Worker Initiatives & Alternative Technologies

... The Lucas Aerospace Experience

Workers and the World Unite

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Faced by the threat of unemployment, the Lucas Aerospace Combine Shop Stewards Committee have put to their management a proposal for a new set of production priorities: they are demanding the right to work on socially-needed alternative technologies. This initiative shows the way towards a new type of trade unionism which combines the traditional defensive economism, forced on it by the capitalist system, with a progressive and positive view of the possible alternatives for socially and environmentally appropriate production.

Trade unions are usually depicted by the press as narrow minded, self-interested, greedy wreckers. Some union spokesmen even obligingly provide quotes to reinforce the impression, such as: "We are going to be at the top of the tree and if that hurts anybody else, then I'm sorry ...."

The issue of income differentials is one that few trade unionists have yet fully faced - except in theoretical or rhetorical terms. Levelling up is their ideal - and, as far as it goes, a sound one. Even so, it still sounds pretty materialistic.

But trade unions are, after all, part of the current socio-economic structure. They may have been created as an 'oppositional' movement aimed at radically altering (or even removing) capitalism, but over the years they have, to a considerable extent, had to adopt a reformist role. They have become part of the system, in that their main activity, collective bargaining, is concerned mainly with the division of the roughly fixed share of the cake allocated to the workers.
Now, of course, when you say ‘trade unions’ this means different things to different people. For the press it’s either the top union officials or the sinister shop floor militants who surface briefly into public consciousness. In reality, the union is the membership: the elected officers are only there to carry out the mandated policies and protect and advance the interests of the members. If some of the trade union officials have espoused reformist policies, this does not mean that the trade unions themselves as a whole are necessarily reformist institutions - although that is the danger. There are some countervailing tendencies at the grass roots, as the current rise in shop steward, rank and file, and cross union combine activity illustrates.

But in a society which trains its members to chase the carrot of material possessions, applauds conspicuous consumption and celebrates affluence as an end in itself, it is not surprising that institutions which are partly incorporated into it, like the trade unions, will absorb some of these values.

And there are quite strong tactical reasons why trade unionists will reduce all issues to economistic ‘wages’ issues - they are easily understood, quantifiable and, in theory at least, such demands attack profits and thus change the economic imbalance between wage laborer and capitalist. In reality, of course, and particularly in an inflationary situation, wage demands do not attack profits - they just lead to price increases, withdrawal of capital investment and further recession. No real redistribution is produced.

Management also prefer (to some extent) to deal with cash issues rather than the more diffuse (and unmanageable) ‘control’ issues - such as those concerning manning, safety, pollution, long term policy and so on. Management quite consciously introduces or accepts conflict-reducing institutions which force workers to define grievances in cash terms. As Michael Mann has put it:

“What we call the institutionalisation of industrial conflict is nothing more nor less than the narrowing down of conflict to aggressive economism and defensive control.”


So wider issues are consciously reduced to economic issues. The fact that this tactic fuels inflation illustrates how unstable the system is. The tendency of management to encourage aggressive economism, for the sake of short term ease of managerial control, leads to longer term instabilities.

Furthermore, this economism might cause workers’ expectations and aspirations to rise to a point when they cannot be satisfied within the present economic system - a point not lost on those who are working for the overthrow of capitalism. The problem with this tactic, in its revolutionary context, is that it does not equip workers with an awareness of, and an ability to organise around, the many equally-important non-economic issues and problems. After all, workers are not just faced with economic exploitation. Although this may be the central mode of their oppression, other more diffuse forms of control are in operation which help sustain, underpin and legitimise the economic exploitation. In their daily experience at work, as well as in the community or as consumers, workers are forced to realise that they lack even the basic elements of control over their lives. They are closely supervised at work, paced by machine and clock, bought and sold according to the needs of the capitalist system, and cajoled to adopt its required consumption and life style patterns. They are just hands and mouths. It is not surprising that some workers want more than just more money to compensate for this alienation. Not only do they seek to challenge the basic economic alienation (the exploitation of their labor power) but they also seek to have more control over the conditions and purpose of their work. This goes further than simply asking for better ‘working conditions’ and welfare provisions, and it is for this reason that management fears the demand for “workers’ control”. For, to press for control over such issues as line speed, job design and work organisation, manning levels, product design, production system choice - and perhaps even long-term policy on corporate pricing, marketing, employment, the environment and technology - is to challenge seriously the prerogatives and authority of management.

But is any of this really happening? Are there any signs of trade unions transcending wage issues? Yes, there are.
It has not escaped these workers that current modes of technology and production organisation affect them not only at work, but also in their communities: theirs is a quite logical response, even in self-interest terms.

For if a car worker spends eight hours a day shuffling along a conveyor line contributing to the production of 200 cars, and then has to walk a quarter of a mile past the 200,000 unsold cars stored in what was the car park, to his own car, so that he can then spend an hour driving through congested streets to his polluted, motorway-blighted home - and all in order to pay for his car and the consumer items and services to help him forget his work - then he is likely eventually to see the irrationality of it all.

Increasingly, his response is unlikely to be just a demand for more money to compensate: the demand is now for more control over conditions and policies. Trade unions are probably in an ideal position to influence industries' social and environmental policies - after all, their members are organised around a crucial point in the production and distribution chain: they have a strategic role. They could take a leading part in redirecting industry towards more sane forms of production.

But are they taking up this challenge, you ask?

A year or so ago, the Lucas Aerospace Shop Stewards Combine Committee set up a science and technology consultancy service which was aimed at providing technical advice to members who were faced with new technologies, work methods, speed up, potentially dangerous machines or processes, and similar innovations introduced by management. As such, this was essentially a 'defensive' organisation in the traditional trade union sense.

Recently the Combine decided that they must adopt a more positive stance, and develop counter proposals rather than just react to and resist management's initiatives. The Aerospace workers are highly skilled and are used to tackling challenging new projects. They, like the car workers, can plainly see the environmental problems associated with current products and production - cars, weapon systems, and so on. In a recession, when government Defence (and Welfare Service) spending is reduced, these goodies are likely to be in less demand. While at the same time the needs of the community - for houses, basic subsistence items, cheap sources of energy - keep growing.

Unemployment is, of course, the main impetus for the campaign. As the letter from the Secretary of the Combine indicates, it is the threat of redundancies - that has forced them to fight for the right to work on socially useful products.

But the Aerospace workers seem also to have adopted a radical view of what they mean by 'alternative products'. It's not just a matter of a shift in emphasis from military to civilian aircraft and associated systems (such as automatic blind landing systems) - socially useful and radical in the present context though this shift might be. For although the workers are considering these types of new priorities, and similar socially useful and urgently needed pieces of equipment at present of often only marginal or token interest to the firm - such as medical aids, like haemodialysis units, artificial limbs and other aids to the disabled, eddy current retarder braking systems for heavy vehicles and so on - they are also considering alternative technologies which may have more long term structural implications. They are interested in the whole range of alternative energy technologies, including windmills, solar collectors, heat pumps, solar cells, hydrogen electrolysis, fuel cells, batteries, invertors, electric vehicles, steam cars, stirling engines and even airships. They are considering in particular how these technologies can be put to use in complete systems to aid people in need both in the short term and the longer term - for example, cheap heating and power service units for pre-fabricated industrialised buildings, cheap small scale power units for third world farmers, as well as marine agriculture and undersea farming equipment and robotic equipment to automate unpleasant tasks.

You might argue that some of these technologies imply 'reform' rather than radical change or revolutionary alternatives, in that they simply deal with problems thrown up by this existing society. But the implied 'classification' of radical/reform technologies is not necessarily a sound one. For one thing, medical and safety problems will exist in any society. And furthermore, whether a particular technology is truly a
'radical technology' depends to some extent on how, when, where and by whom it is developed and used - in some circumstances the creation and introduction of quite conventional techniques, or minor shifts in the pattern of production or usage, can be revolutionary. For the mass of people to have access to photocopying facilities would surely be a change which would shift the balance of power somewhat. The same could be argued for telex, radio, TV, or even computers. On the other hand, some potentially 'radical' alternative technologies could become the base for a repressive society.

This is not to return totally to a 'use-abuse' model of technology (i.e. technology is neutral, it depends on how you use it) for the 'means' cannot be separated from the 'ends' but simply to throw more emphasis on the social and political context of its inception, production and use. With this in mind it is interesting to see that it's not only alternative products that the Lucas workers are considering, but also alternative modes of production. They are well aware that it is pointless to produce environmentally appropriate products in a way that is socially alienating and environmentally damaging. So they will press for radical changes in the organisation and control of work and demand better designed jobs, autonomous control by work groups and project teams, new forms of management and so on.

All these changes must, they argue, be geared towards meeting the real needs of the community - that is towards providing socially useful products as opposed to the spurious consumer goodies thrown up by the present mode of production planning and 'market research'.

The urgency of the need for housing, for cheap wholesome food, cheap heating, acceptable public transport and education, does not require a 'market' for it to be articulated.

The fundamental question that is raised by this development is whether an advanced technological company like Lucas, assembled by capitalism to meet its needs can be diverted or modified to meet community needs. Can large centralised units produce appropriate technologies in a socially and environmentally desirable way - or must they be broken up into smaller decentralised units? Now it is important to realise that these large companies represent a huge social investment in human capital - a vast national skill and equipment resource. Many 'alternativists' want to dismantle such units, and they may well be right. But for the moment they exist and we must think about how to change them: we need a transitional strategy. The proposals put forward by the Lucas workers are a first step.

For it is not just a matter of technical reorganisation: it's a question of social change. Discussions on the possible
alternative types of production have taken place throughout the membership: the emphasis has been on the process of developing new priorities, new ideas, new attitudes to technology and, eventually, new ways to relate to ‘consumer’ need. All this activity was fed into the final ‘corporate plan’ which was presented to management in January 1976 as a collective bargaining demand. It was also hoped that it might be treated as part of a long term ‘planning agreement’ exercise as laid out in Tony Benn’s scheme for Industrial Democracy.

The five volume Corporate Plan contained detailed proposals for 150 new products and has not received wide-ranging support in the media.

Despite hostility by Lucas’ Corporate directors, it looks as if production of some items outlined in the plan will be forced through - partly because local managers themselves fear redundancy. Development work on heat pumps has already been sanctioned at the company’s Burnley plant. But this is possibly not the most important outcome. Much as it would be good to see windmills or whatever roll off the production lines, the main object from the campaign - from the workers’ point of view - is to halt redundancies. And the campaign has clearly worked already on those grounds. It has also had an immense ‘educative’ and consciousness-raising effect on Lucas workers - and workers elsewhere. Lucas style campaigns have now spread to many other firms - including Chrysler cars, the big electricity generating plant manufacturer C & A Parson, and a textile machinery firm in Manchester. The Lucas approach looks like becoming a standard tactic in British trade unionism.

The Role of the Alternative Technology Movement

The Lucas campaign has naturally attracted the attention of many environmentalists. However, despite the fact that the letter from the Combine (included at end of article) was widely circulated, few realistic offers of help emerged - most of the Corporate Plan idea came from Lucas workers which, perhaps, is all to the good. For many environmentalists and alternative technologists seemed unable to relate politically to the workers’ struggle. They came up with ideas suited to small communes or hill farms - or else talked about reconciliation between managers and workers so that they could ‘work together’ to fight the eco-crisis.

The result has been that, at least initially, the Shop Stewards at Lucas lost faith in the ‘AT’ movement’s ability to be of practical help. Personally, I feel this was a necessary stage - the AT movement, after all, is young and has much to learn from the workers’ years of experience of struggle. The point for us on the outside to remember is that workers who have some degree of power to turn the dreams we have had of ‘alternative technologies’ into reality.

This initiative seems to me to have partially circumvented the central problem of developing Alternative Technology in a capitalist society. It is often argued that you can’t develop AT until you’ve got an alternative society. The trouble with this is that it becomes a chicken and egg problem. But some people have argued that you can at least make a start - you can develop premature or semi-fledged alternatives which help stimulate and motivate others. The point is that this requires both social and technological changes to occur together in a sort of dialectical process. The experimental communes have been depicted this way by some people - as embryonic attempts to live in the future now. But the Lucas initiative, and the others that followed it, provide a much more viable route and context for this dialectical development. Theirs is an ongoing situation, rooted firmly in reality. Utopian ideas and technical and social reality can interact in a productive way and in a context which links immediately to the lives of large numbers of people - not just the readers of Chain Reaction or the commune-down-the-road.

I see this process of technological and social change as crucial, though it’s not the only possible vehicle for change. As the capitalist system gets further into crisis, many other types of development will become possible and appropriate. Where needs are no longer met by the system, people may move towards self-help, self-sufficiency and co-operative efforts (although they might also move towards a further state of dependence on centralised authority. And in either case there is the danger of isolationism, privatisation and individualism.)
The redirection of existing industry by those who work in it, towards new goals using new methods, holds out the hope of keeping the emphasis on collective organisation and control. This does not mean continued centralised, bureaucratic forms of control... it means struggling where people are, for new forms of social organisation, and new forms of technology.

Cynics may argue that the whole thing will be co-opted... the workers' initiative will be absorbed and their ideas will be used by the company to improve its profits, at the workers' expense. But remember that these workers are well organised. They will campaign for these changes within an oppositional frame of references: they are well aware of the dangers of co-option and collaboration. Whereas small, insecure groups tinkering with AT in the hills are much more likely to be ripped off and have their ideas misused by the system. The point is that well organised and technically skilled workers are in a good position to develop alternatives and to protect them from abuse - although it should be remembered that the alternatives thrown up by this process may not be what we would call 'AT'.....With this context in mind (and bearing in mind that there's no reason why we should know what is socially appropriate) what alternative technologies could be worth exploring?

Tactically, it might be wise to 'sugar the pill' somewhat by emphasising fairly 'high' technologies rather than 'low' technologies - although this would only be a temporary expedient. In the area of alternative energy technologies this suggests things like large scale water electrolyser producing hydrogen for storage, transport (in cryogenic or metal hydride form) or for transmission as a gas along conventional pipe lines (as a basis for the so-called 'hydrogen economy'). Or district heating units using heat pumps run off conventional power stations. Or Silicon or Cadmium Sulphide solar cells which with new thin film techniques can be manufactured cheaply. Or large scale solar farms and solar furnaces producing steam for turbo-generators.

But I imagine there would be a better case (as far as the 'alternative technologists' are concerned) for less sophisticated and small-scale alternatives: methane production from anaerobic digestors; the local generation of hydrogen by electrolysis powered by a windmill; small water mills and turbines; electric generation by fuel cells fuelled by methane, natural gas or hydrogen; the development of electric powered and steam powered vehicles and so on.

Then come those techniques that we would accept as 'pure' AT - small scale, easily controlled, maintained and understood, amenable to local construction and use. For example, small scale wind-electric machines, flat plate solar collectors, and small scale convertors like heat pumps run from windmill-generated electricity - or even directly by mechanical power from a windmill operating the compressor.

Some of the items on this list might not turn out to be appropriate in social and environmental terms. It may be counter-productive in energy and resource usage terms to invest in large numbers of small wind machines or solar panels. Some of the more complex technologies, like fuel cells or heat pumps, may be too sophisticated to be classified as AT. On the other hand it may be more important (both socially and tactically) to focus on meeting urgent social needs, such as those for safer vehicles, cheap housing, medical aids and so on - areas which many alternativists tend to ignore as being too linked to 'advanced' technology but which, certainly in the interim, are vital.

These are the sorts of problems that must be thrashed out in the process of selecting suitable priorities for production - and they are obviously the sort of questions the AT movement has been chewing over for some time.

But now we are no longer alone. We are joined by a group of highly skilled, well organised and enthusiastic engineers, designers, technicians, administrators and junior managers. And remember, we are not talking about the absorption of AT ideas into an unchanged capitalist firm. The stewards represent a membership made up of blue and white collar workers and their families and communities. So that the ideas and changes that they introduce are likely to be geared towards the needs of the community. Hopefully they will be able to make links with those groups which are currently trying to get AT introduced into a community context. Initially this might mean dealing with Local Authorities, but ultimately it might be possible to forge links between
producing firms like Lucas and local collectives and communities who are trying to work towards AT - whether on housing estates, in rural farms or in production co-ops.

Here is a chance to get it together in a way that can help spread the idea and practice of AT on a mass scale. I hope we live up to our own rhetoric. And at the same time learn from the experience.

THE LUCAS LETTER

We are taking the liberty of writing to you as we understand you are interested in the possibility of deploying the skills and equipment of technologically advanced firms on alternative technology, in particular those forms which are socially useful.

We should explain at the outset that this Combine Committee represents all employees of the 17 UK sites of Lucas Aerospace. It is therefore unique in the British Trade Union Movement in that it speaks for the entire spectrum of workers by hand and brain, from labourers to senior technologists and engineers. We design, develop and manufacture a wide range of aerospace components and complete systems. A substantial proportion of this work is on defence contracts. It seems to us that the "energy crisis" will result in a slowing down of many of these projects and the general economic climate is likely to result in cutbacks in defence contracts. This we regard as inevitable and even desirable. Our concern however is that cutbacks of this kind have always resulted, in the past, in the break up of teams of skilled workers and design staff, followed by the degradation of the dole queue.

We have, over the past two years, been engaged in a number of bitter disputes to assert the 'right to work'. It is our intention to do so in the future. However, instead of campaigning for the continuation of socially undesirable product ranges we will fight for the right to work on socially needed and useful products. In addition .... we also want to ensure that the work is carried out in such a fashion that the full skill and ability of our members is utilised, and that we depart from the dehumanised, fragmented forms of work which are now becoming commonplace even in a highly skilled industry such as aerospace.

The annual turnover of Lucas Aerospace in the UK is approximately 60 million. There are about 14,000 employees, and some 2,000 of these are engineers, draftsmen and scientific staff. A large proportion of the remainder are highly skilled manual workers. It is the kind of work force which, because of its skilled background, is extremely adaptable, and would be capable of working on a wide range of products .... We have just over 5000 machine tools and about 250 of these are numerically, automatically or digital display controlled. A list of test facilities shows that this is backed up by products, environmental and investigation laboratories.

There is a very genuine desire to work on products which would be socially useful, not only in Britain, but in the newly emergent and developing countries. It is certainly not the view of the Combine Committee or of the work force involved that the kind of capital intensive products which have come to characterise the technologically advanced nations will be appropriate to the newly emergent nations. It is therefore fully understood and accepted that entirely different forms of technology will have to be considered.

If you know of alternative technologies on which a work force of this kind could become engaged, in particular if these technologies would be socially useful, we will be very pleased to discuss the matter with you further. We are particularly keen to see that the very considerable skill and ability of our members is used to solve the wide range of human problems we see about us.

We should like, in conclusion, to point out that this initiative comes entirely from our workforce itself, through its Combined Shop Stewards Committee, and as such is completely independent of the normal commercial considerations of a large company of this kind. We will greatly appreciate your advice and suggestions, and would, of course, treat your reply in confidence.

E Scarbrow,
Secretary,
Lucas Aerospace Combine Shop Stewards Committee.

(This letter was written in Spring 1975. Emphasis added.)