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NUTRITION AND THE PURE FOOD LAWS

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Historical Aspects of the Pure Food Laws

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A century ago, in 1851, there was almost no administrative control over the purity of food. There were in existence a few statutes relating to beer, bread, tea and coffee, but no general act of any kind. In the social, commercial and administrative conditions of the time, food adulteration could hardly fail to flourish and to extend. It seems to have been a profitable business upon which anyone might venture almost without risk. We owe it to the enterprise of Mr Wakley, then Editor of the *Lancet*, that the year 1851 marked the inception of organized food control in the form of an Analytical Commission under the direction of Dr Hassall.

Hassall became well known as the first food chemist to make a systematic use of the microscope to detect fraudulent additions to food. His first triumph was the detection of chicory in coffee. It had been stated as late as 1851 by Sir Charles Wood, Chancellor of the Exchequer, in the House of Commons, that, in the opinion of three of the most distinguished chemists of the day, 'neither by chemistry nor by any other means could the admixture of chicory with coffee be detected'. In these circumstances a Treasury Minute had allowed the unrestricted mixture of chicory with coffee without declaration, the more readily since import duty was paid on both. After Hassall's work with the microscope a further Treasury Minute of 1853 prescribed the labelling of coffee and chicory mixtures in letters at least $\frac{1}{8}$ in. in height.

During the 6 years from 1850 to 1856 Hassall examined over 3000 samples of the more important foods, as well as many drugs, and found that at least 65 % of them were adulterated. In the list of adulterations which he gives one can discern a fairly sharp division into three classes. The first includes fraudulent but harmless substitutions and additions, such as chicory, roasted vegetable materials of different kinds and baked horse liver in coffee; flour in mustard, pepper and ginger; excessive water in any food that would hold it, and particularly in milk and all kinds of drinks; and cheap or inferior fruits or fruit juices in jams and preserves. The second class includes distinctly indigestible ingredients such as sawdust, husks of various kinds, iron oxide, alum, calcium sulphate, brick dust, bone ash, and other substances not usually regarded as actively toxic. The third, the most objectionable of all to the consumer, includes highly toxic mineral pigments such as compounds of lead, arsenic and

mercury; sulphuric acid, and even nitric acid, in vinegar; and poisonous bitters such as *Cocculus indicus*. It is difficult to form any conclusion as to the actual amounts of toxic substances liable to have been ingested in food at that time, since few quantitative figures are given, but as much as 0.6 % of sulphuric acid in vinegar is recorded.

The only bright spot in this catalogue of adulteration is the fact that chemical preservatives, boric acid, formalin and salicylic acid, were not used at that time, and did not appear until about 30 years later.

One very effective and courageous device adopted by Mr Wakley for ensuring that the work of his Commission would produce some result was the publication in the *Lancet* of the names of firms whose goods had been found to be adulterated. As the *Quarterly Review* for March 1855 (Anonymous, 1855) remarked, 'a gun suddenly fired into a rookery could not cause a greater commotion than did the publication of the names of dishonest tradesmen'. Altogether, over a period of several years, the names of between 2000 and 3000 traders were thus made known. In only one case were legal proceedings taken, and they were soon abandoned. As a result of these revelations the adulteration rate dropped in a few years from 65 to 25 %. In 1855 Hassall published his book *Food and its Adulterations* (Hassall, 1855) including the Reports of the *Lancet* Analytical Sanitary Commission, and the same year saw the appointment of a Parliamentary Committee, under the Chairmanship of Mr Scholefield, to investigate the whole question of food adulteration.

The Committee in their report (Great Britain. Parliament, 1856) said that they could not avoid the conclusion that adulteration was widespread. 'Not only', they said, 'is the public health thus exposed to danger, and pecuniary fraud committed on the whole community, but the public morality is tainted, and the high commercial character of the country seriously lowered, both at home and in the eyes of foreign countries.'

The next event was the passing of the Adulteration of Food and Drugs Act in 1860. This Act permitted the appointment of Public Analysts but did not make it compulsory. The first Public Analyst to be appointed was Dr Letheby, Analyst to the City of London, but in his first quarter he received only four samples, all adulterated. The Act was not successful, and became almost a dead letter.

A second Act of 1872 was more effective, in fact too much so for the food trade, who, according to Hassall, 'grew very wroth, and banded themselves together to get the Act repealed'. The third Act of 1875 was alleged by some to have been unduly influenced by commercial interests. It was noted that the obnoxious word 'adulteration' did not appear in it. The main provisions were that nothing injurious might be added to food, and that when sold the food must be of the nature, substance, and quality demanded by the purchaser. Both of these provisions were obviously of a somewhat contentious nature, and were criticized as likely to be a fruitful cause of future litigation. However this may be, the Act, with amendments and extensions and eventual consolidation, virtually remained in force for over 60 years.

At the time of the 1875 Act, adulteration of food, as measured by the number of samples reported against, was in the region of 20 %, or even higher by present-day standards. By 1930 it had fallen to 5 %. For this achievement credit must be given to

the original group of Public Analysts who were the real foundation upon which the Act rested. They had many difficulties to contend with, in a branch of science almost unexplored. Butter and milk analyses were in the early stages of development. The market was being flooded with fraudulent butter substitutes from Holland and Germany; compulsory labelling of margarine was not introduced until the Margarine Act of 1887. The presumptive limits of 3 % fat and 8.5 % non-fatty solids for milk were not officially prescribed until 1901.

Outstanding occurrences at the beginning of the present century were the outbreak of arsenical poisoning from beer in Manchester with 6000 cases and seventy deaths, and the oyster disaster at the Winchester Mayoral Banquet in 1902, when nearly half the guests contracted gastro-enteritis and four died. Shell-fish at that time were a very real danger. Out of 4000 cases of enteric fever annually in London, it was estimated that perhaps 30 % were due to shell-fish, mainly mussels. The treatment of mussels in purification tanks, coupled with the powers given to the Ministry of Health and to Local Authorities to close suspicious layings, and also general improvements in sanitation, have reduced the danger from this cause to small dimensions.

In 1906 the Foods Department of the Local Government Board was constituted, partly owing to reports of the extremely unsatisfactory conditions in which meat was packed in Chicago for export to this country. The next year, 1907, saw the passing of an important Act, the Public Health (Regulations as to Food) Act, under which the Foreign Meat and Unsound Food Regulations were made, controlling the importation of food from abroad. One difficulty encountered at that time was the diversion to human food of inedible lard or grease, sent from the United States to the Continent and there refined for export to this country as Pure Continental Lard. It was not until 1924 that it was eventually possible to extend the system of official certification to lard and other rendered fats, and thus to check this practice.

In 1890 and the following years increasing interest was taken in bacterial food poisoning, which was recognized as being due to specific organisms, of animal origin, that had found suitable conditions for survival and growth in prepared food. Many years later, about 1932, a further potent cause of food poisoning was found in the enterotoxin produced by *Staphylococcus aureus*, largely from human sources. In 1921, investigations into food poisoning, which had hitherto been rather disjointed, were organized into a definite scheme of research with the help of the Medical Research Council, a scheme which was eventually taken over and further developed by the Emergency Public Health Laboratory Service.

The most serious of all forms of food poisoning—botulism—has fortunately been met with on only two occasions in this country, in 1922 at Loch Maree and in 1935 in North London. Food poisoning was made compulsorily notifiable by the Food and Drugs Act of 1938.

About the year 1912 the question of a pure milk supply began to receive increased attention. The Milk and Dairies (Consolidation) Act of 1915 could not be brought into operation during the war, but in 1918 the Ministry of Food operated a tentative system of milk grading. In 1922 the first really serious attempt was made to secure the production of clean and safe milk. In that year we had the Milk and Dairies Amend-

ment Act and the Milk (Special Designations) Order with its different grades of raw milk.

Much was hoped from the grading system, which was designed to secure the full nutritive value of fresh milk without the attendant risk of infection with milk-borne diseases. It could be looked upon as the first line of defence against bacterial infection, with pasteurization as the second line. It may be questioned whether these hopes have been justified. A recent estimate gives 2000 new cases of bovine tuberculous infection annually in children with about 600 deaths and much severe crippling. Moreover, there is the unknown, but probably high, incidence of undulant fever, from both high-grade and low-grade milk. Most people seem to have come to the conclusion that compulsory pasteurization, in spite of the difficulties of enforcing it, will in the end be the only possible solution.

The history of food standards in this country dates back to 1896, when a Select Committee of the House of Commons recommended the formation of a Court of Reference to deal with definitions, standards and limits for foods. The Sale of Food and Drugs Act gave no powers to any Government department to prescribe standards in general. The powers of the Local Government Board in respect of food were derived from various Public Health Acts, and were strictly limited to the protection of the consumer's health. Standards of composition for foods in general were matters of fair trading, not of health, and a new Act would be required before the Board could attempt to lay down standards of this kind. In 1913 a bill was introduced to give the necessary powers to the Local Government Board, but it was subsequently withdrawn.

In 1919 the Local Government Board became the Ministry of Health. In 1923 standards were made for condensed milk and dried milk, but emphasis was placed upon the use of these for infant feeding and the Regulations were therefore introduced as a public health measure. In the same year the *Departmental Committee on Preservatives and Colouring Matters* was appointed, whose report was followed by the Public Health (Preservatives, etc., in Food) Regulations of 1925. These Regulations did an immense amount of good in clearing up dubious practices in the food trades, and are still highly effective, but they are in many respects out of date and are overdue for revision, particularly as to the meaning of the word 'preservative'.

In 1931, after representations from various bodies, there was appointed a *Departmental Committee on the Composition and Description of Food*, and the whole question of definitions, standards, advertisements and labelling was re-examined. The Committee was in favour of a limited number of standards, but considered that the main thing was that the public should know what they were getting.

The Committee's report in 1934 led in due course to the Food and Drugs Act of 1938, which gave much wider powers to the Ministry of Health. The Act, however, did not come into force until after the outbreak of war, and it was eventually decided that, as the Ministry of Food was in existence, all orders and regulations including food standards should be made by that Ministry.

The wartime orders made by the Ministry of Food developed into the comprehensive system of control over the advertising, labelling and composition of foods which is in

operation to-day. The court of reference so long demanded has now materialized in the shape of the Food Standards Committee of the Ministry of Food.

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Recent Advances in Food Legislation for the Protection of the Consumer

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There is a growing consciousness the world over that the consumer needs protection to ensure that the food he buys is honestly portrayed so far as descriptions and claims made in advertisements and labels are concerned and that such food should not be adulterated. These are fundamental requirements, and provide the key to the food legislation of all enlightened countries. In the United States and Canada there are only two basic food offences, misbranding and adulteration, and the regulatory definitions of these are such that almost all offences against the food laws of these countries can be taken under the one or the other of these charges.

In this country the position is not so clear-cut, but I think it can be shown that the advances that have been made since 1939 have taken us a long way along the road to our ultimate goal—the adequate protection of the consumer. The outbreak of the war prevented the Ministry of Health from exercising the potential power conferred by Section 8 of the new Food and Drugs Act, 1938. This power, somewhat reminiscent of the mantle of Elijah, was assumed by the Ministry of Food in 1943 in the form of Defence (Sale of Food) Regulations, but with several important differences.

The first is the definition of 'food'. Fitful amendments, not altogether successful, to the original definition have been made in successive Food and Drugs Acts since 1875, but none succeeded in defining the position of the borderline products—hybrids that are partly food, partly medicine, and which could claim, according to circumstance, to be either. To some degree, the position has now been clarified by the addition of the proviso that an article shall not be deemed not to be a food merely because it is also capable of use as a medicine. Borderline preparations may be thus, with sound legal authority, classified as foods.

The second is the expansion of those time-honoured words 'nature, substance or quality', three facets of the indivisible whole featured in Food and Drugs Acts for three-quarters of a century, until they were separated in the 1938 Act. Even this separation, which enables charges under one or more of these heads to be preferred under Section 3, is of no avail if false claims are made as to the nutritional or dietary value of a food, since it is by no means certain that a Court would hold that such claims were false as to the nature, or the substance, or the quality, of the food. Accordingly,