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# The Developing Role of the Enforcement Analyst

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The provision for the statutory appointment of Public Analysts in the Sale of Food and Drugs Act 1875, recognised the fact that competent analysts were necessary to provide a service in support of the enforcement of food and drug legislation. However, it was not until 1900 when the "Branch E" diploma of the Institute of Chemistry became the legally required evidence of competence for public analysts that the high qualification required was assured. Until this time adulteration of food and drugs was crude and could be easily detected. For many years publications exposing the adulteration served only to encourage unscrupulous traders in the knowledge that they would be unlikely to be prosecuted.

The cornerstone of the present day legislation still embraces those principles of food purity that existed in the 1875 Act, that is, that food should not contain any deleterious substances and that it should be of the nature, substance and quality demanded by the purchaser. Examination of the detail of the legislation in 1875 and that of the 1955 Act (as amended over the years) shows that it is only the main principles which are a common factor. The legislation has broadened to such an extent that there is a need to use sophisticated, highly specialised techniques, all of which require analysts of considerable skill and experience. Consumers are increasingly aware that a variety of legislation exists to protect their rights as purchasers as well as their individual health and safety. The role of the public analysts is vital in the law enforcement process in providing independent and unbiased evidence, especially concerning complaints by private individuals. Many of the complaints arise from deliberate sabotage in the factory, others as a result of deterioration on storage. Sometimes the deterioration may be a hazard to health and have serious consequences. A tremendous variety of foreign bodies may be found in food, ranging from rodent faeces to finger dressings, and this results in many prosecutions. There is no doubt that everyone now is more hygiene-conscious and because of the lack of personal contact between the manufacturers, the retailer and the purchaser there is often no alternative than to complain to the enforcement authority. The public has a right to complain about unsatisfactory food products under the Food and Drugs Act and public analysts are required, if necessary, to make a thorough examination of the complaint specimen.

Routine inspection is still vitally necessary both at retail outlets and on the factory floor. Indirectly the public analysts must be concerned with "value for money" in ensuring that compositional standards for foods are maintained—something which cannot be assessed by the purchaser from reading the labels. It is necessary not only to keep pace with rapidly changing legislation but also to



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develop new methods of investigation and analysis which anticipate modern and sophisticated ways of defrauding the consumer. For example, polyphosphate solutions in chickens and meat products, soya protein used as meat extenders, unfit and foreign meat in meat products, minute traces of inorganic and organic contaminants, all pose particular analytical problems. One has only to reminisce over the past twentyfive years to realise the changes that have taken place. When the dirty atomic bombs were being detonated the public analysts were screening water supplies and foods for total *beta* activity and needed certain basic equipment and more importantly, had to acquire particular expertise in radiochemical techniques, to carry out such surveillance. Then soon after, there was public alarm, which to some extent still exists today, over the presence of pesticide residues in food. The difficulties of residue analysis and determining residues near the limits of detection had to be overcome, which was just as well in the light of other contamination situations which were to appear unexpectedly in later years. More and more concern was being expressed about trace amounts of toxic metals in the environment and the Government departments looked to public analysts for analytical evidence to augment their own surveillance studies. In recent years the dangers of mycotoxins have been recognised, and the detection of parts per billion of aflotoxins illustrates the demand for very high levels of analytical expertise. The systematic examination involved in the analysis of unknown substances, combined with a wide knowledge of the nature of the chemical substances which have to be identified and a correct interpretation of the results, has become a part of the daily routine of the public analyst's laboratory. Further, in order to have confidence in the results it has become necessary to have built-in quality control procedures.

It must be apparent, therefore, that in the future more properly qualified persons will be required and increased resources will be essential to maintain an efficient scientific advisory and analytical service in support of the enforcement of the extremely wide variety of legislation.