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THE POLITICS OF CANCER

Cancer has become the epidemic — and the scandal — of the twentieth century. One in four readers of this journal will contract the disease, and one in five will be unfortunate enough to die from it.

Many more will be weakened during cancer's 'latency period' and die from seemingly unrelated causes. More frighteningly, cancer is the only major disease today that is actually on the increase: cancer mortality rates, when standardised to correct for differences in the age structure of the population over time, are rising by 1% a year for men in the UK, while for women a slow decline over the 20 year period 1943 to 1963 has now been completely reversed.

This pattern of death is reproduced in all major industrial countries. Moreover the cancer epidemic is afflicting all ages — young children as well as the aged. Cancer is a significant cause of infant mortality, and it remains the single most important killing disease in men and women till late in life, when it is overtaken by heart disease. In fact in the latest year for which figures are available in the UK, 1978, cancer is shown to be the first cause of death in age groups 35 to 54, and the second cause of death, after heart disease, in age groups 55 to 74. In the earlier age groups 5 to 34, cancer is the second cause of death after accidents, but the number one killing disease.

As most people are by now forcibly aware, cancer is a degenerative disease characterised by uncontrolled tissue growth. This growth usually results in the formation of a tumour (if the cells can get access to a blood supply) although cancer of the blood (leukaemia) does not have any such obvious manifestation. Cancer is frequently associated with pain, but not always; in fact many people live several years with a cancerous growth with minimal discomfort. However the cancer victim knows that he or she can be struck dead at any moment: the growth can start spreading through the body, and the outcome is then invariably fatal.

Notwithstanding the millions of pounds poured into cancer research, a 'cure' for the disease has not been found, nor is it just around the corner — despite the endless succession of 'miracle cures' paraded by the popular press. In fact, if by 'cure' is meant a reversal of the process of uncontrolled tissue growth, then this would mean intervening at the most basic level of cellular processes, and must be discounted as an illusion. The best the cancer victim can hope for is destruction or removal of the growth — usually by surgery or radiation therapy. How successful this intervention is depends on how early it is made: it is essential to destroy the growth before it spreads. Drugs are also used to treat cancer (this is called chemotherapy) but despite a lot of publicity they are still effective only for a small number of cancers. All these forms of treatment are unpleasant, and drugs especially carry very nasty side-effects.

For some cancers, such as of the skin or breast, prompt intervention can be effective. Over half the women who are diagnosed with breast cancer today can expect to be alive and well five years later if they submit to treatment. But for the majority of cancers, and in particular the big killers like cancer of the lung and stomach, it has to be faced that chances of recovery are distressingly low. In fact the chances of surviving today are really no better than they were 30 or 40 years ago. Even with sometimes drastic treatment, only five or six out of every hundred lung cancer patients can expect to live for 5 years after diagnosis. What little improvement this represents over the 5-year survival in the 1940s and 1950s is mostly due to earlier diagnosis and better hospital hygiene rather than any startling development in treatment.

Can anything be done?

So is there nothing to be done in the face of cancer? Is it in some sense a 'disease of the rich', a form of retribution for our enjoyment of the Good Life? The answer is a most emphatic No. Cancer is a preventable disease. It is a product, not of industrial societies, but of industrial pollution in its widest sense. Control the pollution, and the material basis of cancer will wither away.

This is not a novel nor even a particularly controversial point of view. It was given forceful expression in a report to the US Surgeon General in 1970 from the Ad Hoc Committee of the National Cancer Institute on the Evaluation of Low Levels of Environmental Carcinogens (ie, cancer agents)[1]: 'Cancers in man are known to be caused by several individual chemicals and by materials composed of mixtures of chemicals . . . Prevention of exposure to known carcinogenic chemicals depends largely on man's ability to control their entry into the environment . . . It is estimated, therefore, that the majority of human cancers are potentially preventable.' In the estimation of John Higginson, Director of the International Agency for Research on Cancer, up to 90% of cancers have environmental causes (cancer agents in the workplace, in city air, in food, in cigarettes) — and are thus preventable.

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The key to stopping cancer lies in the regulation of a handful of chemical and pharmaceutical cancer agents, and in the screening of new chemicals and drugs for carcinogenicity before they enter commerce. But this means confronting the power of large multinational companies who are making handsome profits out of the *status quo*. Clearly then, the obstacles in the way of ridding the world of cancer are not medical, so much as economic and political. Hence the slogan, the politics of cancer.

A STRATEGY FOR CANCER

What is the evidence that impels John Higginson and many other cancer authorities to insist on the environment as the dominant source of the disease? The first point is to establish that genetic factors play

[1] Carcinogens are cancer agents: carcinogenesis is the process of causing cancer.

only a minor part. Although there are widespread geographical and racial variations in cancer incidence, it has been found that shifting populations rapidly adapt to the cancer characteristics of their new environment.

The second point is to link cancer incidence with industrial activity — and this is just what can be done for the US with the new *Atlas of Cancer Mortality for 3,056 US Counties, 1950-69*, published by the National Cancer Institute. There is a striking correlation, for instance, between bladder cancer in males and petrochemical industry concentration: in Salem County, New Jersey, where 25 out of 100 men are employed in the chemical industry, the bladder cancer mortality rate is the highest in the US. Lung cancer is high in counties where copper, lead and zinc smelters are located. Excess cancer rates are also seen in women and children living in industrial areas, making it even clearer that environmental factors are involved.

The third point is to demonstrate directly that certain chemicals induce malignant tumours in mammalian tissues. It would be contrary to medical ethics to do this on humans (although the uncontrolled release of chemicals and drugs into industrial use is in fact just such an experiment) so animals, and more recently tissue cultures, have to be used. It was a long hard struggle to do this successfully. Although Percival Pott noticed the role of soot in causing scrotal cancer amongst chimney sweeps in 1775, it was not until 1916 that a pair of Japanese scientists succeeded in inducing tumours on a rabbit's ear after rubbing it with coal tar for 6 months. During the 1930s the foundations of chemical carcinogenesis were laid by Sir Ernest Kennaway and his team at the Royal Cancer Hospital (now the Chester Beattie Institute) in London. This team established the carcinogenicity in mice and rats of tar extracted from pitch and oils, and showed that the cancer-causing activity was most intense in the fractions with the highest boiling points — the polycyclic aromatic hydrocarbons (now known to be the most active constituents of cigarette smoke). In their most dramatic experiment, they induced tumours by applying a pure, synthetic chemical — dibenzanthracene — which was known to be a component of coal tar. This was the first time it had ever been shown that a single chemical, rather than a mixture, could cause cancer.

Since those early days, thousands of chemicals have been tested for carcinogenicity in animals, and relatively few — the current list from the International Agency for Research on Cancer numbers 130 which have shown 'sufficient' evidence in animals — have been found to induce tumours in certain sites in certain animals.

In an effort to play down these findings, industry has propagated a series of myths. The most blatant of these is that, if you look hard enough, *every* chemical will turn out to be carcinogenic. This is flatly contradicted by the facts: carcinogenicity is a highly restrictive characteristic of chemicals for which there is as yet no adequate theoretical explanation. Chemicals can kill animals in lots of nasty ways — but only a few chemicals will kill them through cancer.

A case study: vinyl chloride monomer

How do carcinogenic chemicals come to be identified in practice, and how are they then controlled? The case of vinyl chloride monomer (VCM) is instructive. This substance — a heavy, sweetish smelling gas at room temperature — is the raw material for polyvinyl chloride (PVC) and hence the basis of a large slice of the entire plastics industry. Hence it came as a shock when the rubber firm BF Goodrich announced in 1974 that three of its workforce exposed to VCM had died of haemangiosarcoma, a rare cancer of the blood vessels in the liver. The news reverberated around the world. Chemical companies manufacturing PVC were alerted to the hazard, and took rapid steps to reduce exposure levels. Some plants were closed down to re-engineer the polymerisation process in such a way that workers would

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no longer have to come in contact with VCM. Regulatory authorities too were quick off the mark, and in a series of moves reduced permitted exposure levels to 1 part per million in the US, 10 parts per million in the UK, and 'effectively zero' level in Sweden.

The alacrity of these responses can only be marvelled at, and would make it seem that industry and government can be relied upon to keep the problem of cancer under control. This however is very far from the truth — even in the case of vinyl chloride itself.

Large scale production of VCM goes back to the 1930s, with output increasing at a giddy pace in the postwar years. This was the Plastics Age, and VCM was its mainstay. Yet in spite of this intense industrial activity, and the consequent widespread public and occupational exposure to VCM, nothing was done to study its toxic properties. It wasn't even tested for short term effects in animals until the 1960s. Yet the polymerisation process being employed throughout this period involved pumping VCM into huge vats and heating them under pressure in the presence of various additives; at the end of the batch, men were expected to climb down into the vats (autoclaves) and scrape the unreacted VCM off the sides of the vessel. The gas would swim around their legs and make them go numb. VCM was also a powerful anaesthetic, and could send them unconscious without warning. These men were quite literally the guinea pigs upon whom the chemical companies tested VCM for carcinogenicity.

Towards the end of the 1960s a strange condition known as acro-osteolysis was observed among VCM workers. It involved clubbing of the fingers and toes, a hardening of the skin, and finally acute sensitisation of the extremal parts. An Italian researcher Viola was trying to reproduce this condition in animals, when in 1970 he discovered quite by accident that some of the animals came down with tumours at high levels of VCM exposure. This finally prompted a group of European chemical companies to sponsor a full scale carcinogenicity study in animals at the Bologna Cancer Institute, under the direction of Cesare Maltoni. By late 1972 Maltoni had confirmed and extended Viola's results, finding a variety of tumours in several organs, including haemangiosarcomas of the liver, at levels as low as 50 parts per million.

Concealing information

Instead of acting on this information at once, the companies sat tight. They didn't even agree to the publication of Maltoni's results. But they passed the information on to the US Manufacturing Chemists Association, on the understanding that it was not to be divulged. Sure enough, when the US National Institute for Occupational Safety and Health (NIOSH) requested information on VCM in January 1973, the industry remained silent on the animal tests. This situation might have continued indefinitely, but for one thing — workers started dying of a rare cancer at the Louisville, Kentucky plant of BF Goodrich. A cluster of three deaths from haemangiosarcoma was absolutely extraordinary, and forced even this most reluctant of industries to act. Maltoni's results were now published, and the carcinogenicity of VCM was an acknowledged fact. It would be churlish to deny the speed of industry's response once the news was out in the open — but it needs to be seen against the background of the appalling cover-up by this same industry — rubber and chemicals — of the bladder cancer caused by aromatic amines such as benzidine and beta-naphthylamine. It is now known that the chemicals industry had cast-iron evidence that benzidine (an important raw material in

the dyestuffs industry) caused bladder cancer in the 1930s; they had the bodies of dead workers, plus experimental evidence in dogs. Yet benzidine was manufactured in Britain right up to the mid 1960s and in the US even later, and benzidine-based dyes are *still* being used in the textiles industry. In the rubber industry, an anti-oxidant called Nonox S, consisting of technical grade beta-naphthylamine, and produced by ICI, caused a tragic epidemic of bladder cancer amongst workers who were given no indication whatsoever that they were working with a substance ICI knew to be a potent carcinogen.

So when the chemical companies reacted swiftly to the public news of the carcinogenicity of VCM, they had a pretty bad conscience to spur them on.

The VCM saga illustrates clearly many of the difficulties involved in controlling cancer agents. Liver cancers only started to appear in the 1970s — at least 30 yearts after large scale use of VCM. This is typical for cancer agents — there is always a long *latent period* between exposure to the substance and the subsequent development of cancer. Furthermore the VCM-caused cancers were only picked up because they were particularly rare; had VCM caused a more common form of cancer, such as lung cancer, the association would not have been so clear and the industry might *still* be sitting on that animal data and arguing that the high lung cancer rate in VCM plants means that the workers should stop smoking. Other difficulties that make cancer agents qualitatively different from other toxic compounds are that:

*there is no known safe level of exposure

*the disease is irreversible and usually fatal (so there is no hope in removing people from exposure once cancer is diagnosed)

*there is no reliable means of screening people to see if they are 'cancer-prone'.

Identification of cancer agents

What this means is that the strategy to defeat cancer caused by industrial processes must be custom-designed; a general strategy to control 'toxic substances' is not sufficient. A number of trade unions in Britain, including ASTMS and the GMWU, have now launched public campaigns in which they spell out just what a cancer prevention strategy should be, and a look at these policies is now in order.

The first point involves *identification* of cancer agents. Industry's position (well illustrated by the VCM story) is that you need the evidence of dead bodies before calling a particular substance a cancer agent. The usual refrain is: 'Just because it causes cancer in animals doesn't mean it does the same in humans.' The unions' position, backed by the soundest possible scientific advice, and supported by such authorities as the International Agency for Research on Cancer and the US Occupational Safety and Health Administration (OSHA), is that any substance which causes cancer in animals must be taken to be a *presumptive* cancer agent in humans unless there is overwhelming evidence to the contrary. The fact is that every substance or process for which there is incontrovertible evidence of its carcinogenicity in humans (there are about 20 such agents in the IARC list) also causes cancer in some animals; the usual counter-examples quoted, benzene and arsenic, have both recently been found to be positive in animal bioassays.[2] It is then a conservative principle (ie, erring on the side of safety) to argue the other way around: that a substance causing cancer in animals is likely to cause cancer in humans.

Using animals in this way is of course unpleasant, although it should be pointed out that cancer bioassays normally allow animals to live out their full lifetime in good laboratory conditions and without undue suffering; they do not involve anything like the cruelty involved in severe toxiological tests such as those performed in the eyes of rabbits. Nevertheless no one likes to see animals being used simply as cancer test tubes, and it is encouraging to see that a number of short term tests for cancer, involving bacteria and mammalian cell culture, have recently been developed. It is to be hoped that in the future these will turn out to be sufficiently reliable to be able to predict carcinogenicity; until then there is no substitute for animals, and anyone who argues that animals *must* not be used is in effect arguing that workers are better guinea pigs.

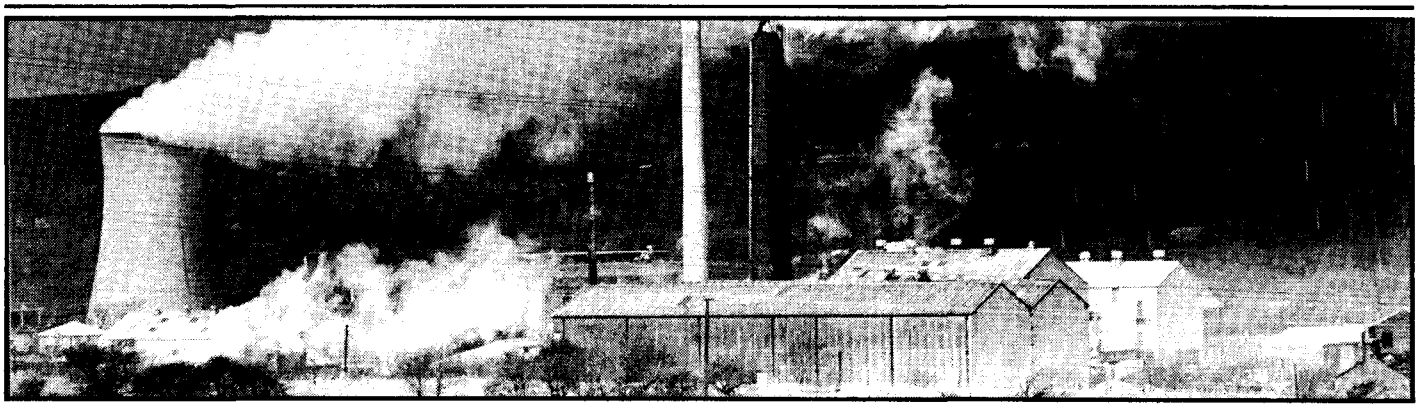
A general strategy

The second point involves a *general* strategy for dealing with cancer agents once they have been identified. The position presently adopted by industry and the UK Health and Safety Executive, is that each case should be considered on its merits. The US OSHA, on the other hand, has formulated a general policy which consists in taking mandatory action to lower exposure levels to any substance that is identified as being carcinogenic. In practical terms this means issuing a list or schedule of 'official' cancer agents, for all of which certain stringent precautions are required. There is room for argument over what these precautions should be. OSHA (and ASTMS and the GMWU) argue for a 'lowest feasible level' of exposure, which means enclosure in most cases, no matter what the cost. An alternative might be a 1 part per million exposure level across the board. The most stringent precaution of all is total prohibition of use, ie, a ban — but since such a policy would throw a lot of industries out of business and further increase unemployment levels it would not seem to be very realistic.

A general carcinogen exposure policy needs to be backed by a national campaign to screen all commercially used chemicals for their cancer potential. There are upwards of 60,000 chemicals currently in use — and very few of these have been tested for cancer. Priorities can be set using chemical structural analysis and short term tests. The US

[2]A bioassay is a test in a living animal.

It is a product, not of industrial societies, but of industrial pollution in its widest sense.



has already launched such a campaign in its National Toxicology Program.

The third point involves *prevention* of further cancer epidemics by requiring the pretesting and licensing of chemicals *before* they are allowed into industrial use. No country yet operates a full licensing scheme, but several countries have introduced prenotification schemes, whereby new drugs, chemicals and food additives have to be tested for toxicity, and data supplied to the authorities, before companies market new products. The US has enacted its Toxic Substances Control Act (ToSCA) but is only slowly implementing it. Within the EEC the 6th Amendment to the 1967 Directive on the Control of Dangerous Substances, involving a similar notification scheme for all chemicals, has been passed by the Council of Ministers, and is due to be implemented in the UK by the Health and Safety Commission. In February the HSC issued an important consultative document outlining how it intends to do this. It should be noted that this document reveals that the HSC does *not* intend making testing for cancer mandatory, but is simply requiring acute and sub-acute tests for toxicity (ie, up to 90 days). This is a flagrant capitulation to the chemical industry, and virtually guarantees that we shall have to pick up the victims of cancer caused by some of these new products in 30 and 40 years time — when of course it is too late to do anything for those victims. In economic terms it means that society as a whole will have to foot the bill for cancer treatment in these later years, to save the chemical companies a few thousand pounds now in not having to carry out full cancer bioassays. The strongest possible pressure needs to be brought against the HSC, by trade unions and public interest groups alike, to ensure that these concessions are not written into the final regulations.

> decisions are taken by committees of 'experts' who, in Britain at least, meet in secret, consider secret data, and make decisions which frequently remain secret.

Control at all levels

All these points — taking action on a presumptive risk as indicated by animal results, enforcing a general exposure strategy, and pretesting and licensing new chemicals — are demands pitched at the national level — indeed at the level of the state. They are demands that the state fulfil its role as policeman of industry, ie, that legality be observed. There is nothing contradictory in the Left making such demands, and it is certainly noticeable that it is the Right which is the tireless opponent of regulation in any form.

But the programme to defeat cancer does not stop at the level of the state. All the trade unions campaigning on this issue see a special role for informed safety representatives and rank and file committees to act as a *permanent, responsible and accountable* factory inspectorate (and, in a wider sense, as a public health inspectorate). It involves safety representatives in a never-ending battle to force employers to disclose full details of the chemical composition of products, and to monitor the environment for known or suspect cancer agents. These may be used in their own right as raw materials or finished products, or they may be by-products. The extremely potent cancer agent bi-chloromethyl ether (BCME) is formed, for instance, by reaction between formaldehyde and hydrochloric acid, eg, when permanent-pressed fabrics are treated with an acid wash in the textiles industry. It is the workers themselves who need to be alive to these risks, and to have the confidence (and the knowledge) to take action to curb them — with or without the back-up of the state.

Finally the cancer prevention strategies raise questions as to how technical and scientific decisions are taken. Currently decisions over the 'safety' or 'acceptability' of chemical compounds — drugs, pesticides, food additives etc — are taken by committees of 'experts' who, in Britain at least, meet in secret, consider secret data, and make decisions which frequently remain secret. This is no longer tolerable, and the demand is now being raised that these committees be opened up to include represenatives of the people who are actually running the risk of exposure — workers or public — and furthermore that all their deliberations, and the criteria by which they reach decisions, be made public for all to see.

Thus although cancer prevention appears at first sight to be a medical problem, upon closer examination it turns out to be another facet of the struggle by workers and the general public against the overwhelming power of large corporations to act in whatever way they choose. To curb these corporations, to force them to disclose greater information and to submit to greater state regulation of their activities; to democratise their decision-making processes and allow workers and the public a say in what they produce and how it's done — all this is not just in pursuit of an abstract goal of greater democracy or justice, but it also promises to make us healthier as well! □

Further reading

Association of Scientific Technical and Managerial Staffs (ASTMS) *The Prevention of Occupational Cancer*, available from ASTMS, 10-26 Jamestown Road, London NW1, £1 to members, £3 to non-members.

S. Epstein *The Politics of Cancer* 2nd revised edition 1980, Anchor/Doubleday. Special UK edition to be published by Pluto Press late in 1981.

Jamaica in Turmoil

Interview with Trevor Munro

The interview was conducted by Ken Fuller

Ken Fuller writes: Situated 90 miles south-east of Cuba, Jamaica has a population of 2.2 million. While capitalism is more developed there than in most other Caribbean (especially English-speaking) islands, the working class constitutes less than a half, and its industrial core only a fifth, of the total employed population. The domestic private sector is dominated by 21 families. In 1970, the undistributed corporate profit and depreciation allowances of 41 firms (out of a total of 11,435) accounted for 70% of gross domestic savings. In the countryside, a number of landbarons, constituting 1% of all landowners, hold over 40% of the best land. Local branches of major North American corporations, notably in the bauxite-alumina industry, whilst employing less than 1% of the labour force, contributed about 10% to the Gross Domestic Product, 20% of government revenue and over 40% of foreign-exchange earnings between 1970 and 1976.

For the ten years following independence from Britain in 1962, Jamaica was governed by the Jamaica Labour Party. This has always been a conservative party, loyal to both local and foreign capital, deriving its name from the fact that its mass base is in the Bustamante Industrial Trade Union, itself totally lacking in democratic structures. The JLP followed the 'Puerto Rican model' of economic growth, relying on foreign, chiefly US, capital to provide jobs and lead the development process. As a result, Jamaica soon found that it had what one economist has termed 'growth without development'. Rather than an integrated economy, Jamaica had a collection of local branches of US corporations which bore little relation either to each other or to the needs of the Jamaican people.

By the late 1960s, the boom in hotel-building and the expansion of the bauxite industry (Jamaica had become the world's leading producer of bauxite) came to an end. As a result, and due to profits remitted to the USA and to the fact that the tourist industry, in particular, had a high import-content, Jamaica found that *it was now a net exporter of capital!* On top of this, the 'industrialisation by invitation scheme' had managed to provide a *total* of only 9,000 jobs at a time when the labour force was growing by 20,000 each year and, in addition, tens of thousands had emigrated to Britain and elsewhere. Unemployment, then, began to rise rapidly. During this period, none of the basic problems facing a small country just emerging from colonialism were tackled.

In 1972, the People's National Party, led by Michael Manley, was swept to power. At first, the new government enjoyed the support of both local and foreign capital, but after a two year honeymoon the PNP embarked upon a series of measures, grouped under the ideological umbrella of 'democratic socialism', aimed at increasing the economic, political and social role of the people and diversifying Jamaica's foreign relations, making it less dependent on imperialism. The years 1974-1980 saw a number of reforms, including the bauxite-levy (designed to increase Jamaica's take eightfold, this measure preceding the negotiation of a 51% share in the various bauxite companies), the Minimum Wage Law, the Maternity Leave Law, worker-participation and many more. At the same time, Jamaica grew closer to first Cuba, then the Soviet Union, while also building links with other Third World countries.

Local capital quickly became hysterical in its hatred of Manley. Washington, meanwhile, began to employ many of the destabilisation measures which had proved so successful in Chile. Both hitched their wagon to the Jamaica Labour Party, since 1974 led by ultra-reactionary Edward Seaga. Despite a CIA-assisted campaign of terror which raged throughout 1976, the PNP was returned with a big majority in the election that year. However, the investment-strike by US capital and the illegal export of currency by local capitalists had brought about an acute foreign exchange crisis. In 1977, Manley turned to the International Monetary Fund which, over the next three years, proceeded to achieve what the CIA and the JLP combined had failed to do, eroding much of the PNP's mass support with its wage-guidelines, public expenditure cutbacks and devaluation.

In March, 1980, after a three year campaign led by the communists, the government finally slammed the door on the IMF. But by then it was too late. In the elections of October 1980, after a campaign of violence overshadowing that of 1976, the JLP