

decline of systematic zoology and predicting the extinction of systematic zoologists. Dr. Sharp replied, in effect, "I have seen many passing fashions in zoology, many departments of research becoming popular and then falling into neglect; the one branch that will never fail to attract is

the systematic one. The æsthetic satisfaction to be derived from contemplating the mere variety of animal forms, and from tracing the order that runs through all its diversity, appeals to a very deep instinct in human nature. There will always be systematic zoologists."

Obituary.

PROF. H. W. WILEY.

IN Harvey Washington Wiley, who died on June 30, we lose a man who was a great Uesanian warrior in the cause of pure food, a man of imperious character, officially a perfervid Puritan idealist and extremist, yet in the society of friends the perfect Yorick, "a fellow of infinite jest, of most excellent fancy". As first administrator of the American Food and Drugs Law, his own beloved child, he was nothing short of an all's-fair-in-love-and-war man: perforce, in fact, he had to adjust his methods of attack to the times and to those of his foes, as he was severely up against trade interests. He trod heavily upon not a few corns and it is clear that, occasionally, his pendulum swung beyond the limits of scientific reason; still, the end was one to justify almost any means. He had courage and, in large measure, won, as he definitely established a sound public opinion.

I first met Wiley in 1903, at his most active period, at a gathering of Agricultural Experiment Station workers, in Minneapolis, at which I was present as Lawes lecturer. He was the life and soul of a large meeting; ever full of resource. Thus, on one excursion, in a dry town on a very hot day, displaying a surprising geographical instinct, he took some of us poor sufferers to a pharmacy and tendered a prescription on our behalf: the medicine we got passed all the Brer Rabbit tests for good ale and no doubt saved our lives. A few years later he and I forgathered at Washington, in the Cosmos Club, an institution the worth of which will be known to many. We met one afternoon in the main square, to go out to the Country Club. He was carrying a parcel and there was a suggestive bulge at his hip. We were to pass the county border, into an arid region. The parcel and that bulge were of no slight aid to our evening's pleasant intercourse. There is an immortal to this tale. At the time of his retirement, late in life, he passed under petticoat rule, to become thereafter an exemplar of dryness. The injury done to him by his previous depravity—at least so his friends claimed—was made obvious by the arrival, without undue delay, of two healthy boys. Several months ago, hearing that he was very ill, I wrote to cheer him, suggesting that he set an example by repenting of his later sin. This amused him, I was told. The reply, bearing his signature, gave too much advice for the good of my soul to be his. I could only write back that John Barleycorn had not done much obvious harm to either of us. My old friend became in fact a first-class humbug in the matter of drink: probably he was never a man of really balanced, scientific judgment. We have to hold such men

very much in mind, however, in taking stock of the States: too few realise how rigid the American outlook often is.

Only recently, the *Times* told us, an American Senator wrote to our Ambassador in Washington to protest against the exercise of his right to take liquor into the Embassy, suggesting that such action was likely to have the most serious effect upon our international relations. Do Americans recognise how entirely they are cutting us off from rational intercourse with them? We welcome them here in crowds and they do not seem to return habitual drunkards. Few of us go from this side as travellers—we only visit the States when compelled, either on business or when imported to join in colloid worship at Cornell or some similar academic frivolity. Few Uesanians understand how impossible it now is for us to risk travelling in their country—the danger of their soft drinks. Yet it is one that is full of beauty and interest, as I can vouch; the only difficulty is that there is so much of it. Whatever it be, it is a land in which, at times, every pore of you aches for beer; one where the hart ever pants for the cooling Milwaukee stream.

Straining at the gnat ethanol, to-day, Americans swallow the camel caffeine in canfuls: however, a missionary from here is now in Canada who will disabuse them (of course piously, on week-days) of this delight. As a matter of fact, Wiley, in 1912, warned the American public against the danger of too much caffeine. He was often here and always amusing. Describing once the activities of his Department, he told how advice was given which led to the need for water in one of the arid regions of Texas being overcome: this was done by growing onions between rows of potatoes; the eyes of the potatoes watered so much that artificial irrigation became unnecessary.

It matters little where a man like Wiley came from. *Pro forma*, let it be told that he was born in Indiana on October 10, 1844. In 1863 he went to College; in 1868 he began to study medicine, graduating M.D. from the Indiana Medical College in 1871. Probably medical education at that time was no great shakes. He then had a year in the Lawrence school at Harvard; became professor of chemistry in Butler College, in 1873; from 1874 to 1883 he was professor of chemistry at the Agricultural College, Purdue, Indiana, spending a year in Germany during this period. State chemist of Indiana in 1881, he was made chief of the Division of Chemistry in the U.S. Department of Chemistry in 1883. He was president of the American Chemical Society in 1893–94. In 1901 he was pro-

moted chief of the Bureau of Chemistry. Then it was that food reform became his master passion.

Wiley resigned in 1912, after great provocation. The Food and Drugs Law had been enacted after half a century of effort and discussion. The measure came into operation in January 1907. Almost at once, he has told us, he discovered that his point of view was fundamentally different from that of his superiors. During six years the feeling grew that the differences were irreconcilable and he became conscious of an environment which was essentially inhospitable. The fundamental principles of the Bill, as they appeared to him, one by one, were paralysed and discredited. It is easy to imagine what happened: the thorn he must have been in the side of the provision trade and the attempts that will have been made to unseat him. Convinced that he could work more fruitfully by rallying public opinion to the support of the cause he had so much at heart than by exercising the limited activity left to him in his official position, he resigned. On retiring into private life, he interested himself in his farm and became a diffuse, popular writer of food propaganda.

We have, I think, to quarrel severely with Wiley's extreme attitude towards preservatives in food. His view was that there should be no addition of any kind made to food. As the primrose to Peter Bell, every food spade, to the public, was to be a spade absolute, nothing more. His most celebrated work is the inquiry he undertook, with a set of young men as subjects, to ascertain the effect of preservatives, especially boric acid: the results were recorded in a very lengthy report of about 2000 pages. Grave exception has been taken to this work. He was probably not qualified, either as chemist or biologist, to undertake such an inquiry: he was far too much a victim of preconceived opinion and not sufficiently trained either as observer or as logician. He would have excluded every preservative. Owing, however, to Ira Remsen's intervention, whose higher scientific standing prevailed, benzoic acid was allowed. Wiley, I believe, managed later to persuade the President to subvert this decision.

As is well known, within recent years, our Ministry of Health, which is a hive of idealisms, has followed the American suit. No scientific proof has yet been given that, used as an antiseptic, boric acid does harm when added in the small amounts needed to preserve even so perishable an article as cream. The officials of the Ministry are no more competent than Wiley was to settle such an issue. The decision was taken by a Departmental Committee on idealistic grounds. As a result, the cream industry is severely dislocated, if not destroyed. The public have full right to complain, the more as sulphur dioxide is still allowed in some beverages: its evil effect is well known to many who go to public dinners. I hold no brief; my mind is open. I know what the danger is in lead works, when there is real exposure. I also know the great boric acid works in Tuscany; these reek of the acid in every direction—yet the work-people are all healthy. If only in justice to Wiley's

memory, we ought, without delay, to study the problem afresh scientifically, with complete thoroughness and detachment, so that we may either justify or cancel his finding. It is farcical for us to hold the cake of science and not eat it. We can't afford such extravagance to-day.

HENRY E. ARMSTRONG.

MRS. ALBERT HOWARD.

A SEVERE blow has been dealt to the progress of science in India through the death at the age of fifty-three years of Mrs. Albert Howard, which took place at Geneva on Aug. 18 last. Miss G. L. C. Matthaei entered Newnham College, Cambridge, in 1895 and secured the double distinction of a first class in both parts of the Natural Science Tripos. Thereafter she continued to reside at Cambridge, being elected a fellow, and later an associate, of her College. She was fortunate at that time in coming under the powerful influences of Miss Ida Freund and Dr. F. F. Blackman. Her work in association with the latter developed in her a capacity for patient pursuit of the elusive in research which was so marked a characteristic of her work to the last. That early work is to be found in the *Philosophical Transactions* of the Royal Society, and has found a permanent niche in the literature on vegetable assimilation.

From 1905, when she married Mr. Albert Howard, the scene of her activities shifted to India. With that marriage commenced a comradeship which, if not unique in the annals of science, is at least unique in that it received official recognition from the Government of India, for, in 1910, she was appointed personal assistant to her husband and, in 1913, Second Imperial Economic Botanist. She was also awarded, by H.M. the King, the Kaisar-i-Hind medal of the First Class.

It is not possible, even for one who has had the privilege of sharing in part of the labours of the Howards in India, to apportion merit between the two comrades. Their work stands, and is best left, as a joint record of their devotion to each other and to India. But Mrs. Howard's association with Pusa introduced a definite economic trend, absent from her earlier work but becoming more and more marked with time. In 1905 the Agricultural Department in India was but recently reorganised and the impetus given by the rediscovery of Mendel's work was still fresh. The earlier papers are tinged by these facts and many plant breeding problems in this new field were brought to solution by these new methods. But even at this period the economic aspect was not neglected, as the 'Pusa wheats', already entering into general cultivation, and now covering more than three million acres, witness. This earlier work culminated in the monograph on "Wheat in India", and thereafter an ever-widening field opened out. The logic of a position in a country where rotations are habitually practised cannot be denied; the whole field of crop production and the methods of applying science thereto becomes the centre of investigation. This urge to a wider field of