

# The Scientist's Uneasy Conscience\*

by

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*... eminent British biologist discusses Responsibility in Science in the con*

*... text of problems that are becoming more important to society than anything*

*else, namely, the effect that science has had on society and the increasing rejection by society of the one force that has, above all others in recent years, done so much for society.*

all due to the student revolt — to a brief passing generation who in  
some mysterious way are more close sighted and high minded than

their elders, and, don't forget, than their predecessors of a few years before. At the most I think the student revolt has simply amplified (or perhaps exaggerated would be a better word) an unease that had been quietly building up for a long time past.

There are, I believe, two sorts of reasons for this unease, what one may call the obvious ones, and the not so obvious ones, and let us look at both of them.

The obvious ones are so sickeningly familiar that I would take  
them on word ~~was~~ it not that I want to make a very serious

from the really underdeveloped countries, are, of course, in no doubt at all about which they prefer. We have a lot of these men and women in my own University of Edinburgh, as you do, and as they are the only people who see both sides of the coin, I think we ought to be humble enough to believe what they say. And the fact of the matter is that whatever their politics, for every one who indulges in our current brand of scientific technological hypochondria, there are nine — perhaps ninety-nine — who find it not just laughable, but bordering on the insane.

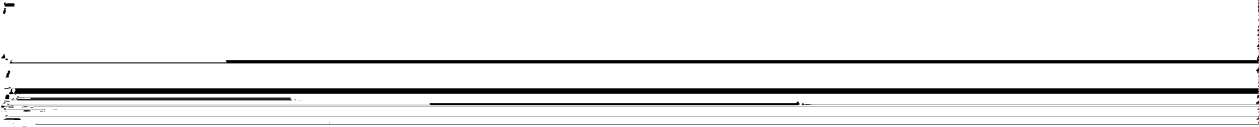
In short, whatever index we care to take of the human condition

whether it is expectation of life, prevalence of disease, extent of starvation or malnutrition, degree of poverty, standards of education, or quality of housing, we find improvements in the last fifty years, and still more in the last ten which, viewed dispassionately

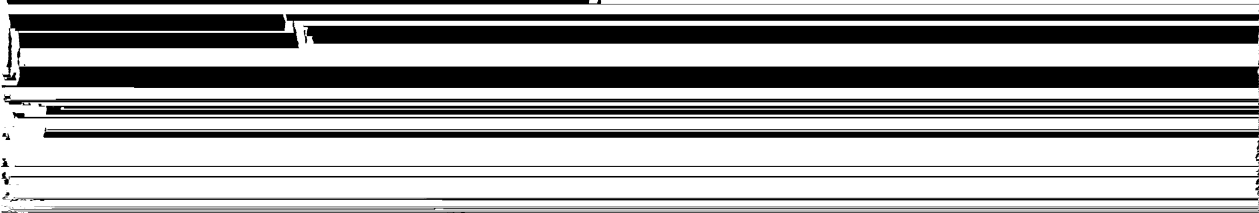
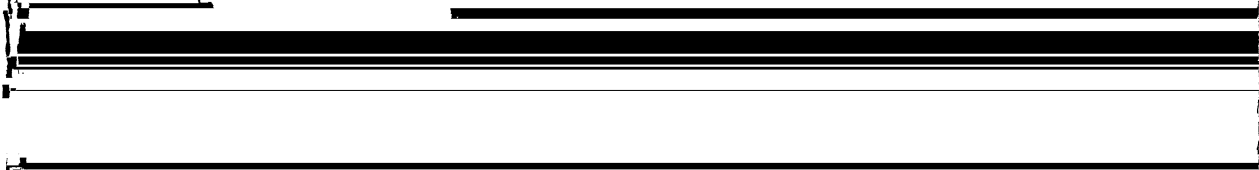
far as the current reproach to rich countries that the rich are get-



for this reason. And one should perhaps ask anyone who makes



this indictment against the Western world, whether he would have withheld modern medicine for another heaven knows how many years while countries built up their agriculture and industry to a level where they could accept modern medicine without crisis.



cure for alienation, namely even more democracy, with participation in every known direction, will in fact make things more intractable still, by letting even more people object to progress.

I suppose that some day a bunch of social scientists will construct a series of graphs that will quantify the responsiveness and the rate of decision-making as a function of the size of committees; and relate the happiness of individuals to the responsiveness and

quantify the increasing degree of trouble and frustration caused by leaving increasing numbers of people out of the decision-making process. And where all these curves cross each other in some multi-dimensional process of analysis, then we shall have the recipe for perfect government.

Meanwhile, we can usefully read Plato, who thought most of these problems through about twenty-five hundred years ago. And

we can usefully resolve to contribute as best we may to the effectiveness of government by setting out the arguments for doing whatever we think ought to be done in strictly rational fashion. For only thus can we even hope to avoid all the emotional counter-arguments for doing nothing — and this is a point I shall come back to.

After this long digression, let me come back to the point where we started — the scientist's conception. Well, that's a bit of a

would be more honest to say without a conscience at all), secure in the feeling that if ill results, it is not their fault, but the fault of society. Conversely, one cannot help feeling, if good results, the credit ought to be society's and not theirs. But this, curiously

enough, is not a conclusion one ever hears drawn. All of which presumably goes to show that scientists are no more logical or honest than the next man.

This approach is not peculiar to scientists. It is indeed at the root of the liberal conception of universities that we, in Britain, and you on this side of the Atlantic, have adopted from the German universities of the last century, and now built in, so powerfully, to university thinking. Other conceptions of a university, of a place to train an élite how to think, as expounded by Cardinal Newman, or of a centre for professional vocational practical subjects, stemming particularly from Scotland and the American Land Grant Colleges, both of these conceptions survive. But they have been extensively overlaid by the cult of pure scholarship, unsullied by the demands of government and everyday life.

Nowadays, of course, this has begun to look rather detached and

tion, implicit if not explicit, that this was indeed the way to a better world. Only if thought was unchecked by dogma and practical distractions could truth be arrived at. And it is indeed so. But

one can get to grips with it in a fairly complete way. Anyway, I think it illustrates rather simply most of the things I have been talking about. It is a problem of the use, or rather the misuse, of antibiotics, and a few weeks ago I, and half a dozen colleagues in Britain, finished writing a report about it to the government.

As you know, antibiotics are very powerful substances, with the remarkable property of killing bacteria, while having little or no effect on human beings or animals. A lot of different ones have been discovered, and they have revolutionized the treatment of

disease. But, as so often, there are snags. For although they kill *most* bacteria, a few so-called resistant ones are liable to escape and multiply, making further treatment impossible; so that constant and indiscriminate use of antibiotics is liable to defeat its own

ends. Doctors have long realized the dangers, and this is why they

are as reluctant to give you antibiotics unless you really

food than we do. Since Britain, and Canada, are rich countries, this would not matter so very much to us. But all over the world

It is not, then, very difficult to conclude that a complete ban on antibiotics for animals would be wrong. And the bulk of our report consists of a detailed investigation, taking account of all the possible benefits, and all the possible dangers, of how to maximize the



do, and what I believe has to be done, that no one wanted to alter it — which is unusual when it comes to writing reports by committee. This is what he said: “Solutions to such problems come not from dwelling on the ethical dilemma, but by scientific dissection of the basic problems . . . . We have attempted to explain in simple and straightforward terms how the use of antibiotics in animals may affect both humans and animals. This has involved setting out both the benefits, and the dangers which may arise . . . . We have sought solutions in this way to the problems posed ” and so on.

In passing I should only add that while I believe there is no use in *dwelling* on the ethical dilemmas, and still less use in *wallowing* in them — which in what a lot of people seem to like doing today

— the fact remains that there *are* ethical dilemmas, plenty of them, everywhere. And a scientific dissection that is carried out in ethical darkness as you might say, isn't likely to get us anywhere much. But that sounds like the material for another series of Dunning Trust lectures.

The next point I want to make, and it stares out from every