DR. ERIK SHIPP 1925 – 2011
A TRIBUTE

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With assistance from Jenni Shipp, Inga Shipp, Robin Gunning, Chris Virgona, Jenny Anderson, Ken Brown, UNSW Archives and the recollections of many of Erik's former students and staff

Dr Erik Shipp
Photo: Inga Shipp

Sad to report the passing on 22 August 2011, of one of the mainstays of Australian entomological, pest management and insecticide teaching and research Erik Shipp.

Erik was well known from the 1960s through to the mid-1980s for setting up a team at UNSW that developed methods for assessing modes of action and efficacy of insecticides and for researching new and integrated approaches to the control of sheep blowflies and many other urban and agricultural pests. He was responsible for the teaching and supervision of several hundred entomology graduates and postgraduates many of whom are now to be found in key positions within industry and government and he is remembered by them with gratitude and fondness.

The only child of Anna (Bib) Margrethe Brill, Danish dentist and artist, and George Pelham Shipp, Professor of Greek, teacher of Latin and etymologist at Sydney University, Erik was born at Waverley, Sydney, but his early life was spent in Longueville and on frequent overseas trips with his parents. His secondary schooling was at Saint Ignatius College Riverview after which he trained as a pilot in the Australian Air Force. However the war ended before he saw active service.

Erik had a passion for science from an early age and completed a B.Sc (Hons 1) at Sydney Uni in 1950. In later years he would joke that he only enrolled in Entomology because he mis-spelt 'Etymology' on the application form! Those of us who had our writing edited by Erik only laughed at this the first time. We came to understand that Erik knew his etymology and could recall verbatim, most of the 'Style Manual for Authors'. His Father's influence perhaps.

Erik's first appointment 1950 – 1951, was as a Biologist with the Australian National Antarctic Expedition at Macquarie Island working on rabbit management. From all accounts this was a very challenging experience as the expedition was marooned on the Island by ice for nearly a year during which as the only biologist among the Expeditioners, Erik was called on to perform an appendectomy, with radio directions from a doctor, on one of his fellow workers. According to Erik, the patient was not at all keen on the idea but he survived Erik's handiwork nonetheless. Erik was awarded an Expeditioners Medallion for his efforts on Macquarie Island.

In September 1951, Erik was appointed Lecturer in Entomology at NSW University of Technology (later to become UNSW) which was then housed at Ultimo and in 1956, he also taught the entomology course at Sydney University while Dr A.R. Woodhill was ill. In 1961, he undertook a sabbatical at the U.K Atomic Energy Research Establishment at Wantage, under Dr P.B. Cornwell. On his return, to Australia, he commenced a PhD on 'Physiological Effects of Gamma Radiation on Insect Pests in Grain and Stored Food', completing this at the UNSW Kensington campus in 1964. From about the time of his promotion to Senior Lecturer in 1965, Erik began to assemble an entomological research group of postgraduate students and technical staff focusing on practical aspects of agricultural and urban pest management, funded largely by industry grants (notably from CSR, AEC and SPCC) and contracts managed by the UNSW commercial arm Unisearch. As the team expanded, it outgrew the available space in the then School of Zoology at Kensington and with industry support, Erik acquired and developed laboratory space on the UNSW Randwick Campus in a building previously used for servicing trams – later affectionately known as 'The Tramsheds'.

In the 1960s Erik's research centred on the biology of Phasmatodea, biology and management of a range of stored product pests and the effects of irradiation on insects, especially leaf hoppers, houseflies and fruit flies. Demand for entomological teaching was steadily growing at this time and the course offerings co-ordinated by Erik grew to several units delivered over two years. Erik's research and teaching group was also gradually expanding as was industry funding to support new initiatives.

In the late 1960s Erik developed an interest in insecticide mode-of-action and the design and deployment of new insecticides. As a result, he entered into a collaboration with George Holan of CSIRO Division of Applied Organic Chemistry to provide bioassay facilities for new insecticidal molecules George was synthesizing by rational design. Erik expanded his knowledge of insecticide mode-of-action during a sabbatical in 1970, with the insecticide research team at Rothamsted Agricultural Experiment Station U.K. Back at UNSW, he agreed to the secondment at Randwick of CSIRO staff who became responsible for bioassay of new candidate insecticides designed and synthesized at the CSIRO labs in Melbourne. This productive collaboration continued for over twenty years under Erik's stewardship and supported by the outstanding bioassay skills of Chris Virgona (Erik's former student).

The 1970s and early 80s saw an expansion of Erik's research group with the appointment of a steady stream of Postdoctoral Fellows and technicians funded by grants from the ARC, Wool Corporation, Commonwealth Development Bank, Meat Research Corporation and insecticide companies to investigate the biology and new management tools for a range of pests, notably sheep blowflies, buffalo flies and houseflies. Coincidentally demand was growing for commercial services in R&D and testing of urban and commercial insecticide products. Always an early adopter of new technology, in this period Erik took advantage of the emergence of microcomputer technology to develop an automated aerosol testing chamber as a significant upgrade of the earlier Peet-Grady aerosol testing methodology. The new chamber remained in constant commercial use and was continually improved for many years. In 1973 Erik was Acting Head of the School of Zoology and in 1974 he was appointed Deputy Head of School. In 1978 he was promoted to Associate Professor.

In early 1986 UNSW changed its 'required age of retirement' from 65 years to 60 and with almost no notice (and with a backlog of outstanding leave), Erik was informed that he would be required to retire almost immediately. A crisis meeting was held with the members of the research group following which

Erik sought and obtained agreement from the Dean for the retention of the group as a new University Research Centre. The research philosophy adopted by Erik was later reflected strongly in the creation and operation of this centre - The Centre for Entomological Research and Insecticide Technology (CERIT).

Erik made a huge contribution to Australian entomological teaching and research. Many hundreds of students – both undergraduate and postgraduate – were taught by Erik and judging from the feedback received on news of his death, he was extremely well regarded by them as teacher, mentor and friend. I certainly include myself in that number. Considering his heavy teaching workload, his research output was prodigious with approximately 50 peer-reviewed papers authored or co-authored on about 20 topics. Erik was especially proud that in addition to these, he was the author or co-author of many hundreds of Commercial-In-Confidence reports.

Erik's former students and staff reported many image-memories which are forever etched on their consciousness: The annual field trips to Blowering Dam and Smiths Lake; His ability to thrust his hand into a huge pile of papers on his desk and pull out the exact one he wanted; His enormous capacity for lateral thinking and new ideas – and his ready willingness to pass on the last idea to others while he moved on to the next; His love of bushwalking; Erik teaching in the 'little gavanised iron shed at Ultimo'; His informal, conversational teaching style – "unlike any of the other lecturers"; His gushing enthusiasm for new technology (eg. the Apple II); His intense dislike of phrases like "the effect of" in paper titles …….

On retirement, Erik set up a company with his second wife Inga, to design and manufacture car-top 'ShippShape' tents, which have since become a recognised accessory atop many 4WDs. Those of us who visited the ShippShape factory at Alexandria were astounded by the attention to detail and sheer hard work put in by Inga and Erik in developing this impressive product. Later they sold the business and 'really retired' to a less arduous life building a house and establishing a Murray Grey Stud on their property near Bunyah on the mid-north coast of NSW.

Erik continued to learn for the whole of his life, attending until recently, courses on cattle health, chemical handling, land and pasture management, paddock rotation, etc. and contributing by involvement in Land Care, the fire brigade and the local community at Bunyah.

Erik is survived by his wife Inga, his three daughters, Elizabeth, Jennifer and Bronwen, their families and children.

Erik had a strong, positive influence on the lives of many of us and we are thankful that this legacy remains despite his passing. Vale Erik.

RESEARCH PUBLICATIONS

Haddlington, P and Shipp E. (1961). Diapause and parthenogenesis in the eggs of three species of Phasmatodea. *Annals of the Entomological Society of America* **40**: 373 -396.

Hadlington, P. Shipp, E. (1962). Diapause and parthenogenesis in the eggs of three species of Phasmatodea. *Proceedings of the Linnean Society of New South Wales*. **86**: 268-279.

Shipp, E (1963). Physiological effects of gamma radiation on insect pests of grain and stored foods. PhD Thesis, University of New South Wales.

Shipp, E., Keith, K, Hughes, R. L. and Myers, K. (1963). Reproduction in a free-living population of domestic rabbits *Orictolagus cuniculus* (L.) *Nature. (London)* **200**: 858-860.

Shipp, E. (1964). Rates of development in eggs from three populations of *Didymuria violescens* (Leach) (Phasmatodea). *Proceedings of the Linnean Society of New South Wales* **88**: 287-294.

Osborn, A. W. Shipp, E. (1965) An economical method of maintaining adult Diptera. *Journal of Economic Entomology* **58**: 1023.

Shipp, E. and Osborn, A. W. (1966). The theoretical role of predators in sterile-insect release programs. *Bulletin of the. Entomological Society of Amer*ica **12**: 115-116.

Shipp, E. (1966). Susceptibility of Australian strains of *Sitophilus* and *Tribolium* species to gamma radiation. In: Cornwell P. B. (Ed.) The entomology of radiation disinfestation of grain: a collection of original research papers, Pergamon Press. Oxford. pp. 131-141.

Shipp, E. (1966). The effect of rearing medium on the susceptibility of *Tribolium confusum* Duv. and *Sitophilus granarius* (L.) to gamma radiation. In: Cornwell P. B. (Ed.) The entomology of radiation disinfestation of grain: a collection of original research papers. Pergamon Press. Oxford. pp. 97-105.

Shipp, E., Osborn, A. W. and Hutchinson, P. B. (1966). Radiation sterilization of sugar-cane leafhoppers of the family Delphacidae. *Nature* **211**: 98-99.

Shipp, E. and Osborn, A. W. (1967). The effect of protein sources and of the frequency of egg collection on egg production by the housefly (*Musca domestica* L.). *Bulletin of the World Health Organization* **37**: 331-335.

Husain, A. A., Hutchinson, P. B., Osborn, A. W. and Shipp. E. (1967). The sterile-male technique as a possible method of controlling the leafhopper vector of Fiji diease of sugarcane. *Proceedings o fthe International Society of Sugarcane Technologists*, Formosa, September 1967, pp. 1107-1111.

Shipp, E. and Osborn, A. W. (1968). Irradiation of Queensland fruit fly pupae to meet quarantine requirements. *Journal of Economic Entomology* **61**: 1721-1726.

Osborn, A. W., Shipp, E. and Rodger, J. C. (1970). House fly fecundity in relation to density. *Journal of Economic Entomology* **63**: 1020-1021.

Bailey, P. and Shipp, E (1970). Corpus allatum size and ovarian development in irradiated cucumber fly, *Dacus cumicus*. *Journal of insect physiology* **16**: 1293-1299.

Bhatti, M. A. and Shipp, E. (1972). Mating competition of irradiated and normal males with normal females of the Queensland fruit fly, *Dacus tryoni* (Frogg.). *Nucleus.* **9**: 107-110.

Campbell, D. J. and Shipp, E. (1970). Spectral analysis of cyclic behaviour with examples from the field cricket, *Teleogryllus commodus* (Walk.). *Animal Behaviour* **22**: 862-875.

Shipp, E. and Gunning, R. V. (1975). Endogenous rhythm of nerve activity in the housefly eye. *Nature, UK.* **258**: 520-521.

Shipp, E. and Otton, J. (1976). Circadian rhythms of sensitivity to insecticides in *Musca domestica* (Diptera: Muscidae). *Entomologia Experimentalis et Applicata* **19**: 163-171.

Shipp, E. and Otton, J. (1976). Diel changes in DDT absorption and breakdown rates and respiratory rhythm in the housefly, *Musca domestica*. *Entomologia Experimentalis et Applicata* **19**: 235-242.

Virgona, C., Holan, G. and Shipp, E. (1976). Contact repellancy of sheep blowfly *Lucilia cuprina* Wied. *Pesticide Science* **7**: 72-74.

Macquillan, M. J. and Shipp, E. (1976). Evaluation of chlorpyrifos and chlorpyrifos-methyl for control of *Dermestes maculatus* Deg. (Coleoptera: Dermestidae) on sheepskins. *Journal of Stored Products Research* **12**: 93-96.

Gunning, R. and Shipp, E. (1976). Circadian rhythm in endogenous nerve activity in the eye of *Musca domestica* L. *Physiological Entomology* **1:** 241-248.

Shipp, E. and Otton, J. (1976). Irradiation-induced changes in circadian DDT-susceptibility and metabolic rhythms in the housefly. *International Journal of Chronobiology* **4**: 71-81.

Brown, K. R. and Shipp, E. (1977). Wing morphometrics of Australian Luciliini (Diptera: Calliphoridae). *Australian Journal of Zoology* **25**: 765-777.

MacQuillan, M. J. and Shipp, E. (1977). Effects of particle size and active ingredient content on residual activity of chlorpyrifos wettable powder formulations against codling moth, *Cydia pomonella* (L.). *Pesticide Science* **8**: 214-216.

Attia, F. I., Shipp, E. and Shanahan, G. J. (1979). Survey of insecticide resistance in *Plodia interpunctella* (Hubner), *Ephestia cautella* (Walker) and *E. kuehniella* (Zeller)(Lepidoptera: Pyralidae) in New South Wales. *Journal of the Australian Entomological Society* **18**: 67-70.

Attia, F. I., Shipp, E. and Shanahan, G. J. (1979). Selection response of a resistant strain of *Plodia interpunctella* (Hubner) (Lepidoptera: Pyralidae) to malathion. *General and Applied Entomology* **11**: 46-48.

Levot, G. W., Brown, K. R. and Shipp, E. (1979). Larval growth of some calliphorid and sarcophagid Diptera. *Bulletin of Entomological Research* **69**: 469-475.

Lester, D. S., Crozier, R. H. and Shipp, E. (1979). G-banding patterns of the housefly, *Musca domestica*, autosomes and sex chromosomes. *Experientia* **35:** 174-175.

Lester, D. S., Crozier, R. H. and Shipp, E. (1979). Cytological and genetic localization of a Y-autosome translocation in an Australian strain of the housefly, *Musca domestica*. *Experientia* **35**: 172-173.

Lester, D. S., Crozier, R. H. and Shipp, E. (1979). Recombination in the male housefly, *Musca domestica*. *Experientia*. **35**: 175-176.

Attia, F. I., Shanahan, G. J. and Shipp, E. (1980). Synergism studies with organophosphorus resistant strains of the Indianmeal moth. *Journal of Economic Entomology* **73**: 184-185

Attia, F. I., Shipp, E., and Shanahan, G. J. (1981). Inheritance of resistance to malathion, DDT and dieldrin in *Plodia interpunctella* (Lepidoptera: Pyralidae). *Journal of Stored Products Research* **17**: 109-115.

Virgona, C. Holan, G. Shipp, E., Spurling, T. H. and Quint, G.(1982). Neurophysiological effects of insecticides on the labellar taste receptors of *Lucilia cuprina* Wied. *Pesticide Biochemistry and Physiology* **18**: 169-173.

Moussa, A.Y., Hawkes, R. A. Dickson, M. R., Shipp, E. and Woods, A. (1982). Serological relationships of the housefly virus and some members of the family Reoviridae. *Australian Journal of Biological Sciences* **35:** 669-678.

Orton, C.J. and Shipp, E. (1982). Action of pyrethroid-type insecticides on the physiology and behaviour of the sheep blowfly. - (Bound Report to AWC - 55 pp).

Orton, C.J. and Shipp, E. (1983). Comparative laboratory testing of *Lucilia cuprina* oviposition suppressants. Proc. 2nd National Symp. Blowflies & Flystrike in Sheep. NSW Dept. Agriculture. 160-165.

Virgona, C.T. Holan, G. and Shipp, E. (1983). Repellency of insecticides to resistant strains of housefly. *Entomologia Experimentalis et Applicata* **34**: 287-290.

Levot, G. W. and Shipp, E (1983). Interference to egg and larval development of the Australian sheep blowfly by three insect growth regulators. *Entomologia Experimentalis et Applicata* **34**: 58-64.

Anderson, J. M. E., Shipp, E. and Anderson, P. J. (1984). Distribution of Calliphoridae in an arid zone habitat using baited sticky traps. *General and Applied Entomology* **16**: 1-8

Levot, G. W. and Shipp, E. (1984). Reduction in offspring survival of *Lucilia cuprina* (Wiedemann) following consumption of insect development inhibitors. *Journal of the Australian Entomological Society* **23**: 85-89.

Orton, C.J. and Shipp, E. (1986) Oviposition suppressants in the control of the sheep blowfly *Lucilia cuprina*.. - (Bound Report to AWC - 69pp).

Anderson, J. M. E., Dobbie, W. R., Shipp, E. and Anderson, P. J. (1987). Maggoty wool increases blowfly numbers. *General and Applied Entomology* **19**: 15-16.

Anderson, P. J., Shipp, E., Anderson, J. M. E. and Dobbie, W. (1988). Population maintenance of *Lucilia cuprina* (Wiedemann) in the arid zone. *Australian Journal of Zoology* **36**: 241-249.

Anderson, J. M. E., McLeod, L. J., Shipp, E. and Swan, A., Kennedy, J. P. (1990). Trapping sheep blowflies using bait-bins. *Australian Veterinary Journal* **67:** 93-97**.**