

THE PRESIDENT'S ANNUAL ADDRESS.

(Delivered at the Annual Meeting, January 24, 1900.)

IN addressing the Society at the close of a year of office, it is the duty of your President to take stock of the present condition of the affairs of the Society, to review the proceedings of the year, not without remembrance of older histories, and finally to forecast with "intelligent anticipation" the future course of events. The past we may regard with mixed feelings when we consider hopes not fulfilled or realized, but we may still look to a future without a dark cloud in prospect.

Looking back upon the Presidents' addresses in past years, say for ten years, I find certain topics uppermost in the minds of former occupants of this chair—the position of the Society; the prospects of amendment of the laws relating to our official duties; and the relations of Public Analysts to what was known as Somerset House—and these appear still to be the points of chief interest at the present moment.

During the past year we have had to lament the loss of one of our Senior Honorary Fellows, Sir Edward Frankland, whose death last August came so unex-

pectedly, and is felt by many as a personal loss of no ordinary kind. Some here present doubtless owe to him no small part of their education as chemists, others have been associated with him in the affairs of the Royal Society, the Chemical Society, and especially in the Institute of Chemistry, with the affairs of which he was so deeply concerned, and of which he was the first President, and in the welfare of which he remained faithfully and constantly interested. Apart from his eminence in pure science, he held a position of enormous responsibility as a professional chemist, and the high standards of purity by which he judged the character of the water-supply of London have been, without question, largely instrumental in bringing that supply to its present excellent condition, and incidentally set a similarly high standard for other public supplies, not only in this country, but in Europe and the United States, and practically the whole civilized world. The Sixth Report of the Rivers Pollution Commission, that monument of industry and research, in which his share was so large, co-ordinated and established on a sound basis the true principles for the scientific judgment of waters—their comparison with natural supplies of the districts where they are obtained.

An old member of our Society, Dr. Hodges of Belfast, has passed away at the ripe age of eighty-four, and will be much missed in the North of Ireland, where for many years he had done such good work, of which a notice recently appeared in *THE ANALYST*.

Two other senior members and veteran chemists have been lost to us—Mr. G. H. Ogston, long in professional practice in London, and Mr. R. Oxland, of Bristol, one of the earlier Public Analysts, and who was appointed in 1878 at Plymouth and Davenport.

As our Society was founded at the end of 1874, and held its first general meeting on February 25, 1875, it is now a quarter of a century old, half-way to its jubilee—at the silver-wedding age—and I am happy to say the Society was never stronger numerically or financially, and, I think I may fairly add, never more efficient or vigorous. The new rules came into operation at the beginning of 1899, and although a few associates gave up their connection with us, out of the total number of thirty-two no less than fifteen were elected at the first possible meeting, and eight others have since taken up their freedom, thus increasing the strength of the Society and bringing the younger members into closer association with its business. Forty-one members in all have been elected, making our actual members 9 honorary and 248 ordinary members—a complete total of 257. Two members have withdrawn during the year, but I think, owing to the judicious changes in our rules during the office of my predecessor (Dr. B. Dyer), we may look forward to yet further development.

The Honorary Treasurer has, I am happy to say, been able to give us a cheerful report of his exchequer, notwithstanding the fact of an exceptional amount of expenditure upon the journal and for printing expenses in connection with the Food and Drugs legislation of the past year. I am sure we are most grateful to him for the trouble he has taken on our behalf, not only by those gentle reminders which I hear he has sometimes to send to the forgetful few, but for the zeal he shows in the scrutiny of the various expenditures which are in his departmental control. One

way in which we may venture to show our gratitude is by sending our annual guinea without waiting for the gentle reminder.

I think we all feel that *THE ANALYST* is year by year increasing in interest and usefulness, and this is dependent upon those gentlemen who contribute their original and valuable work to its pages, and also to our friend Dr. Sykes, the Editor, who, with his coadjutors gather and condense so admirably the analytical matter constituting the rest of the journal. Possibly before long some enlargement of *THE ANALYST* may be necessary if the number of original contributions increases; but this will not necessarily mean loss to the Society, as growth of this character will be covered by an increase of membership and increased sales.

THE ANALYST is, of course, one of our heaviest items of expenditure, but at the same time one of the most necessary, and keeps the Society alive: it is the bond of union between those present at the meetings and absent members, which no Home Ruler would wish to repeal. The Society, however, has been urged again recently to modify the character of *THE ANALYST*, and save some part of the expense of its maintenance by accepting advertisements which are at present excluded, relating to articles of food and drink, as well as medical preparations of various kinds. We have not acceded to the suggestions, and I believe we have acted in the best interests of the Society and of professional chemistry. Unless control were exercised, some of the most objectionable forms of advertisement, with their testimonials of a similar class, would appear in the pages of our Journal, while, if a censorship were established, by which one manufacturer's advertisements might be excluded and another admitted, the fact would be taken as a form of guarantee of the wares, or an implied acquiescence in the terms of the advertisement. As Public Analysts, we must feel we are in a delicate position in this regard, and we have acted, therefore, on the simple intelligible principle of inserting no advertisements relating to articles which may be within the purview of the Food and Drugs Acts, and which we may be called upon to examine officially. This policy will, I believe, commend itself to the members of the Society generally, and will, I trust, be adhered to by our successors who may be responsible in the future for the conduct of the Society's affairs.

The list of papers read before the Society numbers twenty-eight, and some of the contributions are of permanent value and importance, and much interesting discussion on some of the papers has taken place at the evening meetings. Now that the amended and extended definition of food has been brought into the Act, a very large number of additional articles, and especially sauces and condiments, will come before the notice of analysts, and I hope to see during the next year further contributions to our knowledge from a study of the composition of such articles, now that more attention has been given to them. Those younger members anxious to find fresh ground for research need not wait for material for some time to come.

Papers read in 1899 :

“The Occurrence of Barium Compounds in an Artesian Well Water.” By John White.

“A New Test for Formaldehyde.” By Norman Leonard, B.Sc., and Harry M. Smith.

- "On Caper Tea." By Charles Estcourt.
- "The Adulteration of Sweet Spirit of Nitre with Potassium Nitrate." By W. F. Lowe, A.R.S.M.
- "Some Analyses of Ginger." By E. G. Clayton.
- "Note on Boric Acid in Milk Samples." By E. G. Clayton.
- "Caper Tea." By John White.
- "Note on a Possible Source of Error in Modifications of the Leffmann and Beam Method of Fat Estimation in Milk." By H. Droop Richmond and F. R. O'Shaughnessy.
- "On a Recent Ginger Case." By E. J. Bevan, Bernard Dyer, D.Sc., and Otto Hehner.
- "The Composition of Milk and Milk Products." By H. Droop Richmond.
- "An Attempt to Compute Mathematically the most Probable Limits for Milk." By H. Droop Richmond.
- "Note on the Estimation of Ether and Alcohol when mixed with Petroleum Ether and other Solvents." By H. Droop Richmond.
- "The Estimation of Fat in Milk, using Petroleum Ether as a Solvent." By H. Droop Richmond and C. H. Rosier.
- "Notes on Milk Analysis, including the Molybdate Test for Cane-sugar." By L. de Koningh.
- "A New Form of Distilling Flask for Use in Water Analysis." By Mr. W. P. Skertchley.
- "The Assay of Belladonna, B.P." By F. C. J. Bird.
- "On the Use of Boric Acid and Formaldehyde as Milk Preservatives." By S. Rideal, D.Sc., and A. G. R. Foulerton, F.R.C.S.
- "The Value of the Estimation of Pentosans in Food Materials." By Otto Hehner and W. P. Skertchley.
- "On some Comparative Analyses of, and Digestive Experiments with, White and Wholemeal Breads." By Otto Rosenheim, Ph.D., and P. Schidrowitz, Ph.D.
- "Note on Coffee Extracts." By C. G. Moor, M.A., and Martin Priest.
- "On the Determination of the Iodine Value." By J. Lewkowitsch, Ph.D.
- "On the Influence of Ammonium Salts on the Precipitation of Nickel by Ammonia." By Arthur Marshall.
- "The Meaning of the Acetyl Value in Fat Analysis." By J. Lewkowitsch, Ph.D.
- "On Some Analyses of Modern Dry Champagne." By Otto Rosenheim, Ph.D., and P. Schidrowitz, Ph.D.
- "Note on Asafœtida." By J. M. Martin, B.A., M.B., and C. G. Moor, M.A.
- "On the Determination of the Iodine Value." By Dr. J. J. A. Wijs.
- "Treacle or Golden Syrup." By E. W. T. Jones.
- "On a Method for Distinguishing between Hops and Quassia." By Alfred C. Chapman.

The prospects of amendment of the Food and Drugs Act of 1875—the Act which brought us and our Society into being—have occupied the Society and its officers for several years; but, with all its admitted defects, the old Act has worked

to the advantage of the public in no small degree. Mr. Hehner, in his address as President in 1892, pointed out that the percentage of adulteration, which from 1877-81 was 16·2 per cent. of adulterated samples, had fallen to 11·2 per cent. in 1890. The total number then analysed in the year was 27,465, of which 3,069 were adulterated; and it is interesting to note that the latest accessible return (1898) gives 49,555 samples examined, with 4,319 returned as adulterated—a proportion of 8·7 per cent. The Act has done much to check adulteration, although in ten County Councils and sixteen boroughs its provisions have been greatly or altogether neglected.

In the dark ages of 1890 Mr. Hehner observed that Oxfordshire was at the bottom of the list, but I am glad to say we now occupy a less conspicuous position.

In 1893 Mr. Hehner reviewed the Bill of Dr. Cameron which had met with the doom of the Innocents, and was not lamented; but that year was important for a discussion of proposals in this Society for amending the Acts, and the suggested Chemical Department of the Local Government Board. Our President in 1896 urged the need of the establishment of standards and limits, to be fixed by a competent and authoritative body on which Public Analysts should be represented; the Adulteration of Food Committee sat and reported, and, as you know, embodied in their report many of the suggestions and proposals of our Society.

The session of 1897-98 saw the introduction of another attempt justly described by the President, Dr. Dyer, as disappointing, since it almost ignored all the improvements, so much needed, which had been recommended by the Committee of the House after an exhaustive and careful inquiry. Our Council, as you will remember, took up a line of strong opposition, and the Bill was happily dropped.

At length, in 1899, the new Food and Drugs Bill was brought in, and, being a serious attempt to carry out the recommendations of the special committee, was on the whole favourably received; and after much interesting discussion and considerable changes, passed through Parliament, and came into operation in January of this year, 1900. The Society has been already informed of the modifications suggested by your Council, and the courteous way in which they were considered and received, and I am pleased to say in many cases the suggestions were accepted by Mr. Long and are incorporated in the Act.

Many of the new proposals emanated from the committee of 1896, and were commented upon by your President two years since. Experience alone can teach us the defects of this Act, which will indeed be a marvel of perfection if everybody is satisfied with it. The buyer and the seller, the inspector and the analyst, the prosecuting and defending solicitors, the local authorities, the Board of Agriculture, the Government chemists, besides the magistrates and Her Majesty's judges, will be concerned in various ways in carrying out, interpreting, or finding loopholes in the provisions of the new Act, and its effects will not perhaps be quite in accordance with what was intended; but I look upon many of the new provisions as excellent, and have great hopes of their future usefulness.

It is probable that the number of samples purchased under the Act will increase, especially in certain districts, where little use has been made of its provisions in the past, now the machinery can be set in motion from the Central Authority, and the provisions referring to the use of warranty as a defence will, it is to be hoped,

protect the innocent retailer, and enable the real offender to be punished for adulteration, in fact, put the saddle on the right back.

An important new departure arises from the provision that a certificate of analysis by a Public Analyst, made for the defendant, will be evidence of the facts stated therein, without his personal attendance at the hearing. This seems a fair arrangement, and will be a convenience to those gentlemen who may be asked to make an analysis for the seller. Some fears have been expressed that this provision may lead to undignified disputes in court, and that contradictory certificates will be produced, to the detriment of our profession and the hindrance of justice, but I do not share in these misgivings. Every Public Analyst who may be asked to examine an article for the defendant will do the work with the full responsibility which rests upon him for all his official analyses, and I have no doubt will report impartially on the case. And if he should conscientiously differ in opinion from the analyst for the other side, the case would probably be referred to the Government Laboratory to decide between the opposed opinions. It must be remembered that the correctness of a Public Analyst's certificate is seldom seriously disputed; the number of cases referred to the Government Laboratories is a very small proportion of those reported as adulterated (about 1·5 per cent.), and in three cases out of four the analyst's certificate is confirmed by the referees.* It will doubtless happen that a defendant will have his reserve sample examined, not possibly knowing its real character, only to find the certificate of the buyer confirmed in the large proportion of cases.

Another consequence arising out of the new Act is the appointment of a Departmental Committee to inquire into the questions of preservatives and colouring matters in food. That Committee is now sitting and taking evidence, and, as is only natural where diverse interests are concerned, evidence of very conflicting character has been tendered. But there appears to be a growing conviction that the unrestricted use of preservatives, which hitherto it has been difficult to deal with, should not go on, and some limits should be imposed, and for some articles an entire prohibition of preservatives is necessary. Your Society appointed two representatives, the President and Dr. Stevenson, and many members of the Society have individually given, or will give, their experiences and opinions to the Committee; others, in response to an invitation sent out, have furnished your representatives with much valuable testimony as to the nature and extent to which preservatives are employed in different parts of the country. I anticipate, when the Committee reports, that many disputed points as to the desirability or otherwise of permitting certain additions to food will be finally settled and disposed of.

It may be some time before the Committee is able to collect all the information they would desire, and I should like to invite any of our members who have not yet returned the schedules of preservatives and colouring matters to send them to the secretaries, with any information they may be able to gather on the subject. Probably some suggestions to inspectors in various districts may lead to the purchase of articles on which our information is scanty, as they are seldom bought under the Act.

* 49,555 samples in 1898; 4,319 adulterated, 74 references, with only 17 disagreements.

Our relations with Foreign Powers, I am happy to say, continue friendly, although your Council has had some diplomatic correspondence with the Government chemist, which appeared in the journal of the Society. I do not desire to revive old controversies, and I am glad to notice that the proportion of cases in which the opinion of the referees differed from that of the Public Analyst in respect of disputed samples is diminishing. Doubtless there will be some differences of opinion in the future, as in the past, since the natural variations in composition of animal and vegetable products makes it impossible to fix an exact limit or analytical standard; but since some standard must be used in forming a judgment after every analysis, it is surely better to settle by friendly discussion the lines on which we will work and the limits of variation to be allowed. In this way the unsatisfactory conflict of evidence between a responsible public officer and a Government official could frequently be avoided.

In the report of the Government Laboratory on the samples referred under the Food and Drugs Act, I notice that seventy-four samples came before them for judgment, of which forty-seven were milks. They confirmed the Public Analyst's opinion as to forty milks, and dissented from him in seven cases, which looks as though we have somehow arrived at a common standard of reference for the composition of milks. Also, in three cases out of four, the analyst's verdict was confirmed as to undue dilution of spirits, and here, again, the standard is very definite. But in those cases of ground ginger and caper tea referred to in our correspondence with the Government chemists it is evident that the divergence of opinion rests solely on the diverse interpretation of practically concordant analyses; how far ginger may be impoverished by washing, and how much extraneous matter should be permitted in tea, are the simple questions at issue, and these should be settled once and for all.

The President (Dr. Stevenson) addressing the Society in 1897 quoted the statement of the Adulteration Committee, that "they regarded it as of great importance, in the interests of the public, that Public Analysts should, as far as possible, be made acquainted with the methods adopted by the Government Laboratory in the analysis of food, and with the considerations kept in view by them in determining whether an article has been adulterated; and added the comment that "this pronouncement we may expect to have a generous and not tardy response, and that the official book, which ought to be, and possibly is, in preparation by Somerset House, placing all the analytical methods used in food and drug analysis, and the deductions that ought to be drawn from the results of analysis, at our disposal, will be welcomed by Public Analysts as a priceless boon."

Dr. Thorpe, at the Society's Dinner in 1896, told us "he had no stronger desire than that both he and we, public servants as we are, should work together cordially and harmoniously in the discharge of our public duties," and he looked forward to an opportunity of personal adjustment of such questions as had been referred to.

Well, gentlemen, I am extremely pleased to say that the Chief Chemist has recently made a suggestion for a conference between this Society and some of the staff, with the special view of coming to an understanding upon the methods to be employed in judging samples of margarine under the new Act. This proposal, naturally, has been cordially accepted, and I have every confidence that we shall

arrive at an understanding both as to a common method of working and the analytical limits to be adopted whereby we can obtain concordant results when the samples have to be examined by both sides.

I venture also to hope that this is only the first conference of its kind, which will be followed by others relating to points where any differences of opinion may arise in regard to other articles.
