Annual Address of the President.

(DR. J. T. DUNN, F.I.C.)

Delivered at the Annual General Meeting, held on March 4, 1931.

LADIES AND GENTLEMEN,

It has long been customary for the President to begin his address by an account of the position of the Society in membership and activities, quoting statistics and enumerating papers read during the year. All this is contained in the report of Council, and it seems unnecessary to repeat it in detail; but it is gratifying to find that we are steadily gaining numerical strength in membership. Both this circumstance, and the fact that the sales of THE ANALYST are increasing, are testimony to the excellence of our journal, and a tribute to the solid and careful work of the Publication Committee, and especially to the ability and untiring industry of our Editor, Dr. Mitchell, to whom the Society owes so much.

A Society like ours, which has passed its jubilee, must expect every year to have to record the passing of some of its older members; and this year is no exception to the rule. But of those who have come within "Time's bending sickle's compass," whose names we see in the Council's report, and among whom are some of considerable eminence, particularly in connexion with the analysis of foods, there is one in especial whom I must mention, because of his long and intimate association with our Society. Edward William Voelcker was elected a member in April, 1889, forty-two years ago; and during the whole of that long period, as member, as Member of Council, as President, and, above all, as Treasurer, he has given of his best to the Society. His financial ability, and the wisdom and moderation of his counsel—ability and wisdom never blatantly displayed, but perhaps even a little hidden from immediate recognition by the modesty of his demeanour, and the geniality and kindliness of his nature—have undoubtedly largely helped towards the growth of the Society and the attainment of its present prosperous position. We miss not only his ready help and advice, but his personal charm, which all of us must have felt. He is become for us a fragrant memory, and the contemplation of his life and work cannot but be a stimulus and an inspiration.

The papers read during the Session are enumerated in the Council's report. I should like here only to draw attention to the wide range of the subjects treated in them, and to point out that almost half of them have no connection with Food and Drugs or the official work of the Public Analyst. The subjects cover practically the whole range of analytical chemistry, and testify to the wisdom of the policy which, a few years ago, added "Other Analytical Chemists" to the membership of the Society of Public Analysts.

THE NORTH OF ENGLAND SECTION.—This Section, I am glad to think, continues a vigorous existence with an increasing membership, and is becoming an affluent towards the membership of the parent Society. It held last July a week-end summer meeting at Scarborough, which was well attended and very successful. Glancing through old volumes of the ANALYST, I see that the Society was in the habit of holding a country meeting once a year, and it is worth while, I think, asking whether the practice might not usefully be revived. The opportunities for social intercourse which such a meeting gives are very valuable. Another feature of the Section's session was a visit to one of the factories of the Co-operative Wholesale Society, who entertained the members to lunch and tea; which indicates that the C.W.S. was not ashamed to submit its processes to the gaze of the Public Analysts, nor its products to the judgment of their palates.

CO-OPERATION WITH MANUFACTURERS.—The Council's report for last year mentioned that, at the invitation of the Food Manufacturers' Federation, conferences between their representatives and the Public Analysts' Committee were taking place, on the question of standards for jam, and you now know that agreement has been arrived at, and that a memorandum has been circulated to the members of the Federation, setting forth the standards to be adhered to, and the mode of labelling the jam. All of the members of the Federation have signed the declaration agreeing to abide by these standards; and I take it that our position as Public Analysts will be to look upon any sample of jam, not labelled "Lower Fruit Standard," as purporting to be "Full Fruit Standard," and to report against it if it should fall short of the requirements of that standard.

I regard this arrangement as of very great importance and with a considerable degree of satisfaction. In the early days of the Food and Drugs Act, and indeed for many years after its institution, the Public Analyst was looked on as more or less the natural enemy of the manufacturer—the earlier volumes of the ANALYST contain frequent references to this attitude—and any sort of co-operation between them would have been thought almost an impossibility. Gradually, as the various branches of the manufacture of food products have become more scientific—as manufacturers in increasing numbers have themselves called in the aid of the chemist to control and extend their work, and have more and more realised that success lies in the direction of raising the standard of excellence of their wares rather than in actually (though not professedly) lowering it, that feeling has died out; and of late years, and especially since the chief producers of different food products have banded themselves into associations, and have seen that it is to their advantage not only to keep up the standard of their own products, but to endeavour to prevent others of lower morality from spoiling their markets by the presentation of inferior or adulterated articles at lower prices, we find the manufacturers helping the Public Analysts, and in turn asking for their help. Three years ago we had the chemists of the Food Manufacturers' Federation placing unreservedly before us the results of their investigations into methods for the determination of the preservatives used in foodstuffs; and now we have the

Federation asking for our co-operation in fixing reasonable standards of quality for jam.

And this example seems likely to be followed. During last year the National Farmers' Union and the Cheshire County Council endeavoured to promote a bill in Parliament with the view of checking the sale in this country of inferior cheeses as Cheshire cheese; and they approached your Council to know whether or not it would give them backing. The Public Analysts' Committee considered the Bill, and, whilst giving it general approval, suggested alterations and additions for its improvement, and their proposals were approved by Council. No definite result has yet been arrived at, but the fact that the help of the Society was sought by the producers is very significant.

Quite lately the Council has been approached by another branch of the Food Manufacturers' Federation to see whether agreement can be arrived at on the question of rice flour in suet. The Public Analysts' Committee is now considering this, and I can, of course, say nothing on the question itself, but again chronicle the fact of the producers' endeavour to work in harmony and co-operation with the Public Analysts.

If these conferences continue and spread, we may be within measurable distance of having, not, indeed, legal standards, but at least agreed standards of composition of many foodstuffs, which will acquire in the courts the force and authority of legal standards; and we shall no longer have the anomaly of the same substance being held in one place to be genuine and in another adulterated.

And, as all this tends in the direction of informing the public as to what it is actually buying, I have hopes that it may go further yet, and that we may agree more upon definitions and descriptions; so that we shall not have tapioca sold as sago; shall know when we have a custard that it is not made from cornflour; and that a lemonade syrup shall not be said to be "made from the finest Messina lemons," if it has no nearer connection with them than the fact o fits containing citric acid.

Our experience with the jam manufacturers showed that we can attain results in conference that no amount of written correspondence would reach. Each side was able to put before the other its point of view, of which previously the other side was quite oblivious, and which hence it was unable to appreciate. One, at least, of our proposals was met at first by direct and absolute refusal, and yet we were able to show that it was desirable, even in the jam manufacturers' own interest, and to carry their acceptance of it. And we learnt something of the difficulties of the manufacturers, when we found that things on which we had come to agreement with them raised strenuous opposition on the part of the retailers, to whom they sold their products. So, give and take were both necessary; and if the new situation is not quite ideal in the view of some of us, it is at least a working arrangement which marks a considerable advance on the state of things that preceded it, and gives us reasonable hope of further progress in the same direction.

The jam manufacturers and their research chemists found that in black-currant jam made from pulp it was very difficult, sometimes impossible, to get

down to the maximum permitted quantity of sulphur dioxide: 40 parts per million; and Professor Roberts, of Liverpool, and I, who had both had some experience, not only of samples taken under the Food and Drugs Acts, and containing more than the permitted quantity, but also of the honest but unsuccessful efforts of local jam manufacturers to comply with the regulations, had also come to the conclusion that the requirement was too stringent. Along with Mr. Macara and two of the jam manufacturers' chemists, therefore, we had an interview with Dr. Hamill at the Ministry of Health, and put before him facts and figures on the question. So far we have heard of no result of the interview, but I mention it as another illustration of friendly co-operation where formerly there was antagonism and distrust.

Co-operation in Forensic Work.—Speaking of co-operation between manufacturers or their associations and analysts leads me to mention another aspect of work in which co-operation is extremely desirable, and, in my experience at least, frequently lacking. I refer to chemico-legal or toxicological cases, involving the examination for poisons of the organs of animals or of human beings. Here you have the veterinary surgeon or the medical practitioner and the analyst both involved, and it would seem eminently desirable that they should examine the organs together in the first place. But this is seldom done, and the organs are handed over to the analyst, frequently in a way that should not happen. I have two extreme cases in mind, both of them recent. In one we received a stomach for examination, the whole contents of which had been removed and the stomach washed. In the other, the whole of the intestines, with their contents, of a person supposed to have been poisoned, were sent to us, apparently without any previous examination. On opening them we found growths in such numbers and of such a size as seemed to us to be in themselves sufficient to account for death. My partner and myself were of course not competent to say definitely whether or not that was so; but had the medical man been present with us at the examination he could have given an authoritative opinion, and the search for poisons might not have been necessary. On the other hand, in another recent case, where the organs first came into the possession, not of a medical practitioner, but of a professor of pathology, he brought them to me and we opened and examined them together, so that each was furnished at the outset with the observations and inferences or suggestions of the other. It seems a great pity that this is not the usual practice.

Sale of Milk Regulations.—We are every now and then brought up against efforts of one kind or other to minimise the effective application, in the Courts, of the Sale of Milk Regulations. Last year's report of Council referred to a pamphlet of the Board of Agriculture, "Variations in the Composition of Milk," which was so obviously one-sided and unfair in its presentation and interpretation of the figures it contained, that your Council found it necessary to send the letter of protest that was published in the Analyst of August, 1929. This year there was brought to the notice of Council, in the Journal of the Ministry of Agriculture, an account of a meeting in May of the "Council of Agriculture for England," at which, among other business, there was moved and adopted a report on the "Law

Relating to the Sale of Milk," which the mover said would be "brought to the notice of the Ministry of Health, with a view to seeing how far action could be taken in accordance with the spirit of the representation."

The report proposes to remove milk from the operation of the Food and Drugs Act, and to place it under a special Act. Under this Act the presumption of adulteration, which the vendor must rebut, when the milk falls below specified minimal contents of fat or of non-fatty solids, would disappear, and punishment under the criminal law would only be inflicted if wilful adulteration were actually proved by the prosecution (no specified penalties are suggested); but there would be an implied warranty that all milk sold should contain at least 3 per cent. of fat and 8·5 per cent. of non-fatty solids (though sellers would be at liberty to issue specific warranties guaranteeing either more or less than these quantities, presumably obtaining correspondingly higher or lower prices), and failure to maintain the standard guaranteed by the warranty would be a civil offence, punishable by the award of five shillings damages, if the case were proved in a County Court.

There is something to be said for the infliction of civil penalties only in certain Food and Drugs cases; and occasions do arise where a tradesman is branded with the stigma of criminal conviction under circumstances that do not warrant so severe and far-reaching a penalty. But the probable effect on the general milk-supply of the country of such an alteration in the law as is suggested in this report, where the maximum penalty, for what would always be a breach of contract and might frequently be deliberate fraud, would be "the award of five shillings damages," is very obvious. It is so obvious, I think, as to make the likelihood of the alteration ever coming into operation negligibly small; but I mention it because at the meeting in question the Minister of Agriculture was present, and in his speech said he "would like to emphasise how closely he and the whole Department attended to the recommendations and reports of the Council." Your Council is giving a watchful attention to the matter.

It is, perhaps, of interest to say that during last year I received a pamphlet from a large firm of food distributors on "Proposals for legislation amending the law as to the Sale of Milk." This made reference, apparently, to a former pamphlet which I had not seen, and went on to say: "We now put forward somewhat detailed proposals for milk legislation, which have been evolved. . . ." I read the pamphlet through, but took no further note of the proposals, in such a matter, of a private firm; but perusal of the report of the Council of Agriculture stirred up some dim remembrance in my brain, and I looked up the pamphlet again. I found, curious to say, that nearly the whole of the pamphlet is a verbatim transcription of the Council of Agriculture's report. I make no comment on the coincidence.

STANDARD METHODS OF ANALYSIS.—A year ago your President devoted a large part of his very interesting address to the question of standard methods of analysis. This is a question that from time to time has occupied the attention of the Society. I find that Mr. Rudd Thompson, in addressing you in 1925, referred

to standard methods that had then been adopted, here and abroad, and discussed the question generally; and Mr. Bolton, three years later, speaking of the same matter, said: "It will be clear to everybody that conditions have arisen requiring the institution of standard methods for certain purposes, and these standard methods must be provided," and criticised the Society for neglecting this work, and leaving it to be done, as in certain directions it was then being done, by the British Engineering Standards Association, an engineering body.

Last year your Society was asked by the Association of British Chemical Manufacturers to appoint delegates to a conference to consider the question of standards generally as applied to chemical products and to analytical methods, and Mr. Bolton and I duly attended on June 4th. The Conference agreed that the formation of a chemical standardising body should be attempted, and that it was desirable that such a body should form a part of a larger organisation dealing with all forms of standardisation rather than act independently; and a small committee was formed to explore the situation in conjunction with the B.E.S.A., and report to the Conference.

The Committee has just made its report, and recommends that there should be a general organisation to be called the "British Industrial Standards Association," and that it should consist of four divisions—Building, Chemical, Engineering, and Textile. Each division will be under the government of a representative council chosen from the bodies interested in its particular work, and, as far as that particular work is concerned, it will be autonomous, though it will be subject, in matters of general policy, to a general council, largely elected by the four divisions themselves. The constitution of the councils, and the relations between the divisional councils and the general council are still under discussion, and it would not be right for me to indicate the proposals which have so far been made in regard to them. I will only point out that, when the scheme is carried through, the chemical division, besides undertaking the standardising of substances or methods not yet dealt with, will take over for adoption or revision those parts of the work hitherto carried out by the B.E.S.A. which are chemical in their nature.

Whatever our views on standardised methods of analysis may be, we are forced to concede, I think, that under the present conditions of industry and commerce they are very frequently necessary, and that they are, in fact, insisted on by those who have the power to insist; and if we are to have them, it is all to the good that they should be elaborated by a general chemical body, on which this Society will always be able to make its voice heard; and which, as it prescribed the methods, will also be able to modify and improve them, as that may become necessary.

In parenthesis, I may perhaps express the pious hope that, when standardising is undertaken by a general chemical body, rather than by the particular industry concerned, more care will be exercised, especially where the methods of analysis, or of testing, involve the measurement of physical characters of one kind or another, to make sure, before insisting on a standardised instrument or form of apparatus,

that such a standardised instrument or form of apparatus is really necessary to obtain consistent results. Our friends, the Institution of Petroleum Technologists, for example, dealing with the question of the effect of cold on the viscosity of oils, prescribed for us a standard method of determining the "pour-point" of an oil, which involved a special apparatus. But in a second edition of their book they tell us that the "pour-point" is of no value; we must determine the "setting-point," which has no relation to, and gives results in no way comparable with those of the "pour-point" determination, but which requires another and different special apparatus. And they give us two alternative methods of inquiry into the carbonising qualities of an oil, embodying the names of Conradson and Ramsbottom, respectively. Some users specify Conradson; others, Ramsbottom. No doubt each gives results by which different oils can be usefully compared; but Conradson's results have no relation to Ramsbottom's, and the only feature common to both methods is that for each there is prescribed a special and expensive apparatus.

Now, to the firm or specialist who is doing a particular kind of work all day and every day, the purchase of a costly instrument to carry out the work is not very serious; but when the general practitioner is asked to carry out an operation which may not recur more than half-a-dozen times in a year, and finds that his results will not be accepted unless he has used Brown-Jones's automatic electropolar antiviscosimeter, or other prescribed instrument, which Messrs. Thermo and Muffle's latest gorgeous catalogue tells him will cost £45, and that there will be another £35 for the "accessories" that are necessary to make the instrument work, he is placed in a not very happy position, having to decide whether to refuse the work and perhaps lose a client who might give him other work besides, or to cut the loss, and risk getting repaid in other ways. It is quite possible for such a man to spend as much on apparatus as he makes in fees, and be left with nothing but the melancholy satisfaction of reflecting that he is serving his country, when he pays income tax on the income that he would have had, if it had not all gone in capital expenditure. That is perhaps an extreme instance; but I do seriously think that there is a strong tendency nowadays to rely too much on the instrument-maker, and too little on our own powers of manipulation, which tend, as a result, to become atrophied.

When you honoured me last year by offering me the presidency of the Society, I accepted it, though with great pleasure and pride at the thought that I was considered worthy of it, yet with some diffidence and trepidation; for, obviously, a President living so far away from London, and debarred from frequent personal consultation with the Secretary or the other members of Council, works under conditions of some difficulty; but I have had the loyal help of all the members of Council, whom I wish to thank for their uniform kindness, and among them perhaps I may without offence name especially my immediate predecessor, Mr. Hinks, for whose advice and assistance I am most deeply grateful. Mr. Arnaud, too, was most considerate, and spared himself no trouble in keeping me abreast of successive situations that arose, until he was laid off by that very severe illness, his recovery from which is matter for such sincere gratification to us all; and during

his enforced absence Dr. Mitchell took over his work and relieved me of the anxiety I might otherwise have felt at being bereft of a guide whom I felt I greatly needed. All this has made my year of office a time of most pleasurable memories. You have entrusted me with the office for a second year; I hope to carry out its duties acceptably; and should I fail, it will certainly not be for lack of either effort or inclination to fulfil them.