

## CONFERENCE PAPERS

### The conflict between scientific integrity and expert opinion in the making of government policy

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When a scientist collects data which appear to differ from those he had collected previously, he needs to be sure that the numbers are different or do they just appear to be different? Before concluding that they are different, a statistical analysis must be done which is based on the possibility that the new data are due to pure chance i.e. that there is no statistically significant difference between two or more sets of data. This is the Null Hypothesis. Every scientist should assume his results are due to chance and seek to prove that there is good reason to reject the Null Hypothesis.

Although some major advances in science result from chance observations, such as the discovery of the bactericidal effects of penicillin, it is more common that progress begins with a theory. The scientist has an idea or theory of how a natural phenomenon functions and devises experiments which test whether the theory is correct. It is every tempting for the scientist to devise experiments which are likely to support the theory rather than try to test whether the theory is wrong. It is also tempting to trawl through data, only selecting those which support the theory. This is not how science should be conducted. There should be an unending exchange of critical judgements of all claims to new knowledge.

When I began doing scientific research I was told by my supervisor never to rely on the author's summary of a scientific paper. I was instructed to examine the methods used in every experiment, check the results obtained and whether the conclusions drawn were justified. It was not uncommon for a researcher to claim that there was an 'increase in growth rate' or a 'decrease in the incidence of disease'. On examining the results published in the paper it was sometimes obvious that, although these statements were true, the claims were not statistically valid: in other words the differences seen could have occurred by chance.

Reference is often made to the fact that a scientific paper has been subject to 'peer review'. This implies that the paper has been critically appraised by other scientists before being accepted by the journal's editor for publication. There is good evidence that not all peer-reviewed papers are flawless. In some subjects, those who review scientific papers are well known to those who wrote them and there is a strong possibility of reciprocally favourable reviews being carried out. It is also not unknown for a scientific paper to be rejected by a reviewer because the results conflicted with the reviewer's own theory.

There are areas of research where the dominance of a few people has meant that their theories were the only ones which achieved prominence. Each supported the other's applications for research funding and they collectively inhibited those with conflicting ideas from obtaining funding for research.

This scenario occurred over many years in diet and human health, especially in research into the link between relation to the consumption of saturated fats and coronary heart disease. It has been generally believed for many years by the majority of people that their chances of suffering a heart attack will be lower if they reduce their intake of saturated fats. These are the fats which are solid at room temperatures and are mostly derived from animals: dairy products and the fat obtained in meat. The predominance of this belief is mostly due to the efforts of so-called scientists in the USA, led by Professor Ancel Keys of the University of Minnesota. From the early 1950s, he led the campaign to convince people that consumption of saturated fat was the cause of heart disease. Keys was described as a relentless defender of his own theories, who minced few words when he disagreed with a competitor's interpretation of the evidence, which was inevitably when the evidence disagreed with his theory. Keys and his collaborators also made sure that they were awarded the vast majority of the money available for research into nutrition and health and also had lucrative links with the food industry which was keen to promote foods which were high in carbohydrates and/or high in vegetable oils (polyunsaturated fats). They appeared as expert witnesses before the McGovern Committee in the US Senate to ensure their theory was the one promoted in government health policy documents.

In 1984 the British Committee on the Medical Aspects of Health published its report on the causes of heart disease and concluded that the intake of saturated fat was a major factor. At that time my wife was involved in writing and lecturing on the importance of nutrition to the successful outcome of pregnancy in women. She advocated that pregnant women should consume full fat dairy products and meat as part of a mixed diet but was told that this advice was wrong because the saturated fat would increase the risk of heart disease. After a very thorough review of the literature, she could find no evidence that saturated fat was a major cause of coronary heart disease.

After about 25 years, the voices dissenting to the saturated fat theory are increasing in number, but the willingness of the establishment to listen to those voices shows no sign of increasing. The Food Standards Agency (FSA) recently recommended that the consumption of milk should be limited to that containing only 1 per cent of fat instead of whole milk which has 4 per cent.

The evidence now seems overwhelming that the consumption of refined carbohydrates, especially sucrose and high fructose corn syrup contribute to the high incidence of heart disease, diabetes and obesity. Carbohydrate which is eaten in excess of immediate energy requirements is converted to fat after absorption. The fat in the body formed from sugar is the same as fat which is eaten. The popular belief that fat which circulates in the blood or is present in adipose tissue is only derived from fat which is eaten is wrong. When a meal is eaten more energy enters the body than it uses during the consumption, digestion and absorption of that meal. Excess energy is stored, first as glycogen in the liver and muscles and the rest as fat in adipose tissue. In the period before another meal is eaten, this extra stored energy is mobilised to meet whatever is needed for the body to function. This system is very efficient and is mostly regulated by the hormone insulin. When a meal high in carbohydrate is eaten and absorbed as glucose, the secretion of insulin is stimulated to prevent hyperglycaemia and encourage the conversion of glucose into fat for storage. When people eat a diet which is high in refined carbohydrate they secrete more insulin which lowers blood glucose and makes them feel hungry fairly soon after a meal so they eat more carbohydrate and the process is repeated. In the presence of insulin, the mobilisation of fat from adipose tissue is inhibited and obese people often feel hungry, even though their bodies have large reserves of energy.

If people eat fat, protein and unrefined carbohydrate for breakfast, they digest and absorb that meal more slowly than those who eat a breakfast high in starch and sugar. The former group also cause less insulin to be secreted because blood glucose concentrations remain lower and within the normal range and the feelings of hunger do not return so soon. When the body is in the post-absorptive state the excess stored energy can, in the absence of insulin, be mobilised to supply the body until the next meal. The persistent consumption of refined carbohydrate leads to repeated calls for more insulin to be secreted. This can lead to insulin resistance and Type II diabetes, increased weight gain as adipose tissue and increased incidence of heart disease. The opinions expressed by the members of the FSA show that they are very reluctant to look at new evidence. When we take account of the areas of expertise and the commercial vested interests of some of the members of the FSA (advisory committees) we should treat any reports they produce with scepticism.

Dominant personalities with fierce determination to protect their theory are also evident when discussing global warming.

The fact that the average global temperature began to increase from 1975 led to the formation of the Intergovernmental Panel on Climate Change (IPCC) in 1988. The panel operates under the auspices of the United Nations. It is evident that the IPCC has been dominated by those who believe that global warming is caused by the increase in the concentration of carbon dioxide (CO<sub>2</sub>) in the atmosphere. They also believe that human activity is responsible for the increase in atmospheric CO<sub>2</sub>, and that unless urgent action is taken to cut emissions of CO<sub>2</sub>, catastrophe is inevitable. It has to be said that most of the information on global warming contained in IPCC reports is soundly based. However, those who are responsible for providing the summary statements for presentation to the general public (and to politicians) are not climate scientists and there are grounds to question the vested interests of the leaders of the IPCC, especially the Chairman.

The alarmist statements they make seem to be designed to inhibit any discussion of the possibility that CO<sub>2</sub> is not the major greenhouse gas and that variations in solar output might better explain variations in global temperatures. For instance the IPCC statements make no reference to the fact that there have been no further increases in average global temperatures since the year 2000. This has happened despite global CO<sub>2</sub> emissions rising at their fastest rate. This indicates to me and many others that CO<sub>2</sub> may not be the major factor causing changes in global average temperatures. When we question the validity of the theory which underlies all the legislation enacted to reduce CO<sub>2</sub> emissions we are first of all ignored, then

ridiculed. If scientific evidence does not concur with the theory, it is the theory which should be discarded, not the evidence.

There is other information which does not support the CO<sub>2</sub>/global warming theory. An increase in average global temperatures must have occurred between the years 900 AD and 1300 AD. This was the Mediaeval Warming Period when vines were grown around the city of York and the Greenland pack ice almost disappeared. Between 1300 AD and 1850 AD the earth experienced a Little Ice Age when major rivers such as the Thames froze. These changes in the earth's climate could not have been caused by changes in atmospheric CO<sub>2</sub> as a result of human activity. The IPCC report summary statements make no mention of these historical records.

The so-called experts who dominate the IPCC always give the impression that they know more about climate change than the rest of us and insist that the theory is based on fact and must not be questioned. It is often said that the majority of scientists agree with the CO<sub>2</sub> theory, but progress in science has never depended on a head count of those involved. In fact unquestioning acceptance of the majority's opinion in science is more likely to entrench the scientific establishment and ensure that support for much-needed further research is blocked.

When a majority of politicians also accept the CO<sub>2</sub> theory, this is very dangerous for the general population. They can enact laws to force us to pay for whatever measures they who believe they know better say we should follow. So long as politicians are only interested in adopting policies which are likely to attract most votes, we will not have policies which are in the best interests of the country. Our members of this organisation know very well that politicians are not leaders in the true sense of that word. If they were they would adopt economic policies which would enable the majority of people to have the highest standard of living with the least cost and minimise the costs of doing business in this country. These aims are not compatible with their present taxation policies which favour the owners of property and discriminate against employment and enterprise.

#### Points to ponder

1. Men who have excessive faith in their theories or ideas are not only ill prepared for making discoveries; they also make very poor observations. Claude Bernard 1865
2. We are often confronted with poorly observed and indefinite facts which form actual obstacles to science, in that men always bring them up saying 'it is a fact, it must be accepted'
3. Politicians are more likely to be convinced by the daily paper than the research paper.
4. There is no merit in consensus if the consensus is wrong.