

PROCEEDINGS OF THE NUTRITION SOCIETY

Formed part of the Four Hundred and Fifty-first Scientific Meeting held at the Royal Society of Medicine on 23/24 May 1988

COLLOQUIUM ON 'NUTRITION, MARKETING AND THE MEDIA'

Has the science of nutrition benefited from the food industry?

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The influence of the food industry on the development of the scientific investigation of nutrition is of particular current interest, since it has been proposed that industry, in general, should shoulder more of the burden of financial support for basic research in the UK. It is apposite, therefore, to enquire whether the track record of the food industry gives confidence that it will accept a responsibility to support this branch of science and, if it does, whether it will discharge that responsibility vigorously and disinterestedly. Perhaps even more important than past history, however, is the attitude of contemporary food industry policy makers towards the funding of basic research, in general, and their perception of the relevance of nutrition to their commercial activities, in particular.

Much of the discussion of these issues is clouded by some misconceptions both as to the role of basic research (as opposed to applied research) in the success of businesses and also of the scientific disciplines most relevant to the food industry. These misunderstandings are not confined to the minds of non-industrial commentators, but are sometimes found in surprisingly senior food industry personnel.

Comparisons are often made with the chemical and pharmaceutical sectors. But these industries rely on a broad basic and applied science base for the development of new products and for new processes for making these products. They are also heavily dependent on a knowledge of toxicology and ecology, for example, to prevent disasters and to clear up after mistakes when they occur. It is hardly surprising, therefore, that these industries invest to a substantial extent in the sciences of chemistry (in all its forms), pharmacology, toxicology, process and chemical engineering, biology, ecology and so on, both fundamental and applied.

Similarly, engineering enterprises, whether mechanical, civil, electrical, chemical, aeronautical or nuclear, rely on a science base to initiate new ventures and to clear up the debris of past mistakes. Their commercial businesses grew, to a large extent, out of science, and they maintain their commercial momentum on the basis of science.

The same is, at least partly, true of the food industry, but, within the industry, the relevant scientific discipline is largely seen as 'food science'. Nutrition is thought to be in the sphere of the consumer and relevant to the use to which the food products are put, rather than the making of them.

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This attitude is dated, for a number of reasons. There is a marked trend to produce composite food products that bear a close resemblance to the meals people actually eat, in contrast to the traditional commodity-based products, the combination of which is entirely in the hands of the purchaser. The 'meal-type' products clearly exert a much greater influence individually on the diets of their consumers than most commodity-based products will.

Retailers will soon offer (probably frozen) 'complete menu' packs for one day or perhaps one week. It is high time, therefore, for food manufacturers to address some of the questions that they have, in the main, assiduously avoided to date; questions on, what is essentially a food safety issue: such as 'What is an appropriate diet for health, for the different subgroups of the population?', or 'How does my product range benefit or harm the consumers of it?', or at least 'How can we modify our products so that the consumer is more likely to benefit?' The fact that these questions are exceedingly difficult to answer (and certainly conclusive evidence is not available on any of them) does not mean that they can be indefinitely ignored.

A second reason for a closer industrial interest in nutrition, as well as food science, is not because of a fear of harming consumers, but the possibility of benefiting them. Such a consideration has long been prominent in the formulation of infant feeds and weaning foods, but could be extended to older children and adults with an appropriate knowledge base. Obvious examples include foods for those areas of the world where custom, climate, soil chemistry or agricultural practice lead to specific problems. But a great deal of detailed study of the nutritional contributions to the aetiology of disease, especially chronic disease in the elderly, will be needed before the full potential of such an approach can be realized.

To gauge the prospects for the future we must examine the *track record* of the industry in supporting and conducting nutrition research in the past, and its *attitude* to the prospect of being asked to fund appreciable sections of this research in the future.

The track record is not too encouraging. In the past, and currently, some food companies have provided financial and other forms of support to research groups working in universities and other non-industrial establishments (often outside the UK), and have sometimes tackled fundamental issues in their own laboratories. Some have supported the training of young scientists, a few of whom have gone on to make appreciable contributions to the science of nutrition. Some companies, or their charitable trusts, have also sought to encourage research in the field by offering prizes for achievement among established research workers or endowing University posts.

None of this has been on a scale likely to have any radical impact on the state of nutritional science and, coupled with a chronic underfunding from government, has left our subject in a parlous state, especially in this country.

Past history is not encouraging and hard information on financial expenditure in this field is very difficult to collate. Specific examples of advances in knowledge that have been influenced by industrial funding or interest are few and far between. But examples in human nutrition probably include contributions to our knowledge of the role and mechanisms of action of essential fatty acids, and of the mechanisms of absorption of triglycerides; the formulation of substitutes for breast milk; the effects of various fats and oils on blood cholesterol levels, and the lack of a direct correlation between hypercholesterolaemic effects and atherogenic effects in experimental models (although it could be contended that this is toxicology); the effects of fermentable carbohydrate on the teeth; the effects of sugars on weight control; and studies of what we choose to call 'dietary fibre'.

In the field of animal nutrition, examples include the substantial body of work on

small-animal nutrition that arose from the need to conduct safety evaluation studies of industrial chemicals and food additives. It is worth noting that these include the only reliable information on the effects of nutrition, especially energy intake, on longevity.

The influence of the agricultural industry on optimization of nutrition of farm animals is another example, but it should be emphasized that here 'optimization' means the best for growth or reproduction *not* long life or health in old age.

As to attitudes, it is clear that the food companies take a firm stand that it is not their responsibility to fund research that might benefit all of the industry, even if the individual companies might take some of the rewards themselves. One can but suspect that this almost 'dog in a manger' attitude is influenced by the current practice of stock market investors, especially some of the larger ones, who seem to be entirely governed by the desire to own *the* stock with the fastest growth rate, rather than merely one which is performing well. Thus, whether a firm is benefiting from a new piece of knowledge, even in the narrow sense of being able to convert it into a steady flow of cash, becomes secondary to whether it is doing better than its competitors out of this knowledge. Rather than risk losing competitive edge, companies would prefer not to enter the game at all.

While this is all very reprehensible and regrettable, it has to be said that there is another powerful reason why the food industry is reluctant to fund basic research, and that is the fear of the journalistic 'lynch mob'. Rather than accept that research is intrinsically valuable, and that it should be encouraged, albeit along with the encouragement of responsible interpretation and exploitation of the results of research, some journalists have sought to categorize the research itself according to the source of the funds that support it. Apart from the naivety of assuming that a scientist will be honest if his source of funds is the government, and dishonest if it is a profit-making (rather than profit spending) organization, this journalistic 'three-card trick' is in fact merely an excuse for ignoring the contribution that industry-based and industry-supported scientists can make to the thinking that surrounds any science. Additionally, the manoeuvre is a somewhat transparent attempt to bolster the otherwise negligible credibility of some of the journalists involved, by 'slinging mud' at anyone who does not conform to their point of view.

This situation is rather unfortunate because academic scientists are not immune from error, or career interest, or self-aggrandizement. It could reasonably be argued that one of the more important contributions that the food industry has made to nutritional science is by providing the 'case for the defence' in the 'trial by media' that has gone on over the last few years. Of course, it cannot be suggested that all the activities of the heterogeneous, multi-national and multi-dimensional food business have been above criticism. But it is valid to contend that when they have been accused of wilfully poisoning the population for profit it has been useful to have questions raised as to the *evidence* for such severe accusations. The fact that the voices asking for evidence have often been food industry scientists is not to detract from their value, even if it has been an indictment of the dedication of the scientific community in general to the principles of the use and abuse of scientific evidence. We all have a responsibility as scientists, in our wider community, to speak out when science is misused for political or venal ends, even if the miscreant is a journalist and, therefore, by definition has the last word. Those who consider that scientists can afford to ignore the public debate on the implications of their work might do worse than consider whether the current health of nutritional science has been helped or hindered by leaving the public stage largely to the hot heads for so long.

At the end of the day, the only guarantee of integrity in a scientist or a journalist or anyone else for that matter, is the personal integrity of the individual. The food industry should not limit its contribution to nutrition science to the criticism of over-evangelical

interpretations of evidence (particularly when these criticisms tend to be a trifle selective), but the industry must seriously address the outstanding scientific questions relevant to its commercial activities, even if these questions are also relevant to other companies' interests, and let the quality of the research speak for itself, as in the long run it always does. This is the best defence against those who wish to abuse nutrition for their own nefarious purposes, and the best basis for future development of the industry for the benefit of the consumer as well as the shareholder.

On the other side of the coin, academic scientists who care for the future of nutrition should seriously consider whether they can afford the luxury of ignoring what is going on in the public arena.

Printed in Great Britain