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A.M. Adamson (1901-1945): Entomologist and Travelling Naturalist. Some Correspondence and a Bibliography, with Special Reference to Trinidad and Tobago

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ABSTRACT

Scottish son of the Manse and graduate of the University of St. Andrews, Scotland, Martin Adamson travelled the world during his relatively short career, with appointments in the United States, the Pacific, and the Caribbean. His interests in natural history were broad, including the fauna of the Pacific Islands, but the need for a permanent job with paid work led him to Trinidad, where he specialised in economic entomology. He became an expert in a number of applied aspects of entomology in the tropics as well as in tropical agricultural education.

Key words: entomology, termites, agriculture, Imperial College of Tropical Agriculture, Pacific Islands.

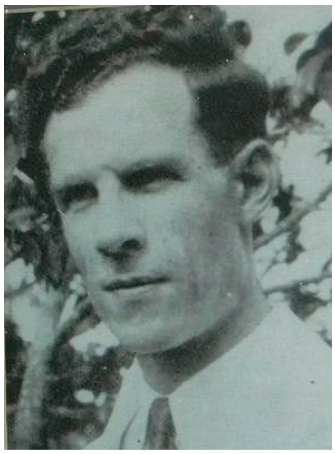

Fig. 1. Professor A.M. Adamson. Courtesy of the Department of Life Sciences, The University of the West Indies, Trinidad. This picture accompanied Adamson's obituary in *Tropical Agriculture,* 23.

INTRODUCTION

Martin Adamson's life was a short one, but he packed an enormous amount of work into it on both the Pacific invertebrate fauna and economically important tropical insects, especially those in the West Indies. He was an important naturalist in the tropics, a member of the Pacific Entomological Survey, and later Professor at the Imperial College of Tropical Agriculture, Trinidad, in charge of entomology and zoology. One of the early workers on biological control in Trinidad, he also made important contributions to the knowledge of tropical insects, especially termites, as well as to agricultural education in the former British tropical colonies. However, Adamson was an all-round naturalist, interested not only in insects and terrestrial environments, but also in marine and freshwater habitats. He wrote, at various times, about watching dragonflies, freshwater crabs, aquatic caterpillars, tree frogs, and prawns. Many of his letters are preserved in the archives and Special Collections of the University of St. Andrews, Scotland, and copies of these are available in the Alma Jordan Library, The University of the West Indies (UWI), St. Augustine, Trinidad. These letters, which are correspondence with his former professor D'Arcy Wentworth Thompson (DWT) (note 1) and, to a lesser degree, with David Burt (note 2), form the basis of the paper.

Brief biography

Martin Adamson was born in Scotland on 17 October, 1901. He spent his early life with his parents and brothers in Ayrshire, his home being St. John's Manse, Ardrossan where his father, the Rev. R.M. Adamson, was minister of the church from 1892 to 1937. After school at Ardrossan Academy and with a bursary from Ayrshire County Council, he crossed the country, moving from the Firth of Clyde to the east coast to become a student at St. Andrews University. He graduated with an M.A. in 1922 and a B.Sc. in 1923 with First Class Honours in Natural Science with chemistry and natural history as his principal subjects. After graduation Adamson held a research Fellowship at St. Andrews, where from 1924 to 1926 he was Assistant in Zoology in Professor Thompson's department. In 1933 he married Florence Jacobson of San Francisco, graduate of the University of California and Columbia University in New York City, a psychologist and sociologist who worked in social and welfare work. They had a son named Alper. Martin Adamson died in San Francisco at age 44 on 24 December, 1945, where he was being treated for a tumour. He was described as someone with "exceptional personal charm…[and with

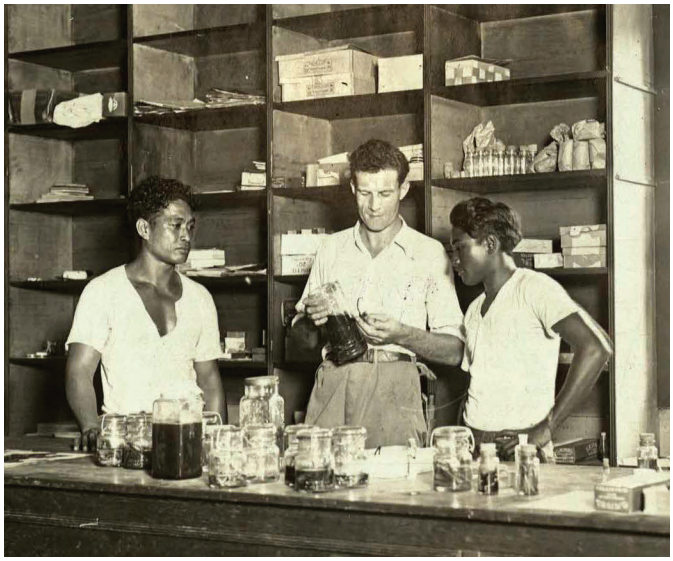

Fig. 2. Dr A.M. Adamson and assistants. September 1929. Marquesas Islands. ms 9300, photograph of Alistair Martin Adamson, Records of Scottish West Indian Links collection. Reproduced courtesy of the University of St. Andrews Library.

a]…quiet presence…[who displayed]…kindliness, simplicity and utter sincerity" (Anon. 1946).

Travelling naturalist

Adamson was a naturalist at heart. His "first love was marine biology" (Anon. 1946). Later he wrote that he was "engaged in my favourite occupation of looking through a microscope at pond water" (Adamson to Burt letter 37781/43, no date). Early in his career he likely was disappointed not to win a place as zoologist on the R.R.S. Discovery Expedition to the Antarctic in 1925.

After leaving Scotland, Adamson journeyed round the world, taking up appointments in California and visiting other parts of North America as well as the Pacific Islands and finally Trinidad and obtaining, en route, a Ph.D. from the University of California, Berkeley (UC Berkeley) (note 3). In 1933, ten years after earning his B.Sc., he was appointed Senior Lecturer in Entomology, later Reader and finally Professor at the Imperial College of Tropical Agriculture in Trinidad.

California

In August 1926 Adamson arrived at Berkeley, California, as a Commonwealth Fund Fellow to work with Professor Charles A. Kofoid (1865-1947) on systematic studies of some dinoflagellates that comprise part of the marine plankton (Kofoid and Adamson 1933). During this period he travelled widely, to the Pacific, Alaska, and Mexico as well as within the United States. He wrote to Burt, "You may be surprised at my doing systematic work but I hope not scornful…The dinoflagellates are an interesting group…I think it would be good to spend some time on systematic work," (Adamson to Burt 13 January, 1927). At UC Berkeley he met E.P. Mumford, another Commonwealth Fellow, who was to play a part later in Adamson's career. The dinoflagellate work completed towards the end of 1927, Adamson was looking for another job. "What I should like most would be a job at home with one of the Fisheries Boards," he wrote, and was hoping for a new post "fairly soon" (Adamson to Burt 26 October, 1927). Soon afterwards he joined the Pacific Entomological Survey.

The Pacific Entomological Survey and the Marquesas Islands

The Pacific Entomological Survey was formed in 1927 and was funded for a 5-year period ending on 31 December, 1932, through a cooperative agreement among the Hawaiian Sugar Planters' Association, the Association of Hawaiian Pineapple Canners, and the Bernice Pauahi Bishop Museum. The activities of the survey and the personnel are given in the various reports.

Adamson wrote to his former professor, informing him of this appointment and adding, "I am much interested in insects… I am learning some entomology and rejoicing in charts of the Pacific." He left for Honolulu early in 1928, his headquarters being at the Bernice Pauahi Bishop Museum, where E.P. Mumford was Director of the survey (note 4). However, he spent most of his time either in the field collecting or at the offices of the Hawaiian Sugar Planters' Association, where the collected material was sorted and identified.

Adamson encountered problems while working with Mumford and by 1929 wrote, "things are going badly wrong… a fungus is eating the skin between our toes… Mumford is ill…impossible to get good food here… [but]…never felt better re general health," (Adamson to DWT 1 May, 1929). Mumford, it seems, was difficult, and although Adamson's years on the survey were enjoyable and interesting, they were "very difficult ones!" Mumford was a "hindrance to the work – ill health psychological and physical, total incompetence and lack of knowledge…an intense desire for achievement," (Adamson to DWT 19 June, 1933), and it seems that he tried to direct Adamson away from his entomological work.

Collecting during that period focused on French Polynesia, primarily on the Marquesas Islands. Adamson spent January 1929 to April 1930 living on these islands; during this time made extensive collections of both insect and non-insect groups on seven of them. He also collected insects in Tahiti and Mo'orea. As his funding reached its end, he sent specimens to specialists worldwide. The results of his research were published in a vari-

ety of scientific journals, primarily through the *Bulletins* and *Occasional Papers* of the Bishop Museum (note 5). Adamson's work is described in a series of papers (Adamson 1932, 1935a, 1935b, 1936a, 1939, and Mumford and Adamson 1932).

Following the completion of his work on the Pacific Entomological Survey and before he left for Trinidad, Adamson spent time at UC Berkeley (Neal Evenhuis to RB 12 January, 2014) working on his doctorate and writing.

The Imperial College of Tropical Agriculture, Trinidad

The UWI was established in 1948 with the first campus at Mona, Jamaica. A second campus was formed at St. Augustine, Trinidad in 1960 based upon the former Imperial College of Tropical Agriculture (ICTA), the latter becoming the Faculty of Agriculture at the new institution. ICTA was the recognised centre for the training of Diploma (the equivalent of a degree) and postgraduate students in tropical agriculture from 1922 until 1960, although it never awarded degrees. The students came mainly from countries in the British Colonial Empire. This arrangement continued until the founding of the UWI in Trinidad.

ICTA was established on 30 August, 1921. The opening ceremony was held in October 1922. Brereton (2010), in her historical account, refers to the original name of the institution as the West Indies Agricultural College; the name was changed in 1924 to indicate that the college was concerned with the development of agriculture throughout the Colonial Empire and not just in the West Indies. The main objectives were research, with generous staff-to-student ratios to allow for this, and the teaching of agriculture. There also was postgraduate training in tropical agriculture for the Agricultural Services of the Colonies. Research was concerned mainly with problems relating to cacao, sugar, bananas, and citrus fruits, including pests and diseases as well as plant genetics and soils. The cost of the work was met by contributors from commercial firms (note 6) and by the British Government. The old Government Yaws Hospital, constructed on the site of a former sugar plantation, was used as the first building. A new building for the science departments was completed by 1926. The Trinidad Herbarium, established in 1887, was transferred to the college site in 1947, and the journal *Tropical Agriculture* began publication in 1924.

The college was, "A very British Institution: British staff, many British students …a very British ethos," (Brereton 2010). Campbell (quoted by Brereton 2010) described it as "a social enclave of English civilisation surrounded by black Creole and Indian villagers." The last Principal, prior to the college becoming the Faculty of Agriculture of the University College of the West Indies in Trinidad, was G.A.C. Herklots (from 1953-1960), himself a noted naturalist who published several books on birds and botany, including the birds and plants of the West Indies (note 7).

Adamson's predecessor at the college was Henry A. Ballou (note 8), who was also Commissioner of Agriculture for the Leeward and Windward Islands and who was "more active…[in this]…than in the work he did at the same time as Professor of Entomology" (Adamson to DWT 12 January, 1934).

Adamson applied for the post of Senior Lecturer and sent details to his father in Ayrshire. His father wrote to Professor Thompson to inform him of these developments, "Salary £550 with allowances and rises…climate good…leave is frequent…there is a small but not negligible chance of me getting it. If I did…start in the autumn," (R.M. Adamson [father] to DWT 3 June, 1933). References were supplied by D'Arcy Thompson and Lucien Berland (note 9). The latter wrote that Adamson was "an excellent entomologist, remarkably gifted, and that he will certainly apply the finest scientific spirit in all the research one might entrust him with," (Berland to Thompson, letter 9284 13 May, 1933). Adamson was successful in securing the position, and although he found it hard after his time in Honolulu, he started work in Trinidad in October 1933 as Senior Lecturer in charge of the department of Entomology and Zoology.

Adamson found the, "richness of the fauna and the tremendous opportunity for work in fields that have not ever been explored" to be the real attraction and challenge (Adamson to DWT 18 May, 1935). Writing about his first impressions, he noted that the experience of "settling down… [was]… very slow, and somewhat difficult…[but there were]…great hopes of building up a strong department" (Adamson to DWT 12 January, 1933 – note 11). He developed the department rapidly, appointing staff, improving the collections, and establishing a research base. He was rewarded by the college with a Readership in 1935 and with the title of Professor in 1938. By 1936 there were "2 new Indian boys for routine work, one extremely clever Chinese girl –Technical Assistant, 3 other lab. assistants…[and]… [Ronald Gordon] Fennah" (note 10) (Adamson to DWT 18 February, 1936).

Despite his "complete ignorance" (Adamson to DWT 12 January, 1933 – note 11) of economic entomology in the tropics, Adamson began by running a course on insect pests of tropical crops to postgraduate students, and F.W. Urich (note 12) lectured to the younger Diploma

students. Adamson found the laboratories and equipment adequate but noted that the "library is weaker in Zoology than in other subjects, but there is a little money to spend," (Adamson to DWT 12 January, 1933). He was disappointed to find that the preserved "collection of all kinds of animals is extremely poor in quantity and worse in quality, many of the specimens being without locality labels, and almost all of the pinned insects covered in mould…the fauna is so rich here that I hope to build up a good collection," (Adamson to DWT 12 January, 1933). Anxious to improve on the library and museum, he applied for and received a grant of "£200 for metal insect cabinets, an extra technical assistant, and I (*sic*) almost sure of a special grant of £100 at least for books," (Adamson to DWT 1 July, 1934). He built up the zoological museum by making collecting trips to different parts of Trinidad; many of his early expeditions were in the company of Urich, who also taught at the college and who knew the country well. Adamson then completely reorganised the "rather antiquated entomological collections at the college," which were to be housed in "fireproof steel cabinets of the most modern construction," (Anon. 1946).

Once he had become established and familiar with the island of Trinidad, Adamson and colleagues began to take students on field trips. Adamson appreciated the advantages of field work: "Field trips for senior students - bus for 24 and motor launch marine expeditions to the coral reefs on the NE corner of the island and to the deep rainforest at 2000 feet." He found the field trips to be "extremely successful in stimulating an interest in biology and promoting the best kind of relations between staff and students," (Adamson to DWT 10 April, 1945). The students and staff visited the Toco Coral Reef, the Arena Forest, the Aripo Caves, and Mount El Tucuche, amongst other places.

While working in Trinidad, Adamson served as secretary to and entomologist with the Plant Quarantine Station Committee of the British West Indies. He also was appointed as one of two technical officers in charge of the Plant Quarantine Station at the college in St. Augustine (Adamson 1940a), the other officer being a mycologist. Adamson wrote that they "must not let any insect pest through" (Adamson to DWT 30 September, 1934), although initially they were concerned only with insect pests of sugar cane and cacao. After the quarantine station had been in operation for a year, Adamson was able to report that for "sugar cane and cacao only, no serious insect problem to deal with - but great difficulty to get plants to grow well in green houses - preaching air conditioning," (Adamson to DWT 18 May, 1935).

Adamson's research soon got under way, and his range of interests was wide. He was one of the early workers in Trinidad on biological control. He wrote to Thompson, "I have started some work on thrips - urgent local problem - defoliate the cacao trees" (Adamson to DWT 12 January, 1934). Through an arrangement with G.S. Cotterell, an entomologist in the Gold Coast (Ghana), Adamson's department imported a parasitic wasp as a biological control agent (Adamson 1936b). He wrote that he was "busy on a most interesting project - the introduction of a minute Chalcid wasp, *Dasyscapus* [*D. parvipennis* Gahan], a parasite of the cacao thrips, from the Gold Coast to Trinidad…if it goes well I may save the cacao planters many thousand of dollars a year," (Adamson to DWT 30 January, 1936). He succeeded in rearing eight generations of the parasite and then wrote, "I think we shall succeed in establishing the parasite here," (Adamson to DWT 30 January, 1936). However, although established, it did not bring about any immediate economic control of thrips. Adamson and his colleagues were also interested in varieties of cacao resistant to attack by thrips, which the researchers thought could be used as a potential method of control (Callan 1943b) (note 13). The control of insect pests by restricting their spread also was an important part of Adamson's work. That topic required knowledge of the geographical distribution of insects, so he took an interest in that subject as well (Adamson 1941a).

Early during his time at Trinidad, Adamson turned his attention to termites, which became a major interest of his. He wrote, "I am spending all my spare time on termites," (Adamson to DWT 15 October, 1938). By 1937 he had collected 1000 samples from across the island and had written a preliminary report (Adamson 1937), and a second fuller report followed three years later (Adamson 1940b). He was helped in the identification of the termites by Alfred Edwards Emerson (1896-1976) from the University of Chicago. Adamson wrote about laboratory techniques in dealing with living specimens (Adamson 1941c), built up a major collection and became a specialist on their habits and general biology (Adamson 1938, 1940c, 1941b, 1941c, 1943 and 1948). At the time of his death, he was preparing an important work on termite biology; on which he had become a recognised authority.

Adamson continued to work at ICTA during the Second World War. There are records of his collecting zoological material in 1940, 1943, and 1944, but by 1945 his ill health was causing serious concern. According to him, life was "not so pleasant as before the war but work at my college has changed little, except for increase in numbers of students," (Adamson to Burt 22 May, 1945). Life on the island during the war was, however, "considerably changed by the US military bases, unemployment became acute, but conditions for the poor improved,"

(Adamson to Burt 22 May, 1945).

During 1945 Adamson became seriously ill and had to take time off work. He wrote letters from hospitals in Baltimore and San Francisco, where he was undergoing tests, examinations, and treatment. His last letter to St. Andrews University is dated 8 November, 1945: "Tumour right clavicle area – responded to X-rays – complication thrombo-phlebitis – on sick leave from Trinidad," (Adamson to DWT 8 November, 1945). He died the following month.

Following Adamson's death, his work continued to be published (Adamson 1946, 1948) and his interests and some of his work was carried forward by Callan (1943a, 1943b) (note 13). Professor T.W. Kirkpatrick (note 17) succeeded Adamson at the college.

The zoological material Adamson collected is scattered throughout the world. The main part of his termite collection is in the termite collection at the American Museum of Natural History in New York (Kumar Krishna and James Boone to RB 16 February, 2014). Other entomological material of Adamson's is housed in the Essig Museum of Entomology at Berkeley, California (note 14). Other invertebrates, including insects and shells collected during the Pacific Entomological Survey, are at the Bernice Pauahi Bishop Museum in Honolulu (note 15). Much of the material Adamson collected in the Caribbean is housed in The University of the West Indies Zoology Museum (UWIZM) at the St. Augustine campus in Trinidad. At time of this writing, 41 specimens collected by Adamson are listed in the museum's database. Staff at the UWIZM are currently in the process of cataloguing the collections; with many thousands of insect specimens still to catalogue, it is highly likely that other specimens collected by Adamson will be found. Most of the Adamson material currently in the UWIZM database was collected in either Trinidad (32) and Tobago (1) or Barbados (7), and almost all material has been identified to species level. Regarding the Trinidad material, most specimens were collected from Manzanilla (3), the Maracas Valley (11), and Toco Reef and district (6), with a few species from Macqueripe Bay, Tacarigua, Port of Spain, St. Augustine, and the Gulf of Paria. All specimens were collected between 1935 and 1944. The material includes molluscs, cnidarians, crustaceans, insects, echinoderms, and vertebrates, an indication of Adamson's breadth of interest and his desire to cover the animal kingdom, not just insects of economic importance, for teaching purposes. The collection includes marine gastropods and bivalves in the Mollusca, and amongst the insects is an interesting collection of 11 specimens of Odonata, mostly identified to species (note 16 and Tikasingh 2003).

Adamson also sent material he had collected to St. Andrews University, "preparing some land snails and some large insects to send you – I asked if you would like a collection of some West Indian and Hawaiian corals," (Adamson to DWT 10 April, 1945). The museum collection at St. Andrews University is currently being catalogued and a database prepared, and thus Adamson's material cannot readily be identified at present.

CONCLUSION

Remarkably gifted and a first-class naturalist, Martin Adamson worked in several parts of the world and was a successful researcher and teacher. As an educator in tropical agriculture, he was a pioneer – thorough, hard-working, and dedicated. He set high standards for himself and for others. His research interests focused on entomology, especially pests of commercial crops. His research areas included termites, biological control of pest organisms, and the geographical distribution of agricultural pests and diseases, as well as the fauna of some of the Pacific Islands. Had he lived longer, he would have become internationally recognised, with honours, as an outstanding entomologist, zoologist, and academic.

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NOTES

1. Sir D'Arcy Wentworth Thompson FRS, eminent mathematical biologist (especially morphogenesis), classics scholar, and author of the seminal book, *On Growth and Form* (1917). Born Edinburgh 1860, died St. Andrews 1948. Came to the University of St. Andrews via Dundee, where he was Professor of Natural History. 64 letters Adamson to Thompson, ms 9223-9325, ms 9577-21551, in the D'Arcy Wentworth Thompson collection. Burt (note 2) writes about Thompson at: www-history.mcs.st-andrews.ac.uk/Extras/Burt_Thompson.html: http://www.bing.com/search?q=David+Burt+zoology+Columbo+St+Andrews&qs=n&form=QBRE&pq=david+burt+zoology+columbo+st+andrews&sc=0-26&sp=-1&sk= - #
2. David Raitt Robertson Burt, an associate of Thomp-

son, graduate of St. Andrews and member of the zoology staff at St. Andrews at the time Adamson was a student. Moved to take up the post of lecturer in charge of zoology at University College, Ceylon (1924) and later the Chair of Zoology there (1940). This college received university status in 1942. Burt returned to St. Andrews in 1947. Adamson corresponded with him occasionally, from 1925 to 1945; these letters are also at St. Andrews (45 letters to D.R.R. Burt ms 37781/ in the D'Arcy Wentworth Thompson collection). Adamson wrote to Burt to thank him for specimens sent to St. Andrews from Ceylon: "What a fine lot of insects and other things you have sent us! Badly in need of some of the things, especially mosquitoes – everything arrived in perfect condition," (Adamson to Burt 22 June, 1925).

3. PhD dissertation, 1935, from Berkeley, California, entitled, "The affinities and origins of the fauna of the Marquesas Islands," (Dean Smith, Bancroft Library, Berkeley, to RB 2 December, 2013).
4. E.P. Mumford was put in charge after the death of the first survey director, Charles Fuller Baker.
5. Ten publications from the survey are numbered. Other publications based on material collected by the survey are unnumbered but are treated in the Index to the survey. A link to all the publications is at http://hbs.bishopmuseum.org/pubs-online/pes.html
6. Nature, 143: 468 (18 March, 1939).
7. Herklots (1902-1986) was Principal from 1953 to 1960. His books include *The Birds of Trinidad and Tobago* (1961) and *Flowering Tropical Climbers* (1976).
8. Henry Arthur Ballou (1872-1937) C.B.E., Commissioner of Agriculture for the West Indies and Professor of Entomology at the Imperial College of Tropical Agriculture, Ballou worked on insects from the Caribbean and was a prolific author of papers on insect pests from the various islands.
9. Berland was in the Entomology Department at the Museum National D'Histoire Naturelle, Paris, in the 1930s, although his specialty was the Arachnida, in particular spiders. Adamson collected spiders on the Marquesas Islands that were later identified by Berland.
10. Ronald Gordon Fennah (1910-1987) was in the Agricultural Advisory Department at the Imperial College of Tropical Agriculture. He investigated food-crop pests in the Windward and Leeward Islands, in particular on varieties of sugar cane resistant to a froghopper.
11. Actually 1934.
12. F.W. Urich was a good all-round naturalist with an unrivalled knowledge of Trinidad and its fauna, but he did not publish a significant amount of work. By the time Adamson arrived in Trinidad, Urich had reached retirement age.
13. On or before 1940, Adamson was joined in Trinidad by Callan, as a lecturer. At St. Andrews are three letters from Dr Edward McCallum Callan (Callan ms 9323, 45118, 45119), mainly regarding the death of Martin Adamson.
14. Essig Museum of Entomology – see essig.berkeley.edu
15. The Bernice Pauahi Bishop Museum in Honolulu holds the Pacific Entomological Survey insect, mollusc, and other zoological material (Neal Evenhuis to RB 12 January, 2014).
16. The University of the West Indies Zoology Museum, Department of Life Sciences, St. Augustine, Trinidad. For a history of the collections, see http://www.bing.com/search?q=zoology+museum+UWI+TRINIDAD&qs=n&form=QBRE&pq=zoology+museum+uwi+trinidad&sc=0-15&sp=-1&sk= - #
17. Thomas Winfrid Kirkpatrick (1896-1971) had worked on mosquitoes in Egypt for the Anti-Malaria Commission, Ministry of Agriculture, and then in East Africa on insect pests of coffee. He wrote the book *Insect Life in the Tropics* (Kirkpatrick 1957).

REFERENCES AND BIBLIOGRAPHY

Adamson, A.M. 1932. Myriapoda of the Marquesas Islands. *Bernice P. Bishop Museum Bulletin,* 98: 225-232.

Adamson, A.M. 1935a. The affinities and origins of the fauna of the Marquesas Islands. PhD dissertation, University of California, Berkeley. 205 p.

Adamson, A.M. 1935b. Non-marine invertebrate fauna of the Marquesas (exclusive of insects). *Occasional papers, Bernice P. Bishop Museum*, 11(10): 1-39.

Adamson, A.M. 1936a. Marquesan Insects: Environment. *Bernice P. Bishop Museum Bulletin,* 139: 1-73.

Adamson, A.M. 1936b. Progress report on the introduction of a parasite of the cacao thrips from the Gold Coast to Trinidad, B.W.I. *Tropical Agriculture,*13: 62-63.

Adamson, A.M. 1937. Preliminary report on termites and termite damage in Trinidad, West Indies. *Tropical Agriculture,* 14:141-149.

Adamson, A.M. 1938. Notes on termites destructive to buildings in the Lesser Antilles. *Tropical Agriculture,* 15: 220-224.

Adamson, A.M. 1939. Review of the fauna of the Marquesas Islands and discussion of its origin. *Bernice P. Bishop Museum Bulletin,* 159: 1-93. Pacific Entomological Survey Publication 10.

Adamson, A.M. 1940a. The work of the British West Indies

Plant Quarantine Station from 1934 to 1939. *Tropical Agriculture,* 17: 4-5.

Adamson, A.M. 1940b. A second report on the termites of Trinidad, British West Indies. *Tropical Agriculture,* 17: 12-15.

Adamson, A.M. 1940c. New termite intercastes. *Proceedings of the Royal Society of London,* Series B, Biological Sciences, 129(854): 35-53.

Adamson, A.M. 1940d. Control of Cotton Stainers in the West Indies. *Tropical Agriculture,* 17: 119.

Adamson, A.M. 1941a. The geographical distribution of insect pests. *Tropical Agriculture,* 18(3): 43-47.

Adamson, A.M. 1941b. Termites and soil fertility. *Tropical Agriculture,* 18: 243.

Adamson, A.M. 1941c. Laboratory technique for the study of living termites. *Ecology,* 22(4): 411-414.

Adamson, A.M. 1942. Mole-cricket parasites of the genus *Larra* in Trinidad. *Tropical Agriculture,* 19(3): 43-45.

Adamson, A.M. 1943. Termites and the fertility of soils. *Tropical Agriculture,* 20(6): 107-112.

Adamson, A.M. 1946. Termites in Trinidad and Tobago, B.W.I. *Tropical Agriculture,* 23: 221-223.

Adamson, A.M. 1948. Notes on the termite fauna of the Lesser Antilles. *Tropical Agriculture,* 25: 53-55.

Anon. 1946. (published in 1947) Obituary – Professor A.M. Adamson. *Tropical Agriculture,* 23(1): 3-4 with portrait.

Brereton, B. 2010. From Imperial College to University of the West Indies: A history of the St. Augustine campus, Trinidad and Tobago. Ian Randle, Kingston, Jamaica. 150 p.

Callan, E. McC. 1943a. Observations on Cotton Stainers (*Dysdercus* spp.) and their hosts in Jamaica. *Tropical Agriculture,* 20: 113-115.

Callan, E. McC. 1943b. Thrips resistance in Cacao. *Tropical Agriculture,* 20: 127-135.

Herklots, G.A.C. 1961. The Birds of Trinidad and Tobago. Collins: London. 287 p.

Herklots, G.A.C. 1976. Flowering Tropical Climbers. Dawson Publishing: Folkstone. 194 p.

Kirkpatrick, T.W. 1957. Insect Life in the Tropics. Longmans, Green: London. 311 p.

Kofoid, C.A. and **Adamson, A.M.** 1933. The Dinoflagellata: the family Heterodiniidae of the Peridinioidae. *Memoirs of the Museum of Comparative Zoology at Harvard College,* 54: 1-136.

Mumford, E.P. and **Adamson, A.M.** 1932. Notes on the insect fauna of the Marquesas Islands. *Bernice P. Bishop Museum Bulletin*, 94: 51-54.

Thompson, D.W. 1917. On Growth and Form. University Press: Cambridge.

Tikasingh, E.S. 2003. The History of Zoological Collections in Trinidad &Tobago. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club,* 2003: 1-6.