and action and the necessity for doers also to be thinkers as well as thinkers also doers. This would require us to clarify our politics, to develop a politics that everyone participates in both as activist and theorist. But this also requires us to bring to light and understand the basis of our political differences. That was the message of Mao Tse-tung in the Cultural Revolution in China “one divides into two” which is diametrically opposite Liu Shao-chi’s line, “two unite into one.” It is not possible to unite people by attempting to cover up political differences. People can only be united through ideological struggle and subsequent unification around common objectives.

† Paolo Freire, *Pedagogy of the Oppressed*, Herder & Herder (1971), reviewed in *Science for the People*, vol. IV, no. 6, Nov. 1972.

Continued on page 37

* This pamphlet, which represents one of the political positions within SESPA/Science for the People, is now out of print, but will be available soon as *Towards a Science for the People*.

WHO ARE WE ?

As part of the ongoing "discussion of the political orientation of SESPA" initiated in the January (May cover) 1973 issue, we are printing these excerpts from a draft flyer describing SESPA philosophy, political strategy, and history. The draft, put together by the Interim Steering Committee of Boston SESPA has been sent to local contacts for comment and appeared in a recent issue of the Boston area newsletter:

PHILOSOPHY

Science for the People means recognizing the political nature of science; it means access for all people to useful human knowledge. It means the organization of men and women in science as a basis for alliance with other communities aimed at fundamental social change. We are Science for the People. We are scientific workers brought together by the common experience of frustration in our attempts to be socially productive human beings. We see dehumanization and alienation as part of a social order of exploitation, racism, sexism and war. We seek to uncover the roots of this diseased social and economic order which fragments our work and our lives. Control by government and corporate bureaucracies serves only the few. You and we are the people science should be for.

Science in American society is not neutral. Who among scientific workers or the people science affects participate in setting directions? Science is not a free agent. What science, what scientist is independent of the social and economic system which funds them? Action for social change demands that we reassess both the way we view science and the way we relate to one another. As scientists and secretaries, technicians and teachers, we are taught that being responsible is akin to being efficient and that competition which perpetuates isolation and fragmentation is fundamental. Myth and jargon serve to intimidate those not in the "scientific community", causing them to surrender their powers of reason and action to a "detached" and "dispassionate" scientific elite. Elitism provides the distance between knowledge and people essential for control by the system. Action to oppose that distance, to regain control of our lives, our values, our directions, is responded to by a science which provides a technology of crowd control and surveillance. Science for the People means knowledge for the people and through knowledge, action. Our actions serve as a common statement. We judge others by their practice, just as we expect to be judged by others.

POLITICAL STRATEGY

SfP's varied activities demonstrate different tactical approaches for confronting how science and technology are used for control and profit; however, there is considerable underlying agreement in strategy. Thus anti-elitism is an important foundation of SfP politics and, in practice, this means relying on the activities, skills and organization of large numbers of people rather than seeking favors from those who hold power. Concretely, SfP focuses on communicating with our peers—people we meet or work with—rather than, for example, lobbying in Washington or

otherwise attempting to push legislation.

Through meeting, discussing and publishing, we try to interject important ideas into, and get involved in, people's daily concerns and struggles. In contrast, some organizations of scientists and engineers primarily pursue legislative influence, like through expert testimony, for their impact.

Since where we work is a major part of our political environment—in industry, education or government—one component of SfP strategy is to develop collective approaches to dealing with problems people face in these jobs, and, in the process, define in increasingly broad terms what these problems derive from. Another emphasis in SfP is applying, whenever possible, people's specific skills directly to the problems of people oppressed by the system as a whole—including ourselves and the movement in general—as in the Science for Vietnam Project or the Science Teaching Group. Again, in contrast, are individuals who attempt to play a progressive role by working upward "within" the system, behaving themselves, hoping that one day their credentials will make their ideas more acceptable to policy makers.

There are also organizations which do detailed muckraking research of a technical nature which, while useful, miss the broader implications of their efforts. In Science for the People, we think it's important to go beyond describing how things are, to explain why they are, and what obstacles stand in the way of change. Further, we believe that through collective participation in a broad-based organization, the required analysis is accessible for everyone, not just the "experts." Thus Science for the People is able to develop analyses and materials that are relevant and useful in our political work: in our jobs, at professional meetings, and in general agitation actions and publishing.

ACTIVITIES AND ORGANIZATIONS

SESPA/Science for the People is presently a loosely-structured organization of national scope . . . Although there is an underlying broad agreement about the misdirection of science and technology, the real definition and goals of SESPA/Science for the People are determined by the actions of its chapters and project groups.

[This section continues with a general description of activities and a listing of project groups (see, for examples the chapter reports in this issue). There is then a paragraph on the magazine.]

HISTORY

The group now known as SESPA/Science for the People originated at the January 1969 meeting of the American Physical Society (APS). Anti-war sentiment was very

high at that time, and some activist members of the APS had been trying for two years to get the Society to declare itself against the Indochina War. Finding the APS official structure unresponsive to their efforts, some members formed a new group, Scientists for Social and Political Action, and initiated a newsletter to express their political views. As industrial and other scientific workers joined the group, its name was changed to Scientists and Engineers for Social and Political Action (SESPA).

Shortly after the founding of SESPA, members of the group became involved in the historic March 4th Research Stoppage at MIT (1969). Conceived originally by a handful of MIT graduate students and faculty, and still principally anti-war in thrust, March 4 grew to symbolize an increasing political awareness among scientific workers in the U.S. (Appropriately, the button read, "March 4 is a movement, not a day.")

Still later in 1969 Boston SESPA joined with a group of graduate students who were putting together a radical critique of science for a session in that year's meeting of the American Association for the Advancement of Science (AAAS). Together they organized 100-150 people who participated in activities critical of establishment science at the AAAS meeting. That occasion signified the transition of SESPA from being a primarily anti-war group to being a more radical, anti-capitalist group, as symbolized by the fist and flask and the slogan, "Science for the People." Growing out of this AAAS meeting was a strengthened Boston group called SESPA/Science for the People.

As a result of this growth, *Science for the People* magazine was first issued in August 1970 to provide a means for more thoughtful and lengthy analysis than the SESPA newsletter could handle.

Again in 1970 the meeting of the AAAS, this time in Chicago, was attended by SESPA people and by an active group of local radical scientists. That meeting was studded with guerrilla theatre, leafletting campaigns, and sharp questioning in sessions. Afterward, new SESPA/Science for the People groups popped up all over the country.

The continued growth of SESPA/Science for the People has encompassed more than "hard" scientists. Teachers, technicians, students, secretaries, psychologists, sociologists, computer programmers, and other people who recognize the importance of working toward a science for the people now comprise our ranks. With this change in constituency has come a broader critique of scientific practice—of elitism, racism, and other forms of discrimination, and an attempt to develop a new and challenging practice of radical science.

Each issue of *Science for the People* is prepared by a collective, assembled from volunteers by a committee made up of the collectives of the past calendar year. A collective carries out all editorial, production, and distribution functions for one issue. The following is a distillation of the actual practice of the past collectives. **Due dates:** Articles received by the first week of an odd-numbered month can generally be considered for the magazine to be issued on the 15th of the next month. **Form:** One of the ways you can help is to submit double-spaced typewritten manuscripts with ample margins. If you can send six copies, that helps even more. One of the few founding principles of SESPA is that articles must be signed (a pseudonym is acceptable). **Criteria for acceptance:** SESPA Newsletter, predecessor to *Science for the People*, was pledged to print everything submitted. It is no longer feasible to continue this policy, although the practice thus far has been to print all articles descriptive of SESPA/Science for the People activities. Considerably more discrimination is applied to analytical articles. These are expected to reflect the general political outlook of *Science for the People*. All articles are judged on the basis of length, style, subject and content. **Editorial Procedure:** The content of each issue is determined by unanimous consent of the collective. Where extensive rewriting of an article is required, the preference of the collective is to discuss the changes with the author. If this is not practical, reasons for rejection are sent to the author. An attempt is made to convey suggestions for improvement. If an article is late or excluded for lack of space, or if it has non-unanimous support, it is generally passed on to the next collective. **Editorial statements:** Unsigned articles are statements of the editorial collective. **Opportunities for participation:** Volunteers for editorial collectives should be aware that each issue requires a substantial contribution of time and energy for an eight-week period. Help is always appreciated and provides an opportunity for the helper to learn, and for the collective to get to know a prospective member. There are presently plans to move the magazine production to other cities. This will increase the opportunity for participation. For legal purposes *Science for the People* has become incorporated.

We feel that certain comradesly criticisms are needed. In particular, political philosophy and history interact dialectically, and any attempt to discuss one of these separately from the other is misleading. We should approach our own history with the same radical critique which we attempt to apply to our historical analysis of the larger society. The above draft tends to give a static description of the organization, which implies a problem-free homogeneity. It suggests a coherence and contentment with ourselves to which it invites readers to subscribe, rather than welcoming them to struggle with the ongoing process which is Science for the People. The following is an editorial contribution to the group writing the flyer. We feel it provides an honest and interpretive indication of who we really are—a picture of Science for the People, in motion. In addition to learning of significant events from our past and of the context in which they occurred, readers should get some idea of how we see ourselves now—the problems, attitudes and different people that we are. But hopefully readers will also find, or be stimulated to develop, action approaches to the social and political problems with which they are confronted. Then feeling part of us, part of our motion, they will join in the discussion and the actions that answer the questions of “Where do we go from here?”

When the group now known as Scientists and Engineers for Social and Political Action, SESPA/Science for the People, was formed in January 1969 by a group of dissident physicists at the annual meeting of the American Physical Society (APS), most of the social groupings and ideologies that presently are represented in SESPA had already appeared. One group, who were the principal organizers of Scientists for Social and Political Action (SSPA), as it was then called, were academic physicists who were morally outraged at the Indochina war and the complicity of their colleagues. They represented a substantial movement* that had been developing since 1967 out of the struggle over a proposal to the APS that would have enabled a vote of the membership to commit the society on public issues. Having already confronted the undemocratic power-wielding of the older establishment physicists and their rigid organization, the founders of SSPA emphasized the participation of all, a loose structure, and the absence of a binding political manifesto.

Students constituted another thread in the fabric of the new organization. At MIT they had been organizing since November 1968 for a massive “Research Stoppage” to take place on March 4th. Although primarily anti-war in thrust, the March 4th activities brought out the differences between the radical, systemic and uncompromising critique of the students, vs. the position of many of the MIT faculty, who favored seeking legislative reform and offering themselves to the government as expert scientific advisors. Consequently, at about the same time SSPA

* The January 1969 organizing meeting in New York was attended by 300 of whom 100 signed up as members including 16 who took local organizing responsibility.

was emerging, radical students of science formed Science Action Coordinating Committee (SACC) at MIT and similar groups at Harvard, Cornell, Yale and elsewhere, while legislative reform (lobbying) oriented academic scientists formed the Union of Concerned Scientists (UCS) at MIT and revitalized the Federation of American Scientists elsewhere.*

Many among the students recognized not only that the reformist approach of the UCS couldn't stop the war machine of itself but also that they themselves couldn't—that it was necessary for working people in America's industries to take action. Groups of industrially employed scientists, engineers and technicians had already met with SACC organizers by the time of the founding of SSPA. The best organized of these, a workplace radical study group of technicians, engineers, secretaries and scientists, was represented at the SSPA founding meeting and became the nucleus of Boston SESPA. It tended to provide another important thread in the fabric of the emerging organization: anti-capitalist, working class orientation. But, though industrially employed and working class oriented, these were not production workers, a group from which SESPA has still today virtually no members.

Beginning with the APS meeting, then March 4th, 1969 saw many actions across the U.S. with the diversity to be expected from such a diverse membership. Boston SESPA worked closely with SACC and UCS while trying to increase its membership among the industrially employed. Anti-ABM activities were the focus of most of the chapters and much of it elitist and reformist (offering scientific expertise to middle-class citizen's groups, senators and congressmen). But a strong alliance was being formed in Boston between SESPA and a group of graduate students from Harvard and MIT who were putting together a radical critique of science for a session of the December meeting of the American Association for the Advancement of Science (AAAS). This alliance resulted in a more militant and radical group as symbolized by the fist and the flask and the slogan “Science for the People.” It also marked the beginning of the withdrawal from SESPA of those whose program was better represented by UCS or FAS.**

There were no women evident at the founding of SSPA and none of the students preparing to speak at the AAAS were women, although there were women secretaries and programmers in Boston SESPA. But women joined and played a major role in the AAAS actions.*** They

* UCS became part of FAS in 1971. FAS has members of Jason (technical consultants to the Pentagon, see *Science Against the People*, available from SESPA Berkeley or Boston) on its board and has become a registered lobbying group for the interests of elite scientists, “Science's voice on Capitol Hill.”

** This drifting away of liberal academics took about a year. Some have continued to work hard for reforms in the APS or joined FAS, etc.

***In addition to the draft resolution, “Equality for Women in Science” (*Science for the People*, Vol. 2, No. 2) their activity was far from restricted to feminist issues. They were and remain active in far greater numbers than their numbers employed in science would indicate.

made the men aware of the danger of carrying the sexism of the establishment science and of society as a whole into their organization. Since then anti-sexism has been a major point in the program of SESPA and women have participated in, initiated and led many activities.

Chicago erupted at the January 1970 meeting of the APS. Fist and flask were everywhere, unemployment was a major issue and student participation was strong. By December the Chicago chapter of SESPA/Science for the People hosted persons from all over the U.S. in militant radical actions at the meeting of the AAAS. The distribution of a position paper on "People's Science"* and organizing work in the newly forming Science for Vietnam activities represented the introduction of another major thread in the fabric of SESPA—the program to develop a science for the people.

The final leaflet of the Chicago actions promised that no scientific meeting would be allowed to ignore the social and political context in which the work discussed at the meeting was being done. Many meetings did hear from SESPA in 1971. In most cases the actions were the public manifestations of more basic political work. For example, the bi-monthly magazine *Science for the People* (begun in August of 1970 as an upgrading of the mimeographed newsletter in existence since February 1969) was becoming an important organizing tool. Correspondents offering to become contacts soon had several chapters going and important ideas were being discussed in the pages of the magazine.

A particularly important meeting in 1971 was the March meeting of the National Science Teacher's Association (NSTA) in Washington, D.C. Science teaching has been one of the prime means through which the ideology of the neutrality of science and the scientification of sexism, racism, and hierarchical structure has been infused into the minds of the youth of the U.S. It was there that the Science Teachers Group first publicized its critique.** Since then the critique of science teaching and the struggle for alternatives has become a strong identifiable component of SESPA's program, evident again in the 1972 NSTA Meeting and the basis for the March 1973 conference in New England organized by the group.

By 1971 SESPA's activities were sufficiently diverse, dispersed and numerous that even the magazine was inadequate to keep members in the organization aware of the extent of the mostly local actions. Additional publications were made available, including a few local newsletters and a regular national newsletter out of Chicago on Science for Vietnam. Cooperation with other organizations, a pattern from SESPA's beginnings, was extended. In San Francisco, SESPA joined in COMBAT, a local alliance against Ethnic Weapons*** and at the Spring Joint Computer Conference (SJCC), SESPA's presence was joined with Computer People

* An updated statement of this position in Science for the People is available in the pamphlet "Towards a Science for the People."

** Available as "Science Teaching: Towards an Alternative."

*** See *Science for the People*, Vol. III, No. 5.

for Peace (CPP) and the Committee for Social Responsibility in Engineering (CSRE) in Atlantic City.

Several groups joined with SESPA's actions at the December, 1971 AAAS Meeting in Philadelphia where one of the more prominent actions was a joint march and rally with the Vietnam Veterans Against the War (VVAW). Philadelphia also saw a strong thrust by SESPA and others against institutional racism,* again the manifestation in action of many less public activities. Although opposition to white racism had been a strong component of SESPA's program from the beginning and there have been several coordinated actions with black groups, there are still few minority persons in the organization.

SESPA's activities in 1972 continued in the pattern already established: occasional public confrontations and a great deal of diligent local activity, from workplace organizing to radical research. The arrest of SESPA people for maintaining a literature table in a conspicuous place at the (Washington, D.C.) December meeting of the AAAS emphasized the repression that was already evident in firings at Livermore, Honeywell and elsewhere. For some members it raised the question of whether the structurelessness of SESPA was suited to the discipline and coordination required under repressive conditions.

Questions about SESPA's internal structure and program were very much under discussion for much of 1972. With its growth SESPA had developed the strains to be expected in such a diverse group. These were more evident in the Boston chapter since there more than any other place the diverse membership and ideologies were present. Animated meetings addressed questions as fundamental as whether the lack of homogeneity is a weakness or a virtue. Boston, still unsettled, now has almost regular monthly meetings, an interim steering committee and a paid office coordinator. Madison, organized as a collective, now has two paid staff, and discussions of a possible first national conference of SESPA are now going on.

Paradoxically the non-centralized nature of SESPA has proceeded along with a growth in internationalism. Present from the beginning, SESPA's non-U.S. membership has grown as has its internationalist activities. At this writing there is a delegation visiting China, and plans and materials are being prepared for the AAAS meeting in Mexico City in July 1973.

It has often been the pattern in the history of the U.S. Left that a well defined group coming into existence under a strong manifesto has subsequently experienced fractionating forces. SESPA, a not-so-well defined group came into existence without a strong manifesto and has considerable centrifugal forces. Will it end up being the kind of cohesive organization that can play an unambiguously constructive role towards the next American revolution? Will it be able to link up with, and subject itself to the leadership of, the most oppressed classes—black and white, women and men, workers who have never experienced the privileges which the overwhelming majority of SESPA's members already enjoy? * * *

* See *Science for the People*, Vol. IV, No. 1 and Vol. IV, No. 2.

Continued from page 33

Local Autonomy and Consensus Decisions. Our practice has not been consistent, and the cloudiness of our politics make local autonomy in matters of theory impossible. Before the writing of the AAAS 1972 pamphlet, the North Side Chicago collective was assigned the development of the "Science for Survival" section of the pamphlet. They wrote a piece that was much too long, and many members at the meeting in New York in December disagreed with it in substance as well. To avoid a paralyzing discussion of the paper, I volunteered to take it and critical remarks from the others at the meeting back to Washington with me and write a shorter piece. This I did, and it was criticized by other members of the Washington group. The final piece may or may not have had as many faults as the North Side Chicago piece, but it was certainly shorter and incorporated some of the same points as the longer piece. Yet at the last minute, others in the group rejected it unilaterally in favor of a repeat of Zimmerman *et al.* Local autonomy? Consensus decisions? No. Both actions were mistakes and ought to be criticized. Ideally the New York meeting should have phoned Chicago and requested a shorter rewrite embodying a few of the main criticisms, and this document should have been held to. Certainly the "Science for Survival" does not imply the Zimmerman *et al* essay as a necessary outcome. Other examples of inconsistency in this area can be cited; we ought to be more careful. This is an important principle.

Anti-Elitism, Communalization of Resources and Skills. I feel that SESPA has a hidden elite in that some are adjudged to be more competent politically than others and that the political tools necessary for competent analysis are not communal property. Extraordinary competence is not a license to control and dominate others; instead, it confers the responsibility to show them the way you have already found. We consistently take an anti-elitist stance externally; certainly we ought to take the same stance within our group.

Consistent Critical Attitude. We have continued to be critical of this society and of AAAS and the "solution" it proposes. We must also continue to be critical of ourselves, and keep our objectives clear and our theory and practice in harmony. If we are working for a more humane society, in which all peoples are freed from the necessity to sell their souls to the Man in return for the privilege to live, then we must love those who are our comrades and realize that oppression has left its mark on all of us. We call these marks "faults", but whose fault are they? Our own, just as the unemployed may be unemployed because of bad genes? Clearly, no. We have all been raised in a political system where oppression is the common mode of everyday life. We have been educated as tools of our oppressors, and we contradict that role, yet in true dialectical fashion we carry the wreckage of that role within us.

We need more work and more commitment from everybody. We cannot afford to rest on the financial

and political backs of a few people. This is a big country with a complex populace, and our movement is just emerging. We must realize that we still have a long struggle ahead, and that what we oppose cannot be changed within the established political-economic system. We must rely on the people, in a concrete sense: 1) We must trust the people whom we arouse politically, for if we mistrust them, we too risk becoming an elite, and 2) We must continue to do our own politics, because we too are of the people in a concrete sense, and to separate ourselves from them is to extinguish ourselves.

I would urge a national or regional convention of SESPA and continued effort to spread the editing of the magazine to cities other than Boston. I would urge that we develop better projects, and more of them, and that we continue to share common experiences of success and failure, and analyze them. And I would hope we do *not* stagnate. While we may bore Margaret Mead, I would hope we don't bore ourselves, for that would be fatal.

D.W.

D.W.'s criticism of the lack of public discussion on a position paper which he knows is disagreed with by many active members of SESPA is, in our judgment, valid and necessary. We encourage all who are critical of the Zimmerman et al position to submit their criticisms and alternative analyses and programs to succeeding editorial collectives of the magazine. This would begin the necessary discussion.

FRIENDS AND SCIENTISTS:

The Far Out Mesa Agricultural Project is involved in irrigating land in the Navajo Nation. If you have any publications, research, comments, etc. on any of the following items, please send them to the address below:

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- * SMALL-SCALE SOLAR ENERGY USES
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- * DESERT IRRIGATION

Jim Bowring
Far Out Mesa Project
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WHAT'S HAPPENING?



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AAA'S SCIENTISTS WANTS TO CONSIDER AIR WAYS



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SCIENCE

FREEDOM

ACTIONS

POLITICAL?

WE WANT FOR



SCIENTISTS

BOSTON WOMEN TO PUBLISH SPECIAL ISSUE OF SCIENCE FOR THE PEOPLE

One of the better Boston SESPA/Science for the People general meetings, in our judgment, was in February at MIT where the Women's Issue Group gave a presentation of their work. The group describes itself as follows:

The Boston Women's Issue Group of Science for the People was formed in the fall of 1971, when a few of us saw the similar ideological stereotyping used to oppress women and blacks, as exemplified in Herrnstein's "I.Q." article (Atlantic Monthly, November, 1971). We saw how these ideologies could be used as an attack on the present women's movement, and as we met throughout the year, we studied past as well as present uses of science in forming ideologies which prevent social change. Our research and conclusions will soon be available as a special issue of Science for the People.

Wanting those outside of Boston to know of their work and of the forthcoming special issue, we asked them to submit a summary.

The present women's liberation movement has been steadily growing in strength, permeating through all segments of society and all political persuasions. The early concerns of a few small cells of radical women are now being taken up by the very women who were once firmly enmeshed in the feminine mystique. The demands which have arisen are both cultural (an end to sex role stereotyping of women as passive, unintelligent, etc. and defined by man), and economic (equality in pay and job opportunity, freedom from total responsibility for child care) in scope. The implications of these demands are radical: to implement them would require a restructuring of the society. Feminism is indeed a threat to the status quo. Resistance to this threat is exemplified by attempts at cooption, especially in the media; more salient, however, is the misuse of science in attempting to preserve the ideology which rationalizes the present inferior position of women.

The growth of a women's movement and the uses of science in a threatened society are not unique events in American history. In examining the sources and repression of contemporary feminism, we have been struck by their historical counterparts in American society of the 19th century. Of course, we cannot blithely apply the events of the past to a solution of the present, but the major developments of the 19th century reveal the patterns of our socio-economic system and its ideological trappings.

The women's movement itself was really a conglomerate of separate activities and critiques; labor class women protested physical and economic oppression and some middle class women were concerned about other contradictions and limitations in America's "democratic" institutions, e.g., education and politics. Thus, radical feminism posed a genuine threat to the institutions and ideology of a maturing capitalist society. Various tools were used to reinforce the traditional definition of women (The Cult of True Womanhood) and thereby to repress the spreading challenge. After mid-century, science was replacing religion as the source of truth and values. By 1900 every social and biological science had contributed to the ideology that natural laws dictated social and sexual properties. Anthropology, evolutionary biology, physiology, medicine, psychology, and sociology all added scientific legitimacy to the view that women were inferior, maternal and passive "by nature". Science proved to be a cooperative and authoritative tool for rationalizing the system. Under the weight of social opposition, aided by scientific argument, radical feminism virtually collapsed by the first decades of this century. A collection of liberal organizations and appeals which posed no threat to the system were the lone survivors. If we, as feminists, want to achieve radical change, we must understand this general historical pattern and prevent its repetition today.

The development of science as a source of reinforcing and formulating the stereotypes of women presently, parallels historically its misuses in the late 19th century. Some of the more popular scientific studies of today are involved with investigations of the hormonal, ethological and psychological differences between men and women. The nature and interpretation of such studies are relevant in their reinforcement of prevailing attitudes concerning women and their position in society.

With the present threat of feminism to the basic structures of our society it is no wonder that hormone studies concerned with behavioral differences between men and women have become popular. Arguments which purport to show I.Q. differences between the privileged groups and various oppressed groups are receiving a great deal of attention. Studies of animal behavior and its extrapolation to human behavior have appeared, applying animal sex role differentiation, aggression and position in animal society, to a rationalization of our human society and its sex role definitions. The underlying theme of all these studies is that human behavior is determined by genetic inheritance. Inequities between men and women are read as nature's will. Women are

being told that they must accept their present position limited to the domestic sphere, for it is what nature intended.

We are attempting to demonstrate the degree to which science is being used for social purpose (maintaining status quo) through an examination of the manner in which science is conducted and the way "scientific" conclusions are disseminated. For example, is the science truly objective or do the researchers have inherent bias before undertaking their work? Do the questions which science is asking indicate a responsiveness to the needs of the people, or are they merely reflections of the ideas of the ruling class?

In addition to fortifying ideology, science is used in more direct ways, against oppressed groups, such as its use in birth control technology; its use is facilitated by prevailing ideology. In examining the political aspects of birth control, our group has focused on the connections between birth control, women's oppression, and the exploitation of the third world. Contraception is necessary to women's liberation, but not sufficient. Women's function must no longer be merely maternal, but must be expanded to include their active participation in all phases of the society's life.

A radical restructuring of society will be necessary to achieve these ends.

Excess population is singled out as the cause of poverty in the third world; this approach masks the fact that "underdevelopment" is due not to overpopulation, but to the exploitation of these countries by the imperialist powers. Third world women are the targets of the thrust to defuse the threatening "population bomb." In addition, these women are also used as guinea pigs, to develop new contraceptives to be subsequently used by women in "advanced" countries.

We have found that there exists a network between the U.S. government and its international agencies, drug companies, population control groups, and the scientific establishment, whose aim is to maintain the status quo. Their brand of birth control has nothing to do with women's liberation, but rather is devoted to reinforcing the exploitation of all oppressed groups, including women.

Not only birth control misuse, but also the application of psychosurgery on predominantly women mental patients illustrates that "science"-supported ideologies result in *direct* and *physical* manipulation of women at this moment.

* * *

SCIENCE TEACHERS HOLD SUCCESSFUL CONFERENCE IN BOSTON

The SESPA Science Teaching Group held a science conference on Saturday, March 10 at the Cardinal Cushing High School in South Boston. The 150 participants included students and faculty from local high schools and colleges.

The conference was organized in response to a need felt among science teachers to begin a process of continuous contact with other science teachers in the area, rather than the once-a-year strategy of the past. It was felt that such an option should be available to those of us who were too isolated to do any effective workplace organizing.

The object of the conference was not to lay down heavy dogmatic raps. It was rather to raise questions and make connections about the role and function of science and science education in this society.

What follows is a brief account of the workshops that were given, as reported by their respective organizers.

The Energy Crisis and World Resources

The workshop was built around the "energy game." This contained a series of facts about the present rates of energy production and consumption, the effects on the environment of the ways in which we obtain and use energy, and projections for the future. Workshop participants broke up into small groups—the purpose of the game was to arrange the facts into various categories, and to then draw some general conclusions about energy priorities and

usage. This seemed to be an effective way to get people involved on both the factual and conceptual level.

The workshop organizers gave short talks on their experiences in running energy-related courses and provided each participant with a package of pertinent facts and an annotated bibliography.

Science and Society Courses

Two related problems were dealt with. The first was the use of science and technology to rationalize and strengthen the existing social order and to keep people under control. The second was how to bring the first problem up in the classroom. The morning session was monopolized by the organizers, out of their anxiety to get a good discussion going. The afternoon session achieved a much better balance between informative examples provided by the leaders and a stimulating and lively general discussion.

It appeared desirable that a general analysis of the relationship between science and society come first in the curriculum, in order to provide students with the incentive and rationale to learn specific sciences and techniques. The resistance of some students to such an approach was discussed and traced back to the myth that science is neutral, objective and infallible, and to the social pressures to achieve in a competitive society. In particular, the role of testing and grading in the classroom and the needs of female and working class students were discussed. The necessity to

repeat and expand the analysis of the social and political role of science at different levels in high school and college was emphasized.

Nutrition and Food Additives

The Nutrition and Food Additives workshop decided to focus on problems in the American diet, the influence of advertising, the whys of eating habits, and the profit motive of the food industries—their influence on governmental agencies and on what is available in the market. We began the workshop by having the participants answer a one-page questionnaire on food attitudes and knowledge. This was used as one basis for discussion throughout. A major activity (particularly of the morning session) was the reading of labels. Each participant was given a package and the subjects of standards of identity, vitamin fortification, ambiguous labeling, additives and changing regulations were discussed. We found that the packages got most of the participants actively involved in the group. We also presented, both orally to the workshop and by a full collection of handouts, information on vitamins and food content and several ideas for curricula or more limited lesson plans. One of the most exciting mini-curricula was a plan for having students “buy” on paper the groceries for a family of a specified number on a specified budget; this would provide a context for learning about diet as well as about economics and the relationship of both. We tried, whenever possible, in both sessions to lead the discussion from what individuals can do with their own diet to the real whys of the food market. We varied our emphasis from an involving discussion in the morning session to a more information-giving session in the afternoon; but we were unable to achieve a blend of the two formats satisfactory to most of the participants.

Health Care and the Pharmaceutical Industry

The workshop began with a general statement about the crisis orientation and the inequitable distribution of health care in the United States. One component of the medical-industrial complex — the pharmaceutical industry — was discussed in some detail to provide an example of the consequences of profit as the major motivation for health-

related industry. Alternatives to the U.S. model, such as medical care in the United Kingdom and China, were reviewed. A discussion of how this material could be integrated into the high school classroom with emphasis on courses taught from the book, *Our Bodies, Ourselves*, (presently available from SESPA/Science for the People, 9 Walden St., Boston) was presented. Finally selections from the slide-show prepared by Gretchen Muller on the portrayal of women through drug ads were presented.

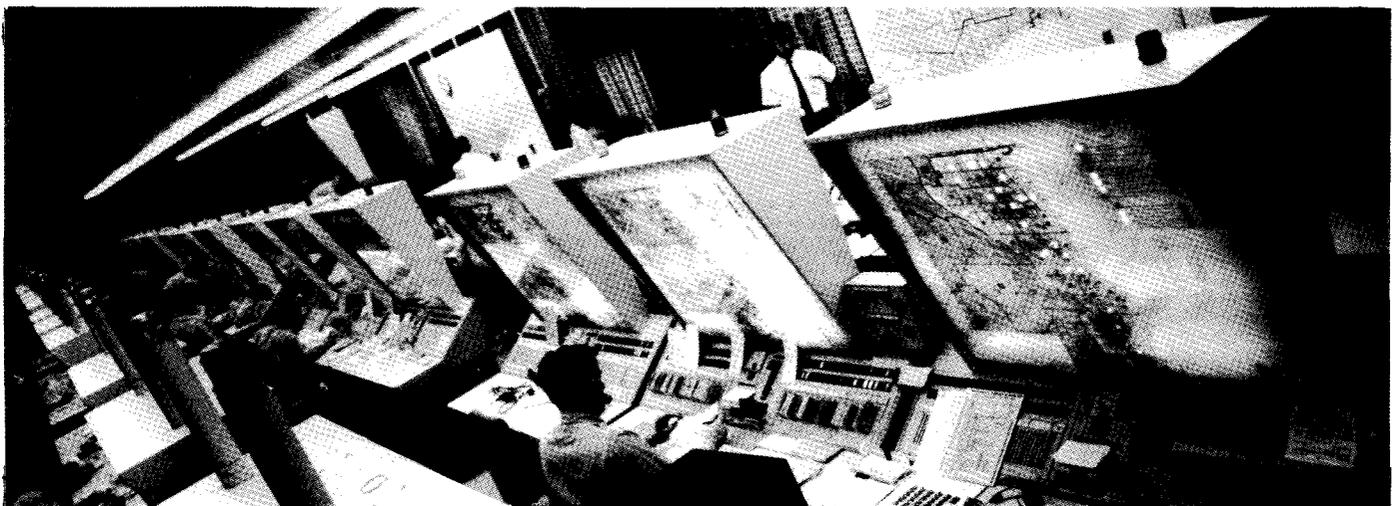
Genetic Engineering

The format of the Genetic Engineering workshop consisted of a brief introductory lecture, two introductory movies on the social consequences of genetic engineering made by BBC and CBS, and general discussion. A position paper on genetic engineering written by the organizers of the workshop was mailed to participants in advance and was useful in providing a common background for discussion. An annotated bibliography was passed out at the workshop itself. The participants (about 50) were initially interested in learning about basic scientific techniques used in genetic manipulation. However, the discussion gradually shifted to the ethical and political questions regarding how to prevent the research from being misused. Unfortunately, many people misinterpreted our position as advocating a total cessation of research in genetic engineering technology, despite the fact that we tried to emphasize our belief that science could be controlled in a just society. In general, the workshop seemed well received and many people participated in the discussions although almost everybody involved agreed that for future workshops it would be useful to conduct more focused discussions.

There were also workshops on overpopulation and ecology.

There seems to be a great deal of enthusiasm about trying to put the conference papers and materials together as a book, and plans are afoot to follow this up with future organizational work.

Collected from the Science Teaching Group by D. J.



CHAPTER REPORTS

BERKELEY

Berkeley SESPA, having completed the story of Jason, *Science Against the People*, is continuing with efforts to distribute the booklet and to raise the issues it entails in a variety of places (most recently, over local radio in a SESPA discussion program; in a series of speaking engagements in Los Angeles, and at the national conference of the Scientists' Institute for Public Information (SIPI) in Berkeley).

New projects starting are a Shell Strike Support Committee, a group to work with other organizations opposing Nixon's budget cuts, and a China Study Group. Additionally, the chapter has initiated a series of nighttime discussions to clarify our members' goals and priorities. At one of these meetings, members listed *thirty two* separate ideas for projects in the space of several minutes, clearly demonstrating that there is no lack of things for SESPA people to do. However, the principal problem became one of establishing priorities, since it is clearly not feasible to do 32 major jobs and do them well with an active membership of only 15. This remains a contradiction for future discussion, most of the group in the meantime tending to focus on those activities which appear the most pressing because of time factors or crisis value. Also in the future are discussions of political line, style of work, structure, the Gorz article, and so forth.

R.W.

BOSTON

The last chapter report from Boston (Nov. 1972) described our organizational problems. We have since taken a few steps towards solving them: set up a steering committee (on an interim basis until it can be evaluated), and freed one person to do work as office coordinator.

The interim steering committee consists of volunteers coming from most of the Boston subgroups. It has concerned itself with the overall functioning of the Boston chapter, made intermediate level decisions, written a flyer describing SftP, put out the Boston newsletter, and organized general SftP meetings.

The general meetings take place about every six weeks. About 75 people usually attend. The format now in vogue centers around a report from one of the project groups. This has served to keep us all informed and allow us to help each other, to attract new people and introduce ourselves, and to take a critical look at ourselves. Important decisions are also reserved for general meetings. The meetings have taken place at different universities in order to reach new people. We have had difficulties assimilating new people into our project group structure, so the steering committee is trying to set up new groups at each of the places where we have had general meetings.

The office coordinator has been acting as information funnel, organizing and doing office work, working as part of the steering committee, and doing other political work. This has resulted in less reliance on the people who live above the office and has produced one more harried person.

Success in dealing with our own problems will still take some time because we have yet to do away with the causes. These are mixed and inter-related—growing size, lack of agreement on the focus and goals of SftP, the low priority placed on the functioning of the Boston chapter as a whole, and tensions between individuals.

The office coordinator not only cannot do away with these causes but cannot even function in the midst of them. The steering committee can do more. It has already enabled us to respond more advantageously to opportunities for political work and it is now taking up the task of proposing further remedies to our problems.

Most of Boston's subgroups have been functioning well and working hard. The Science Teaching Group has just completed a successful conference (p.40), and the Women's Issue Group is preparing for a special issue of the magazine (see p.39). The China Group will swing into action when the SftP delegation returns from China, planning activities and helping write a book. Off-Control, the group on social control technologies, is on the rocks—until some people volunteer to pull all the materials together in some way. The

AAAS-Mexico City Group is working with others in the U.S. and Latin America to prepare for the upcoming meeting of the American Association for the Advancement of (imperialist) Science. The Industrial Group works twice a month in the office and is organizing discussion sessions near their workplaces. The Chemistry Collective is dormant.

M.T.

LITTLE ROCK

I left Arkansas and have been traveling about to Florida, working, reading and writing, thinking, living at a different pace, changing. I am on my way back to Arkansas, will have my new place in Little Rock, get a job and live there a while.

At this time I don't think it would be honest to term my SESPA affiliation as "active". More than a scientist, I am a historian, writer who needs to be involved with a consciousness which I would term, "Literature for the People" people interested in literature that grows from a consciousness of the need for change at all levels, and to create a realistic literary tradition which loves and respects the everyday person, sees the trap of modern America. SESPA turned me on to serious response to the crisis of science and technology on the road to 1984 and Super-Vietnams, but besides the turn on, my value to the group is minimal, as I am neither a scientist nor a regular science worker. I'm at best a para-scientist, interested. [SftP needs all those affected by science. As Gorz indicates, technical workers must join in struggle with other workers to avoid "self-justifying ideology". Ed.]

I talked with a lot of people, telling them about SftP when it seems realistic or of value. In this way I've informed some others about it, but not in anything that could be termed an organizational way. I would like to continue as a contact in Arkansas until such a time as a scientist-organizer emerges to do the trip, at which time I'll step down and be the follower I really am.

J.N.

LOS ANGELES

Our group has devoted most of its attention to community organizing activities—health care, community-oriented educational projects, food conspiracies, and child-care. There is also strong involvement in the development of radical political parties—Peace and Freedom and La Raza Unida. These activities reflect the orientation and efforts of members of the group before the formation of the chapter; in fact, before the formation of SESPA.

Our major effort is devoted toward working with other local people to establish a community free clinic. We are well aware of the kinds of problems that free clinics face, both from observation of what has happened to other clinics in the Los Angeles area, and from our direct experiences. (See, for example, *Science for the People*, January, 1972.) We are working to develop a clinic that will serve the community's health needs, educate the community to the inadequacies of the present system of health care, and serve as a model for an improved system. We are also trying to broaden the narrow perspective from which health care is usually viewed, by relating health problems to conditions of everyday life in this society, e.g., the workplace, the school.

Activity of this kind needs all the assistance that it can get from committed radical humanists. We would like to share experiences and ideas with others working in similar areas, and work with them directly wherever possible.

A.H.

MADISON

We, in the Madison collective, have for a long time faced the problem of an inability to sustain a long-term political effort. Much of this seems to stem from the conflicts of our role as political activists in the world of science professionalism. Most of us are situated on the University campus and only when classes, research or other demands permit do we engage in the tasks of Science for the People. Many projects begun enthusiastically are often not completed because of those demands which, in our case, make the development and progression of the tasks and actions uneven, and at times discontinuous or disruptive. This lack of momentum stymies the development of an on-going and

growing movement, and the collective can tend to become a hobby wherein people seek respite from their alienating jobs. We felt the need to develop concrete organizing abilities in conjunction with, and made an integral part of, our usual daily work schedules and involvements.

We felt that supporting a full-time organizer would be a first hard step and a tool in this process, helping us to overcome our limitations. About four months ago, following a series of discussions, we decided to pool our financial resources to provide funding for one, and possibly two, full-time organizers. With monthly pledges of \$10 to \$50, we readily assembled the \$200 a month, enough for two subsistence incomes. But we did not want just an office worker or a coordinator. We did not want to be "hiring" someone, but wanted to provide the means for someone to make a full-time commitment to develop and grow politically, and at the same time help us overcome our limitations.

For example, we wanted to free someone to really take hold and lead one or two projects with the time available to gain momentum and evolve a clearly moving effort. This would have two important spin-offs. First, we have found that the best organizing tool is to have a well-defined clearly moving project. New people can relate to the project, quickly fit in and become a participant; and also the organizer has that all-important time to relate to and work with the new people before they drop out of the group from a sense of boredom, loneliness or frustration over a lack of feedback on the myriad political questions that Science for the People raises. Second, the best political education develops around specific, real examples. We hoped the momentum arising from the organizer's efforts would create a better climate for our own political growth as a collective.

We did have several fears in establishing "hired-hands" within our collective. By donating monthly sums, would we feel absolved from our responsibilities? Because the organizer would be in a vantage point of greater knowledge and awareness of the group's movement would we end up delegating the responsibility of overall policy decisions and actions of the group and interchanges with other groups to the organizer? Would we thus lose our cooperative spirit? Would there be pressure on the organizer to sublimate his or her ideology to ours simply because of the salaried status?

We hoped that by carefully selecting someone on the basis of past activism, political beliefs and style of work we could minimize some of the potential dangers. Fortunately two people whom we knew and liked and had worked with us for some time, expressed serious interest in our idea. One has already started.

It is too early to make a definitive statement, but so far our fears have not materialized. It has been far easier to come up with the monthly pledges and liberate someone than to overcome our limitations. We have become aware of crucial problems we must understand about our relationships with one another. We are working on developing better communications among ourselves, with the organizer, and with the community. With two full-time organizers and our motley crew, we may yet become an effective movement.

NEW YORK CITY

A new SESPA chapter with a specifically socialist orientation has been established in New York City. We originally got together to take part in the SESPA actions at the AAAS meeting last fall, and to try to hash out among ourselves some understanding of the state of the movement, the state of science, and our relationship to both, to serve as a basis for future action.

Together with out of town SESPA members and people from the Committee for Social Responsibility in Engineering, we were an explicitly socialist presence at the APS meeting in New York last February. Throughout the meeting, we maintained a literature table, solicited donations to send *Physical Review* to Cuba and showed the NARMIC slide show on the automated air war. In addition, we put in an appearance at a forum on Physics in China, where we stressed the central role of socialism (rather than "Chinese national character", etc) in the indisputably remarkable achievements of the Chinese people.

China speaker Marvin Goldberger, when challenged on his JASON membership, agreed to participate in an open meeting on JASON the next day. This session, jointly sponsored by SESPA and the APS Forum on Physics and Society, was well attended, although less effective than it could have been. We were poorly prepared and Goldberger's delivery was smooth.

Things went very well at a Forum on unemployment, where several of us spoke on the ways in which "professionalism" is used to keep scientists feeling alone, impotent and distrustful of each other in the midst of the current crisis. We are now trying to work these talks into an article worthy of *Science for the People* [We hope the present issue is worthy of N.Y.C. SESPA! Ed.] while we prepare for upcoming meetings and continue our long range analysis.

STONYBROOK

Toward the end of January we held a meeting to discuss the Gorz and Rose articles. At this meeting it was also suggested that we try to relate to the Eastern Farm Workers' Association (EFWA) on Long Island. Three of us attended their next meeting, and a few days later two of us met with one of their organizers, who suggested that SESPA could contribute by organizing strike support on campus. Also, some of us might help repair some of the

half dozen or so inoperable EFWA cars. We thought we might be able to cooperate with the VVAW in this effort since they already had plans to open a garage to do automotive repair for movement groups.

SESPA people and others had a meeting in early February to discuss Medical Aid to Indochina (MAI) particularly fund-raising for Bach Mai Hospital. There was a lot of discussion about whether this was a correct way to direct our efforts at the present time. Several people were critical of the politics of MAI in Cambridge, particularly about their increasing liberal tendencies since MAI week in October. Another meeting was held a week later, which was very poorly attended, despite notification by mail of all those who attended the first meeting, as well as others. This indicated to us that the energy level was too low to attempt a big effort for Bach Mai Hospital, but that we should always be aware of opportunities to tell people about what happened there and why. There was also some discussion of a regular film showing as an educational effort about revolutionary movements in other countries.

Because of a sabbatical leave and the SESPA China trip, we are without four of our most active members. Of those remaining, at least two plan to leave the Stony Brook area in the near future. So at present, our level of activity is fairly low.

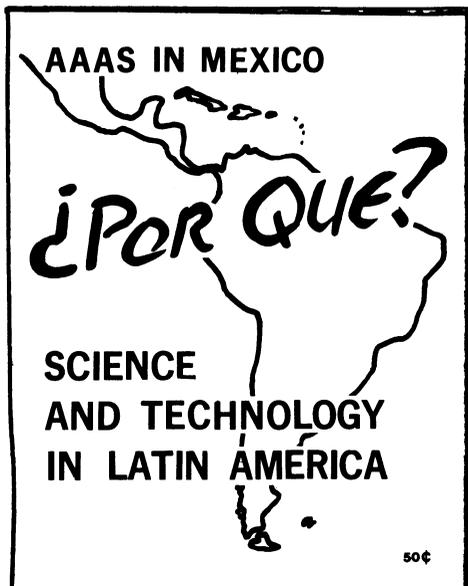
WEST GERMANY

Our discussion of the Gorz article led to controversy about whether it makes any sense for us to organize at a social science research institute where (a) almost anyone considers himself a radical in some sense and (b) our relationships of production are marginal and removed from the working class situation in almost every aspect. Debate was about potential uses of radical social theory, and the dangerous potential of becoming absorbed into totally apolitical efforts while working on such theories. Alternatives: some favor working in or for counter-institutions (e.g., communes), others feel they should get involved in unions and the left wing social democracy in order to achieve some "subversive" effects there. "Subversive reformism" was a key phrase in these discussions, implying that we should work in these institutions without claiming any superior insight about the course of world history, but simply by offering our practical and intellectual skills for the achievement of modest and relatively short-term political activities. In addition, there is something like a class struggle in the field of social theory: we submit papers on counter-institutions and the role of intellectuals—more for your information than for publication. [The papers are in German. Interested readers should contact C.O. directly, see West Germany address at back of magazine. Ed.]

LOS NUEVOS CONQUISTADORES — AAAS TO MEET IN MEXICO !

Some time ago the AAAS announced plans for a June 1973 "Inter-American" meeting in Mexico City. The theme of the meeting, "Science and Man in the Americas" (aside from being sexist), is an attempt to disguise the fact that science is an important instrument of capitalist expansion and cultural imperialism in Latin America.

The purposes of the AAAS meeting are explained and documented in a 32-page pamphlet, *Por Que*, which analyzes the role of U.S. science and technology in Latin America and then places the AAAS meeting within that context. A Spanish translation of the pamphlet is being prepared and will be available soon.



Available from the Boston, Chicago, and Minneapolis groups at 50 cents per copy.

The Mexico City meeting of the AAAS offers a great opportunity for radicals of many countries to cooperate in challenging U.S. domination of science, and to begin to liberate science for the people of all countries. In order to develop a strategy of opposition for the Mexico meeting it is necessary to have the fullest participation, in all stages of planning, of comrades in Latin America, particularly in Mexico.

Contacts have already been made in many countries; however, it is desirable to establish communication among as many people as possible. If you have friends in Latin America or know Latin American students in the U.S. who might be interested, please contact us immediately at one of the addresses below (we'll at least send them copies of *Por Que*). Although preliminary work and discussion has been done by the Boston, Chicago and Minneapolis groups, other groups and individuals are encouraged to discuss the event and contribute ideas for strategies and actions.

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1103 E. 57th St.
Chicago, Ill. 60637
(312) 753-2732

Science for Vietnam
1507 University Ave. S.E.
Minneapolis, Minn. 55414
(612) 376-7449

LETTERS

That is why we have to avoid parochialism and carry on our agitation not only for the organization of engineers in their own *narrow* interests, but for their organization in the interests of the working class as a whole.

Best wishes,
Joe and Herb

Dear Joe and Herb:

Gorz's strictures may apply to European engineers—I can't say. But he is completely ignorant of conditions affecting engineers here in the United States.

Thus Gorz writes that engineers "... hold significant financial, social and cultural privileges" (p.29) and confirms his point by referring to a single conversation with a single technician in a single machine tool factory. Gorz says the technician earned twice as much as the workers he supervised.

By contrast, any U.S. pipe-fitter or welder earns more money than the average engineer in industry. The engineer faces massive employment discrimination after the age of 35. The competent pipe-fitter faces almost no age discrimination. In the recent aero-space work contraction, thousands of engineers were laid off. Most lost all pension rights without hope of creating a new pension fund for themselves. Organized pipe-fitters or welders carry their pension rights wherever they work.

Engineers who speak up on questions affecting the public run great risks of firing and blacklisting:

- a) The engineers who apprised Ralph Nader of the "Corvair" shortcomings were properly afraid of coming out into the open.
- b) Your May [*January, Ed.*] 1973 issue p. 33 recounts how Stone & Webster fired welding engineer Huston for doing an honest job on a Virginia Electric nuclear reactor. Your writer says nothing about coming to Huston's defense.

If people would spend more time talking to engineers on their actual work experiences rather than relying on effusions from ivory-tower academic types thousands of miles from the U.S., we would all learn more.

Best wishes,
S.S.

Dear S.S.,

We don't fully agree with you. First, you seem to think we are a bunch of academics. Wrong! The industrial group consists of industrially employed people from computer programmers to senior physicists. Several of us have been fired and know very much from first hand experience in what way we are exploited workers. But also a few of us come from the traditional working class and know first hand the conditions of a factory worker: workers together, yes; exploited alike, yes; reason for us to organize into unions, yes. But we are *not the worst* oppressed segments of the working class.

Dear Joe and Herb:

I am glad to hear you believe engineers should organize for self-protection. But when have you published any material to this effect? Re your "parochialism" comment: if we don't organize engineers to cope with their own problems, no one else will. People learn only when they begin to cope with their common problems in an organized manner.

Best wishes,
S.S.

The inadequate discussion in the pages of Science for the People of the questions raised in the above exchange is justifiably criticized. This editorial collective encourages all to participate in correcting this. It would help, if more articles were received from engineers and technicians active in industry. Please write! The May Day Editorial Collective.

* * *

Dear Brothers [*and Sisters*],

F.G.M. - C.F.D.T. [*Federation Generale de la Metallurgie - Confederation Francaise Democratique du Travail*] is strongly impressed by the misuse of advanced technology against the people of Vietnam. F.G.M. is, in France, the more widely representative union amongst the scientists and engineers in the Research and Development laboratories of the science-based industry of aircraft, mechanics, electricity and electronics.

Scientists of the Union consider as their mutual responsibility to challenge the present orientation of engineering. They firmly approve the fight of U.S. engineers' associations against the American government actions in South-East Asia. They are aware, for instance, of the actions of SESPA or CSRE sponsoring "counter-sessions", conventions, anti-war slide shows in professional meetings. The December 30, 1972 resolution of the AAAS points out the increasing opposition of the U.S. scientists to the Vietnam War.

As a support to U.S. engineers, F.G.M. - C.F.D.T. invite French workers and primarily scientists of the Union engaged in R&D activities, to get in touch with U.S. colleagues.

F.G.M. hopes U.S. engineers' actions will awaken social responsibilities amongst scientists to put an end to the Vietnam war.

Fraternally Yours,
Jean Marc LeDuc

Dear Professor Davidon,

As you probably know, the journal *Science* has been recently publishing editorials in which the Brazilian regime is praised (*Science*, 9 June 1972, page 1077, "Changes in Latin America"). The latest articles are: "Mexican President Echeverria and Science", *Science* 22 September 1972 editorial and "Latin American Aspirations", *Science* 6 October 1972 editorial. Most of these papers are signed by the Editor, Philip H. Abelson but the editorial on Mexico was signed by Glenn Seaborg.

It would be important for many of us that the readers of *Science* could have access to the other side of the picture. If *Science* and for that matter, the official circles of science in the U.S. are pleased with the regimes which open the doors of their countries to the multinational enterprises, one should have in mind that the apparent prosperity has a meaning only to 5% of the population. In fact, these societies establish themselves now in Brazil—they even displace and transfer plants from other countries to Brazil—to take advantage of the low salaries paid to Brazilian workers (and the military regime has crushed the unions) and thus to produce for exportation. Facilities are given to the enterprises which establish themselves in the country for this purpose—and the old Brazilian industries are killed in the process or absorbed by the big companies. It is usually said that the country has now great reserves of money, billions of dollars. It turns out, however, that the government cannot make use of most of these reserves. These must be there for the transfer of profits, whenever desired by the big companies. Thus it is said that Ford, for instance, will produce in Brazil engines for export to the U.S. But these will be sent to Ford in the U.S. and the result will be a new transfer of capital to the parent society.

Concerning science and technology, it is clear that the process has entailed no transfer of knowledge. No Brazilian scientists are employed by these industrial plants. Dr. Abelson says that only 50,000 scientists and engineers are available in Latin America. What he does not say is that the quasitotality of these scientists and engineers are not employed in research in the local industries. And then Dr. Abelson suggests that American scientists and engineers be utilized by the developing countries. So, probably this would close the cycle of the new colonial process: the multinational societies would transfer some of their research laboratories to the developing countries but these would come in *in closed form*, with their *own equipment, scientists, and techniques*. In the process, Brazilian scientists and engineers would continue to be left outside. Is this what *Science* calls development? What this amounts to is quite clear: it is an expansion of the development process of the rich countries like the U.S., this time not any more at the cost of importation of the old colonial raw materials but by a process of installation of plants, laboratories and foreign scientists *in loco*, locally, in the underdeveloped country which possesses resources for the program, like Brazil.

There will, of course, be some benefit—huge benefits—to the local ruling classes, to the native partners and associates. But the biggest fraction of the population, more than perhaps 70%, will have the role of supporting mass for the process—the *external proletariat of the big companies*.

Yours Sincerely,
J.L. Lopez

J.L.L. enclosed a paper, which was written at the invitation of the Journal of Development Studies in England for a special issue on Science and Technology in Developing Countries. The journal's editor rejected the paper as "too polemical" after a year and a half. It has since been published by Scientific World, the journal of the World Federation of Scientific Workers, in London.

SESPA ACTIVIST WINS COURT CASE

The Alameda County Superior Court ruled that Charlie Schwartz (a founder of SESPA) had been removed from his job at the Lawrence Berkeley Laboratory because of his political activities; this was a violation of his Constitutional rights and therefore he must be reinstated and compensated for lost income. The action was sponsored by AFT Local 1474. The following are excerpts from a statement by Charlie.

The reason why I was singled out by the Laboratory management and fired from my summer research position was because of my political activities. My stand in defense of the Constitutional principle of free speech must be described as a very traditional political position. However, more frequently, I have been a spokesman for the politically radical views, seeing that the fruits of modern science and technology are too often being used in ways that are harmful rather than helpful for human society. As long as the administration could get away with this obviously punitive action, it stood as a clear warning to all other working scientists and engineers that they must remain subservient to their bosses. I hope that my court victory may now give to many other science students and scientific workers the encouragement to devote themselves to the cause of social responsibility as their highest professional priority. I intend to continue my efforts to oppose the destructive uses of science, to promote the humane avenues of technological development and to be involved in the larger political movement.

The second feature of this case concerns the function of the University. One might ask why the faculty and the administration of the University, with all their avowed dedication to the principles of academic freedom, did not set this matter right earlier. Indeed, at various times I had appealed the Director's actions to at least eight faculty and administration groups, including: a Grievance Hearing Officer; Chancellor Heyns; and President Hitch. The administrative and faculty establishments of the University are more accurately described as interlocking bureaucracies, devoted to protecting the self interests of their own members, than as intellectual paragons devoted to the principles of truth and justice. The grievance procedures have often been criticized as a sham for their lack of fairness and due process. For the future, I look to the efforts of my own AFT union and of others on this campus who are seeking a greater measure of dignity and justice....

MORE LETTERS

Dear People,

Thanks a lot, we have received the shipment of *Science for the People*. Read and distribute. Don't forget that most GI's, particularly in the 7th Army, are HS grads or drop-outs, but still there has been a positive response. What of course the green machine (military) has never considered is that the volunteer soldier—who had no or little exposure to "left" ideas before coming in, is even more "open" than the liberal, somewhat "innoculated" college kid. See what is happening on the carriers! McCampbell is a beautiful example. He was for Wallace (G, not H) 4 months ago. Now the green machine wishes it had never heard of him!

Solidarity,
Rita F. Act

Dear SESPA People,

I was really shocked to read of Colleen's death. She had been so quietly helpful and devoted to our struggles against Harvard's expansion in Roxbury. Yet I realized how little we had ever talked on a personal level. Her internal struggles must have been deep. The impersonality of grad school and medical school aren't really the problems though. It's the inhibitions which

we learn from society against expressing our doubts, fears, and abysses. Also, the hesitancy to inquire too closely about feelings. I'm really sorry, because I remember all the suicidal thoughts I had as a medical student, but how glad I am that I survived to feel some (limited) sense of inner peace in the midst of our insane institutions. Anyway, my love to her memory.

Stanford's OK, though I wish there weren't so many liberals. Actually, there's some pretty good politics here, especially co-ordinated by Vinceremos, a revolutionary group which has several excellent projects underway despite continuing frame-ups by the pigs. I'm involved in a civil libertarian injunction against the Stanford-affiliated VA Hospital, which required questions about past political affiliations as a condition of employment. We won a lower court injunction, but the U.S. got uptight, sent out a Justice Department lawyer from Washington, and is intent on appealing—possibly to the Supreme Court if necessary.

Are there other SESPA people at Stanford or Palo Alto?

My best to you all.

In the struggle,
Howard Waitzkin

There are other people at Stanford. They have been put in touch with one another and are hopeful of forming an active chapter. Interested persons should get in touch with the contact listed on the inside back cover.

CALIFORNIA	c/o Claudia Carr Ecology Department U. Cal. at Santa Cruz Santa Cruz, CA 95060 408-429-0111 (UCSC)		c/o William J. Steffy 1279 West Forest Detroit, Michigan 48201	OHIO	c/o Michael Carsiotis 34 Woods Lane Cincinnati, Ohio 45229 513-861-9346
	c/o Art Larsen Box 7523 San Diego, CA 92107	NEW JERSEY	c/o George Pallrand Grad. School of Education Rutgers University New Brunswick, NJ 08903 201-247-1766 (Rutgers)	OREGON	c/o Ben Kirk Science Department Lane Community College Eugene, Oregon 97405 503-747-4501
COLORADO	c/o Dick McCray 1900 Baseline Road Boulder, Colorado 80302 303-447-1069	NEW MEXICO	c/o Fred Cagle Geology Department University of New Mexico Albuquerque, NM 87106 505-277-4204	PENNSYLVANIA	c/o Wilbur Zelinsky Room 442 Deike Building Penn. State Univ. University Park, PA 16802
CONNECTICUT	c/o Norm Klein Hanks Hill Road Storrs, Connecticut 06286			AUSTRALIA	c/o Peter Mason School of Math and Physics Macquarie University North Ryde New South Wales 2113
FLORIDA	c/o GRC Box 12654, University Station Gainesville, Florida 32601	NEW YORK	c/o Philip Kraft 1805 Riverview Drive Endicott, NY 13760	ENGLAND	c/o Gerry McSherry Flat 2 5 St. Michael's Place Brighton, BN 1, 3 FT Sussex, England
MASSACHUSETTS	c/o Bob Tinker 83 Woodside Amherst, Massachusetts 01002		c/o Frank Rosenthal Rest of the News 306 E. State Street Ithaca, NY 14850		
MICHIGAN	c/o John Vandermeer 2315 Parkwood Ann Arbor, Michigan 48104 313-971-1165		c/o Jim Landen 700 Westover Avenue Schenectady, NY 12307	IRELAND	c/o H. N. Dobbs 8 Ailesbury Grove Dublin 4, Eire

LOCAL ADDRESSES FOR SESPA/SCIENCE FOR THE PEOPLE

In an effort to update our local chapter listing, the May Day Collective sent out a questionnaire requesting information such as number of members, frequency of meetings, whether to expect a chapter report, etc. For any number of reasons (for example the rotten postal service) questionnaires have been returned by only about half. Some groups may indeed now be defunct. But in anticipation that many will respond before the next issue, we are printing the non-respondents on the facing page. The up-to-date listing is below. The starred entries are "chapters"—three or more active members meeting regularly.

ARKANSAS

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* Stony Brook SESPA
c/o Eric Entemann
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* Berkeley SESPA
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Canoga Park, Cal. 91303
213-347-9992

* Scientific Workers for
Social Action
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Venice, Cal. 90291
213-838-0395

* Science for Vietnam/SESPA
Chicago Collective
1103 E. 57th St., rm 47
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PENNSYLVANIA

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Dave Popkin
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* MIT SESPA
c/o Andee Rubin
Artificial Intelligence Lab.
NE 43-815
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Cambridge, Mass. 02139

TENNESSEE

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Nashville, Tenn. 37208
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DISTRICT OF COLUMBIA

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MINNESOTA

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ILLINOIS

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Max Planck Institut
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* Chapter, see explanation above.



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SUBSCRIPTIONS TO SCIENCE FOR THE PEOPLE AND MEMBERSHIP IN SESPA

SESPA is defined by its activities. People who participate in the (mostly local) activities consider themselves members. Of course, there are people who through a variety of circumstances are not in a position to be active but would like to maintain contact. They also consider themselves members.

The magazine keeps us all in touch. It encourages people who may be isolated, presents examples of activities that are useful to local groups, brings issues and information to the attention of the readers, presents analytical articles and offers a forum for discussion. Hence it is a vital activity of SESPA. It is also the only regular national activity.

We need to know who the members are in order to continue to send *SCIENCE FOR THE PEOPLE* to them. Please supply the following information:

- 1. Name:
- Address:
- Telephone:
- Occupation:
(if student or unemployed please indicate)

- If you are working, do you work in industry [], government [], university [], other _____
- 2. Local SESPA chapter or other group in which I'm active:
- 3. I am enclosing money according to the following scheme: (a) regular membership—\$10, (b) indigent membership—less than \$10, (c) affluent or sacrifice membership—more than \$10, (d) completely impoverished—nothing, (e) I have paid already.
- 4. I will sell ___ magazines. This can be done on consignment to bookstores and newsstands, to your colleagues, at meetings. (If you want to give some away free because you are organizing and can't pay for them, let us know)
- 5. I am attaching a list of names and addresses of people who I believe would be interested in the magazine. Please send them complimentary copies.
- 6. I would be willing to provide technical assistance to community, movement, or Third World groups in the areas of:

Please add any comments on the magazine or SESPA or your own circumstances. We welcome criticism, advice, and would like to get to know you.

SEND CHECKS TO: SESPA, 9 WALDEN ST., JAMAICA PLAIN, MASS. 02130