ARTICLES

"Tropical Agriculturist"—Its Agricultural Content

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IN THE seventy-five years of its existence, the *Tropical Agriculturist* chronicled the agricultural progress and setbacks which Ceylon has been through, in addition to recording the researches of the Royal Botanic Gardens, the Ceylon Agricultural Society, and the Department of Agriculture, which in turn controlled its destinies. Thumbing through the contents of its one hundred and twelve volumes, the reader finds the problems that confronted the agriculturists of any particular period nearly always found expression in its pages. We see the personalities of the past, some of them acknowledged authorities in their field, revealed to the world in their work, and the fruits of their labours recorded for posterity in the pages of the *Tropical Agriculturist.*

King Coffee was toppling from its throne, when the brothers Ferguson in 1881 had the courage to launch the first volume of the journal before a critical public and frantic planting fraternity. To popularize it, two thousand copies were issued gratis. It is a matter for conjecture whether the coffee crisis itself was not responsible for bringing within the compass of this single publication, the mass of newspaper articles, Company Reports, Agents' Despatches, and planters' opinions of the time. Ceylon's was mainly a plantation economy, so that while rubber, coffee, cinchona, cocoa, cinnamon and tea were copiously written on, village crops, such as vegetables, maize, the millets, tobacco and local fruits, were barely touched.

To the scientific worker, the articles of those early numbers bear a marked contrast to those of the present day. So often they comprised the rather vociferously expressed opinions of practising planters, which were seldom backed by properly laid out experiments. One writer even stated (Volume I, page 85) that, "agricultural experiments are most costly luxuries to indulge in", and much of the knowledge gained was the slow accumulation of experience acquired by the even more costly method of trial and error. Sales Catalogues, Market Price Lists, Company Reports, and frequent letters to the Editor filled those early volumes.

Perhaps the only works that are yet recognized as of scientific merit were, the renowned researches of Dr. Henry Trimen on the *Flora of Ceylon,* and M. Cochran's *Manual of Chemical Analysis* both of which had their origins in the *Tropical Agriculturist.* Trimen succeeded Thwaites as Director of the Royal Botanic Gardens in 1880, and was a facile and prolific writer who read no less than fifty Papers before the Royal Society, of which he was a Fellow.

Trimen was succeeded by Dr. J. C. Willis as Director in 1896. The earliest experiments on rubber tapping and cocoa canker were the work of Willis. The turn of the century saw tea largely replacing coffee as Ceylon's leading plantation crop, and this change is faithfully recorded in the *Tropical Agriculturist* by a dwindling interest in coffee and a marked enthusiasm for tea. At the same time, the other plantation crops were not neglected.

In 1901 Willis inaugurated the Experiment Station at Peradeniya, followed in 1903 by its dry zone counterpart at Maha Illuppallama. These developments the journal chronicles in detail, and the reports emanating from these experiment stations were regularly published, with their wealth of experimental data.

The Ceylon Agricultural Society was formed in 1905, and it purchased the *Tropical Agriculturist* from the Fergusons who had published it hitherto. The numerous reprints from the *Ceylon Observer,* also of the Ferguson brothers, no longer found a place in it, and with Volume XXIV, No. 8, the format startlingly metamorphosed into that of a regular scientific journal. Dr. Willis was behind this change for the better.

By now, Willis had assembled under him a brilliant team of research workers that would be the envy of any scientific institution in the world today :—Tom Petch as Mycologist ; M. K. Bamber, Agricultural Chemist ; E. E. Green, Entomologist ; H. F. Macmillan at the Royal Botanic Gardens ; Herbert Wright in charge of the Experiment Station ; G. W. Sturgess, Government Veterinary Surgeon ; as well as R. H. Lock, C. Drieberg, E. Elliot and J. F. Jowitt.

This team set about their task with such enthusiasm that the *Tropical Agriculturist* now entered on its "Golden Age". Papers poured from their pens with such facility that Peradeniya became a household word throughout the scientific world. Willis wrote on Economic and Systematic Botany, Petch on Mycology and Plant Sanitation, Green on Insect Pests, Bamber on Fertilizers, Macmillan on Horticulture, Sturgess on Animal Husbandry and Disease Control, Herbert Wright on Rubber and Cocoa, Jardine on Coconut.

Illustrating those volumes were brilliant photographs by Macmillan and Willis. Many of their publications, which are standard works to this day, had their beginnings in the *Tropical Agriculturist* of the time. Consider, Willis' *Flowering Plants and Ferns of Ceylon,* Petch's *Diseases of the Tea Bush,* and *Diseases of the Rubber Tree,* Green's classic work on the *Coccidae of Ceylon, Macmillan's* great *Handbook of Tropical Planting and Gardening.*

The proceedings of the Ceylon Agricultural Society were most readably recorded by C. Drieberg, while sections were found by the appropriate authority on Fibres, Oils and Fats, Gums and Resins, Drugs and Medicinal Plants, Agricultural Education, and a painstaking Bibliography by Willis. He also reprinted a brilliant address he had delivered abroad, on "Recent Progress in Tropical Agriculture". Macmillan dealt with Edible Products, A. P. Goonetillake sent a long series on Bee Keeping, while Sturgess continued to contribute many papers on the diseases of domestic animals. Dr. and Mrs. Willis jointly published their "Dictionary of

Terms Used in Agriculture and Botany", and Mrs. Willis single-handed got up the first Catalogue of the Departmental Library; R. H. Lock kept up the sustained interest in Rubber.

At this period there was considerable agitation among politicians and agriculturists alike, for the establishment in Ceylon of an Imperial College of Tropical Agriculture, a project which eventually materialized in Trinidad. Detailed memoranda and plans for the Institute are there for all to see, in the pages of the *Tropical Agriculturist.*

In 1912, Willis retired from Ceylon in a blaze of glory, a Fellow of the Royal Society and perhaps the leading tropical agriculturist of his time. Petch now began to dominate the *Tropical Agriculturist* with his papers. His versatility was amazing: no subject seemed to be outside his field: Diseases of Tea, Rubber, Coconut, Coffee, Cocoa, Cotton, Fruit, the Cereals, Rubber Bark Renewal, Rubber Tapping, Coconut Flowering, Tea Manuring, Cover Crops, and numerous notes on work in progress. Quite often he wrote anonymously; and he still had time to compile his *Bibliography of Agriculture and Botany as a Peradeniya Manual, a* standard work of reference to this day.

The first World War in 1914, very much like the second, brought with it, unusual problems. A food and rubber shortage, and interest in local food crops triggered Drieberg's work on Rice Fertilization, D. S. Corbett's experiments on Tomatoes, Macmillan's on Palmyrah and Papaya and Chelliah's on Chillies. A. Rutherford, a brilliant worker, wrote on Shot-Hole Borer, Tea and Citrus Mites, and the Rhinoceros Beetle, until his untimely death deprived Ceylon of one of its best men. Bamber got into his stride with a series of manuring trials on each of the major crops in turn, as well as work on Soil Bacteria, Potash and Lime Content of Soils.

With Willis' exist, R. N. Lyne became the first Director of Agriculture, as the Department had now been set up with its separate Divisions of Botany, Mycology, Entomology, Agricultural Chemistry, &c.; these divisions' reports were regularly incorporated in the *Tropical Agriculturist.* H. I. Van Buuren, a most versatile young worker, wrote extensively and with authority on anything from Anthrax to Chillies. A new subject, Co-operation, and Agricultural Credit, began to loom large when N. Wickremaratne appeared on the scene with his forceful articles that continued for nearly two decades.

1916, and the Stockdale era began. The Headquarters, Laboratories, Library and Staff Quarters of the Department of Agriculture were planned, and built on their present location according to his specifications. His arduour for work was no less than that of his predecessors. All agricultural research was co-ordinated by the Agricultural Experiments Committee, whose deliberations found a place in the *Tropical Agriculturist.*

Stockdale was fortunate is possessing a first class team of plant disease and pest control officers, led by Petch himself. There were J. C. Hutson and G. M. Henry working on the minor insect pests, N. K. Jardine and F. P. Jepson dealing with Shot-Hole Borer, C. H. Gadd specialising in tea diseases. Together they waged an onslaught on Tea Tortrix, the Paddy Fly, Fluted Scale, Brown Bast, The Coconut Caterpillar and Rhinoceros Beetle, Black Rot, and Bunchy Top. As a result, the

research of the Department was heavily weighted on the pathological side nevertheless it is a matter for congratulation, that Petch, on his retirement, was acknowledged to be the world's leading tropical mycologist.

As early as 1921, tractor trials were carried out by Stockdale. He also wrote extensively on Co-operation, Rubber Tapping and Grafting, Soil Erosion, Coconut Selection, Pineapples. A gap in the contents of the *Tropical Agriculturist* which thus far had been devoted almost entirely to plantation agriculture, was filled by W. Molegode's numerous contributions on the village crops of Ceylon, which he kept up throughout about thirty volumes of the journal.

Paddy began to assume greater importance, and F. Summers, Economic Botanist, conducted trials on Tillering, while his successor, R. O. Illiffe, continued selection work with pureline paddy. T. H. Holland published the results of his numerous trials at the Peradeniya Experiment Station on Tea Manuring, Fodder Grasses, Rubber Tapping, Tobacco and Soil Erosion.

The Royal Botanic Gardens celebrated its Centenary in 1922 with a special number of the *Tropical Agriculturist* got up mainly by the indefatigable Macmillan. As usual, he illustrated his work with splendid photographs. Minutes of the newly formed Central Board of Agriculture were henceforth embodied in the journal, and so were the proceedings of the District Agricultural Committees.

The death of Bamber in a motor accident was a cruel blow to the Department. Joachim, who succeeded him as Agricultural Chemist, initiated work on Green Manuring, and his findings were later incorporated in the Departmental publication, the *Manual of Green Manuring*. The Rubber and Tea Research Institutes were founded, and a new journal, the *Tea Quarterly*, was published to which were diverted the research papers on tea. The Rubber Research Scheme continued to use the *Tropical Agriculturist* as their medium until they got up their own journal.

A remarkable series of trials on paddy purelines and manuring was laid down by L. Lord, and continued over a number of years. Eden of the Tea Research Institute wrote ably on Modern Field Experiments, while R. K. S. Murray of the Rubber Research Scheme contributed liberally on his subject. In spite of the weight of his responsibilities as Director, Stockdale found time to write on a whole host of subjects : Rubber, Cocoa, Papaya, Coconuts.

Parsons and Crawford arrived in the early nineteen thirties to take over the respective fields of Horticulture and Veterinary Science, on which they contributed. A very popular feature was the series of well illustrated articles on Ceylon orchids by Alex Sylva. Soil Conservation assumed world-wide importance at the time, and work in Ceylon was carried out by Lester-Smith and Felsinger. Seldom did a number of the *Tropical Agriculturist* appear without an article by Molegode on village crops.

Joachim and his co-workers, Kandiah and Panditteseker now began their investigations on the soils of Ceylon, a hitherto unexplored field. Starting from fundamentals, they followed up in successive years with a detailed study of the various soil types, and the first soil map of Ceylon was drawn. Joachim also wrote up a series of studies on

paddy cultivation, cotton manurial trials, the analysis of foodstuffs and uniformity trials with coconuts.

W. R. C. Paul published his experiments on the dry zone cultivation of tomatoes, and followed up with his classic experiments on chillies. M. Park and M. Fernando (later M. F. Chandraratne) began their researches on the diseases of tobacco and village crops, and later published a monograph on the subject as a Peradeniya Manual.

The Department of Agriculture was fortunate in possessing a very talented line of artists and draughtsmen, beginning with H. and W. de Alwis, who illustrated Trimen's "Flora of Ceylon", followed by George de Alwis, and G. L. de Silva. E. E. Green himself delineated his sketches of the "Coccidae of Ceylon", while G. M. Henry's drawings of insect pests were of a very high order. The latter's best work appeared subsequently in his books on the *Birds of Ceylon.*

1939, and the Second World War was upon us, bringing with it problems that were once again reflected in the pages of the *Tropical Agriculturist.* Articles appeared on Ceylon's Food Supplies by J. C. Drieberg ; Rice by G. V. Wickremasekera ; Cowpea by M. Fernando ; Sorghum by De Mel ; Soy Bean Trials by Haigh ; and Balsa by Parsons. New developments, such as artificial insemination, were dealt with by Mahamooth. Rosayro and Holmes of the Forest Department made valuable contributions with their researches into the Wet Zone Forests and Montane Grasses of Ceylon.

Wartime imports of cattle resulted in outbreaks of rinderpest, and Mahamooth, who worked to combat it, published his findings. The vitamin content of Ceylon foods was analysed by Joachim and Charavanapavan, while the latter stimulated interest in the canning and bottling of local foods ; jaggery and food yeast. Richards dealt with the numerous horticultural crops, including cocoa ; and the botany of Cassava, an important wartime substitute food, was studied by M. Fernando, and its hydrocyanic acid content analysed by Joachim. The Coconut Research Scheme continud to use the *Tropical Agriculturist,* and M. L. M. Salgado published important work on Coconut Manuring.

Trace element work on the magnesium content of Ceylon soils was carried out by D. E. V. Koch, and later by S. Kandiah, while B. A. Baptist investigated the use of the new insecticides DDT and BHC against local pests. R. D. Kreltzsheim's papers on "Rain Clouds and Rain in Ceylon" were of fundamental importance, while useful articles appeared by C. R. Karunaratne on Agricultural Implements.

The arrival of D. Rhind as Director of Agriculture in 1947 saw a renewed interest in rice coinciding with the granting of Ceylon's Independence. Rhind was a specialist in rice, and published his findings in the *Tropical Agriculturist* and in foreign journals of repute. There appeared papers by M. F. Chandraratne on Photoperiodism in Rice, and Random Sampling of Paddy ; by D. V. Ariyanayagam on Pre-Sowing Treatment ; and by E. F. Abeyaratne on Unrecorded Paddy Varieties. Statistical studies on the systematic genetic improvement of Ceylon cattle in general, and the Sinhala breed in particular, were inaugurated by Mahadevan. Panditteseker

did original work on animal Nutrition and Foodstuffs.

Maclagan Gorrie, who was Soil Conservation Officer for all too short a period, displayed a remarkable capacity for work, and contributed liberally to scientific journals in many parts of the world as well as to the *Tropical Agriculturist*. Paul published a series of papers on Legumes, while Jayaweera is getting up a similar series on Ceylon Drug Plants. At the time of writing, Agricultural Extension and Young Farmers' Clubs are receiving attention, and the Divisional Agricultural Officers are writing up surveys of agricultural conditions in their respective regions.

Thus, after seventy-five years of existence, the *Tropical Agriculturist* can look back and congratulate itself on an outstanding record which has established for it a name in the libraries of the world as the leading journal on tropical agriculture. Backed by such an illustrious past, there can be no doubt that its contributions in the future will be no less valuable to the world of Agricultural Science.