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Cover: The buprestid beetle *Julodis aequinoctialis* (Olivier, 1790) (Coleoptera: Buprestidae) on its host *Retama raetam* (Papilionaceae). Photo: A. Shoob.

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*In Memoriam**

Prof. Kurt Robert Simon Ascher
(1923–2003)

Professor Kurt Robert Simon Ascher, known in Israel as Prof. Shimon Ascher, died on November 23, 2003. He was a world-renowned insect toxicologist, a leading scientist in the Institute of Plant Protection, Agricultural Research Organization (ARO), and a co-editor of Israel Journal of Entomology. He was born in Nuremberg, Germany, on December 24, 1923, and immigrated as a boy to Israel with his family in 1935. He received his primary and high school education in the "Maaleh" school in Jerusalem. He started his university studies at the young age of 16 and in 1944 completed his chemistry studies for the Master of Science degree at The Hebrew University of Jerusalem, where he then served as a research assistant until 1947. In that year, he joined the Hagana (which became the Israel Defense Forces, IDF) in Jerusalem and subsequently served in Tel Aviv as an officer.

Shimon Ascher was about to start a teaching career as a chemistry teacher in Haifa, but in 1949 a research position became vacant in Rosh Pinna under Prof. G.G. Mer, the Director of the Malaria Research Station. Until 1951, he worked with Prof. Mer on

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mosquito control and resistance to DDT, as well as DDT synergism as a strategy to reduce mosquito resistance. Shimon Ascher greatly admired Prof. Mer, and expressed his feelings by giving his newborn daughter Jessica the middle name Gideona (Gideon was Prof. Mer's first name). This was in 1964, the same year that Prof. Mer passed away. Another scientist whom Shimon Ascher highly respected was the outstanding chemist Prof. E.D. Bergmann [see: Ascher, K.R.S. and Shaaya, E. (1975) Ernst David Bergmann: An Obituary. *Phytoparasitica* 3:145–147].

In 1951, Shimon Ascher joined the Medical Research Laboratories of the IDF's Medical Corps, and worked on the effects of chlorinated hydrocarbons, other chemical insecticides, and their synergism to improve housefly control.

In 1954 he was granted a sabbatical year from the IDF and spent it as a WHO scholar at the Geigy Agrochemical Company in Basel, Switzerland, working on chemical insecticides and on mosquito resistance to insecticides. Already during his service in the Medical Corps, Ascher was able to exhibit the scientific merit of his approach to reducing the reproductive capacity of mosquitoes, on the housefly [see: Ascher, K.R.S. (1957) Prevention of oviposition in the housefly through tarsal contact agents. *Science* 125:938]. His work on insect resistance to chemical insecticides was not limited to human medical problems but was widened to agricultural pests [see: Ascher, K.R.S. (1957) Resistance of the Spiny Boll Worm to endrin in Israel. *Nature* 179:324]. In 1957, he left the IDF and went to Rome, Italy, where he worked for 3 years in the University Institute, Instituto Superiori di Sanita. While working there, he developed the pest control concept of *negative correlation to resistance*. With this concept, he showed that insect pests that develop resistance to one group of chemicals could be affected by a different group of chemical insecticides and be more susceptible to them.

In 1960, Shimon Ascher joined the National and University Institute of Agriculture (NUIA) in Rehovot (today the ARO in Bet Dagan) and started to work with the late Prof. E. Rivnay; subsequently he was appointed Head of the Department of Toxicology. In 1969 he was promoted to Research Scientist grade A and in 1972 to A+ (parallel to full Professor). From 1975 until 1979, he headed the Institute of Plant Protection and was a member of the Professional Promotion Committee of the ARO. During the years 1982–1984, he served again as the Head of the Institute of Plant Protection, but limited this term to two years because he wanted to spend more time on research.

During the 1960s and early 1970s, Shimon Ascher was invited to important international symposia and meetings to lecture on chemical control of pests and on insect resistance to chemical insecticides. At that time, traveling abroad from Israel to scientific meetings was limited to a very few, highly recommended top scientists, who included Prof. Ascher. He was the only one selected from Israel to participate in 1960 in an Entomological Meeting at Prague, Czechoslovakia, then behind the Iron Curtain, with all the associated restrictions on scientists from Israel visiting that country.

In 1989, Shimon Ascher officially retired from the ARO, but continued to work full time for several years, until failing health began to limit his activities. Over the course of his many years at the ARO, his work covered several important research areas:

(i) *Insect chemosterilants.* The work on chemosterilants started already when he was in the Medical Corps, IDF, with the study of ovicidal effects caused by chemicals such as fluorocarbon in mosquitoes. Subsequently, this work continued in the NUIA—today the ARO—with screening sterilizing effects of *m*-xylohydroquinine and organotin compounds as chemosterilants on lepidopteran insects.

(ii) *Antifeedants.* The discovery that organotin compounds can serve as antifeedants in insects was the outcome of a pioneering field of research introduced by Shimon Ascher. The phenomenon that fentin fungicides prevent damage by caterpillars to field crops led to a long-range study of defining antifeeding effects of organotin compounds in different insect pests, and establishing global use of the compounds as commercial insecticides for plant protection, mostly in developing countries [see: Ascher, K.R.S. (1979) Fifteen years (1963–1978) of organotin antifeedants—a chronological bibliography. *Phytoparasitica* 7:117–137].

(iii) *Phagostimulants.* At the beginning of the 1970s Shimon Ascher started out on a new scientific pathway: identification of phagostimulants and quantification of their effects on insects. The phagostimulatory effects of different sugars and related compounds were evaluated in a fruitful collaboration with the chemist Prof. H.M. Flowers of the Weizmann Institute of Science, Rehovot. The development of bioassay methods for phagostimulants based on 'Styropor' (polystyrene) lamellae paved the way to large-scale and simple means of screening phagostimulatory agents in insects [see: Ascher, K.R.S. and Meisner, J. (1973) Evaluation of a method for assay of phagostimulants with *Spodoptera littoralis* larvae under various conditions. *Entomologia Experimentalis et Applicata* 16:104–114].

(iv) *Insecticidal plant substances.* Ascher was a worldwide pioneer in the investigation and evaluation of the biological effects of products from the neem tree, *Azadirachta indic*a. As a result of a very fruitful collaboration with a leading neem investigator, Prof. H. Schmutterer, the products of this tree today are among the few safe and effective natural insecticides used widely in biological Insect Pest Management (IPM) and in bio-organic agriculture. Scientific papers presented at the three symposia dedicated to neem products were published in books edited by Shimon Ascher and German colleagues:

- Schmutterer, H., Ascher, K.R.S., and Rembold, H., eds. (1981). Natural Pesticides from the Neem Tree *(Azadirachta indica* A. Juss.). Proc. 1st International Neem Conf. (1980, Rottach-Egern, Germany). GTZ, Eschborn, Germany.
- Schmutterer, H. and Ascher, K.R.S., eds. (1984). Natural Pesticides from the Neem Tree *(Azadirachta indica* A. Juss) and Other Tropical Plants. Proc. 2nd International Neem Conf. (1983, Rauischholzhausen, Germany). GTZ, Eschborn, Germany.
- Schmutterer, H. and Ascher, K.R.S., eds. (1987). Natural Pesticides from the Neem Tree *(Azadirachta indica* A. Juss) and Other Tropical Plants. Proc. 3rd International Neem Conf. (1986, Nairobi, Kenya). GTZ, Eschborn, Germany.

Prof. Ascher showed that the nonconventional effects of the neem tree products were manifold: partial reduction or complete inhibition of fecundity and/or in some cases egg hatchability; reduction of the adult lifespan; oviposition repellence in females; direct ovicidal effects; antifeedant effects; formation of permanent larvae; and regulation of insect growth with molting failures among the various insect stages. The effects were studied in Lepidoptera, Coleoptera, thrips, leaf miners, cicadas, and mites. The effects of neem compounds on mites were investigated in collaboration with Dr. Fadel Mansour.

Phagodeterrent effects of gossypol and high-gossypol strains of cotton were studied in lepidopteran pests in an active collaboration with Dr. J. Meisner [see: Meisner, J., Ascher, K.R.S., and Zur, M. (1977) Phagodeterrency induced by pure gossypol and leaf extracts of a cotton strain with high gossypol content on the larva of *Spodoptera littoralis. Journal of Econonomic Entomoogy* 70:149–150]. Also midgut enzyme inhibition caused by gossypol was evaluated in *Spodoptera littoralis* larvae.

An additional group of plant-chemicals affecting insects were the withanolides—naturally occurring steroids in solanaceous plants, which Ascher demonstrated had marked antifeeding effects on insects. The effects of these natural steroids on insects were investigated within the framework of a BARD project in collaboration with Prof. M. Jacobson, Beltsville, Maryland, USA.

(v) *Insect Growth Regulators (IGRs).* Shimon Ascher started to study the effects of chitin synthesis inhibitors on insects as early as the 1970s [see: Ascher, K.R.S. and Nemny, N.E. (1976) Toxicity of the chitin synthesis inhibitors, diflubenzuron and its chloro-analogue, to *Spodoptera littoralis* larvae. *Pesticide Science* 7:1–9]. Throughout the years, he continued to work on this group of insecticides. He screened the IGR effects of benzoylphenyl urea, diflubenzuron, triflumuron, teflubenzuron, and hexaflumuron, usually on the test insect *Spodoptera littoralis*. Ovicidal properties of juvenile hormone mimic compounds were also screened for IGR effects. No fewer than 20 papers authored by Shimon Ascher were dedicated to evaluation of IGR effects on insects.

Prof. Ascher's last challenging project, during the years 1994–1997, was supported by the Israel Institute of Social Security, through the fund for prevention of work accidents. The work was entitled: "Minimizing poisoning accidents in workers in greenhouse agriculture by means of replacing toxic insecticides with products of *Azadirachta indica* against *Frankliniella occidentalis, Thrips tabaci Liriomyza huidobrensis* and Cicadas". In this research, commercial products from seeds of the Indian *Azadirachta* (neem tree) showed promising effectiveness against the project insects.

In 1997, the German Society for General and Applied Entomology awarded Shimon Ascher the Karl Escherich medal for his: "Fundamental and milestone works in insect toxicology and resistance to pesticides, his involvement in developing chitin synthesis inhibitors and utilization and use of plant materials against pests—achievements that were obtained through intensive international collaboration."

In 1999, Prof. Ascher received the IPPC (XIVth International Plant Protection Congress) Award of Distinction for his pioneering research on natural products from the neem tree and their use for pest control, as well as natural products from other plants for that purpose. He was considered the forefather of the antifeeding concept, and the person who coined this term.

K.R.S. Ascher was the author of more than 200 publications, including chapters in books, and edited several books. In addition to the three books on neem, he co-edited the following:

- Ascher, K.R.S. and Ben-Dov, Y., eds. (1995) International Symposium of Scale Insect Studies. Proc. Entomological Society of Israel, Bet Dagan, Israel. *Israel Journal of Entomoogy,* volume 29.
- Ascher, K.R.S., ed. and Margalit, Y., co-ed. (1998) Proc. of the Second En Gedi Conference on Bacterial Control of Agricultural Insect Pests and Vectors of Human Diseases (Shoresh, Israel). Israel. *Israel Journal of Entomology,* volume 32.
- Grinstein, A., Ascher, K.R.S., Matthews, G.A., Katan, J., and Gamliel, A., eds. (1997) Improved Application Technology for Reducing Pesticide Dosages and Environmental Pollution—A Written Symposium. *Phytoparasitica,* volume 25, supplement.
- Navon, A. and Ascher, K.R.S., eds. (2000) Bioassays of Entomopathogenic Microbes and Nematodes. CABI Publishing, Wallingford, Oxfordshire, UK.

In addition, Shimon Ascher was an active co-author of three chapters of the book: Schmutterer, H., ed. (1995) The Neem Tree. VCH, Weinheim, Germany. He served as the editor-in-chief of *Phytoparasitica,* the Israel Journal of Plant Protection Sciences, since 1979, and a co-editor of the *Israel Journal of Entomology*, from 1993 to 2003 (volumes 27–34).

We were fortunate to have known and worked with Prof. Ascher. Utmost diligence and an uncompromising attitude to his work were the driving forces which typified him and which enabled him to become a leading pioneer researcher in insect toxicology. His work did not end in the afternoon hours but continued late into the night: writing manuscripts, editing articles for *Phytoparasitic*a, reading papers and books, writing research proposals, and more. He was a pedantic scientist, always looking for a high level of experimental work by his technicians and research students, but he also rewarded all who were involved in the work with full authorship in the resultant papers.

Shimon Ascher always read a voluminous amount of scientific literature in order to be up-to-date with the latest entomological and toxicological information, and would converse with co-workers and colleagues, to widen and enrich his knowledge beyond his current research.

The care and concern Shimon Ascher expressed for his employees and colleagues was another of his estimable attributes. When help was needed, he invested every effort to alleviate or solve their personal problems and difficulties. Prof. Ascher will be remembered fondly for introducing a pleasant and humorous atmosphere in the lab among his colleagues and others around him. His scientific presentations were

commonly colored with a sense of humor. In fact, he kept in his laboratory a special folder with jokes, humorous articles, and cartoons, which he incorporated in his talks and lectures. His interests and knowledge in areas beyond his scientific pursuits included history, literature, music, and art—under the strong influence of European culture.

Prof. Ascher continued to work at the ARO until his poor health prevented him from traveling to his lab. Nevertheless, he kept himself abreast of the ongoing research and continued his writings as well as his editorial work for *Phytoparasitica* until the last months of his life. We had hoped that he would recover from his health problems, as had happened in the past, but to our deep sorrow he could not overcome his illnesses, and died on November 23, 2003.

Prof. Shimon Ascher is survived by his wife Chana, son Yaakov, daughter Jessica, and six grandchildren. He will be deeply missed by his loving family, friends, and colleagues in Israel and abroad, members of the Institute of Plant Protection, ARO, the *Phytoparasitica* Executive Editor and Editorial Board, the Entomological Society of Israel, and the entire entomological community.

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NOTES FOR AUTHORS

Israel Journal of Entomology publishes original contributions in all areas of entomology. Authors are entirely responsible for statements, whether of fact or opinion. Manuscripts, in standard English only, are considered on the understanding that they have not been submitted elsewhere. If a preliminary paper relating to the contents of the paper has already been published, this must be stated.

All papers are subject to peer review. Authors may suggest competent referees for consideration by the editorial board. Referees will remain anonymous unless they expressly request to be identified.

FORM OF MANUSCRIPT

Papers should be concisely written. Consulting the latest issue of this journal and *Scientific style and format—The CBE manual for authors, editors, and publishers*, 6th ed. (Cambridge University Press, Cambridge) is highly recommended. Manuscripts should be submitted in triplicate, typed double spaced on one side of a page only, leaving 3 cm margins on both sides, together with electronic files of the text, tables, and figures. Manuscripts should be submitted as MSWord documents only, and the program used to prepare the figures should be indicated.

Pages should be numbered consecutively, including title page. Body of text, references, footnotes, tables, and figure legends should each start on a new page. Words which are to be italicized in print, such as genus and species names, should be italicized in the manuscript or underlined with a single line. No more than three categories of subheadings are allowed; their hierarchy should be clearly indicated.

The title of the paper should be informative, but preferably not exceed 20 words. Page 1 of the manuscript should contain the article title, authors' full names, complete affiliations, current addresses, a short running title (abbreviated form of the title) of less than 55 characters, and the name, mailing address, telephone, fax, and e-mail contacts of the author to whom correspondence should be sent. Page 2 should contain an abstract (not exceeding 250 words) that is a brief but informative summary of the contents and the conclusions of the paper. The abstract should be intelligible to a nonspecialist in the field and should avoid specialized terms and abbreviations or symbols that require definition. It should not contain references. Keywords (5–7) should be provided.

SPELLING

Spelling and terminology should be consistent throughout. Taxonomic names, on first mention, should be followed by the name of the first describer, written in full. When referring to paired organs in morphological descriptions, the singular form should be used. Locality records should preferably be followed by coordinates. Names of localities in Israel will be given as they are transliterated in the "Israel Touring Map" (1:250,000) and "List of Settlements," published by the Survey of Israel, Ministry of Labour. Regions in Israel and nearby areas should follow the *Fauna Palaestina* map (as in Theodor, O. 1975. *Fauna Palaestina, Insecta I: Diptera Pupipara*. The Israel Academy of Sciences and Humanities, Jerusalem.)

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Number tables consecutively with Arabic numerals in order of appearance in the text. Present each table on a separate page with a short descriptive caption directly above the table and any footnotes (indicated by superscript lower case italic letters) directly below the table. Typesetters rely on the visual clues you provide. Please be sure that the appearance of your tables, as submitted, properly indicates the relationships between headings, subheadings, and data.

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Number all figures with Arabic numerals in order of appearance in the text. Type all legends double-spaced consecutively on a separate sheet. Identify all figures on the back in pencil with author name and figure number; indicate the top of the figure. Plan figures to fit the proportions of the printed page (16.5 × 24 cm). Figures should be in a form suitable for reproduction. Submissions should include at least one set of figures that are originals, not photocopies. Lettering should be of professional quality or generated by high-resolution computer graphics and should be large enough (10–12 points) to take a reduction of 50 to 60%. Computer-generated or scanned figures, as well as photographs whenever possible, should be submitted at high resolution in a non-proprietary format (in order of preference: jpeg, tiff, eps, pict), as well as in hard copy. Freehand, penciled, or typewritten lettering is not acceptable.

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Submit photographs as unmounted high-contrast glossy prints. Include only those parts of the photograph that are necessary to illustrate the matter under discussion; cut off unessential areas. Figures that are to appear together as one plate should have comparable contrast and density and should be mounted as close together as possible. Do not combine line drawings and halftones into composite plates; instead, submit unmounted original art and a layout sheet.

COLOR ILLUSTRATIONS

Illustrations in color can be accepted only if the authors defray the cost. Authors should consult with the Editor-in-Chief regarding the expected cost of color plates.

REFERENCES

References within the text should indicate names of the authors and year of publication for one or two authors. Use letters to distinguish among citations with the same year. Use "et al." for more than two authors (but in the Reference section list all authors). Multiple references in the text should be arranged chronologically; those of the same year alphabetically. Example: (Jones and Cohen, 1987; Cohen and Jones, 1988a,b; Levy et al., 1989; Xavier, 1989; Brown, in press). Unpublished references are to be cited as author, followed by either (personal communication), (unpublished), or (in press). Only the latter category will appear in the list of references, together with the name of the journal (or publisher, if a book) that accepted it for publication. For "personal communications" the author is responsible for obtaining permission for such citation from the person cited.

In the reference sections do *not* abbreviate journal titles. Examples of references:

Bergman, E.D. 1976. The future of insecticides—a problem of human environment. Israel Journal of Entomology 11:5–14.

Brown, P.A., Blackman, R.L. 1994. Morphometric variation in the *Geoica utricularia* (Homoptera: Aphididae) species group on *Pistacia* (Anacardiaceae), with descriptions of new species and a key to emigrant alatae. Systematic Entomology 19: 119–132.

Kupfermann, I., Teyke, T., Rosen, S.C., Weiss, K.R. 1991. Studies of behavioral state in *Aplysia*. Biology Bulletin 180: 262–268.

Taylor, L.R., Palmer, J.M.P. 1970. Aerial sampling. In: van Emden, H.F., ed. Aphid technology. Academic Press, London, pp. 125–138.

TAXONOMY

Comprehensive treatments of taxa (genera, families, etc.) will receive higher priority over partial treatments. Partial lists of species or faunistic lists, not accompanied by proper keys or references to such keys, will receive lower priority. Keys should be dichotomic, with two alternatives for each character, and preferably illustrated.

Authors must comply with the requirements of the most recent edition of the *International Code of Zoological Nomenclature* of the International Commission on Zoological Nomenclature, London and with the published Opinions of the International Commission. The following abbreviations should be adopted: n. gen. — new genus; n. sp. — new species; n. comb. — new combination of names; n. syn. — denotes synonymy established for the first time; n. stat. — will be used to indicate a new change in rank of a name; nomen nudum, nomen dubium, and nomen novum are not abbreviated.

In treating the taxonomy of a described taxon, the following form is essential for the beginning of a chapter.

Filippia oleae (Costa, 1832)
(Fig. 1)

Coccus oleae Costa, 1882:21.
Lecanium oleae Smith, 1892:15 (list); Brown, 1899:20 (redescription).
Filippia oleae Fernald, 1903:13 (catalog); Hall, 1943:50 (hosts list).

The full references to the above citations should be given in the **References** section.

New taxa must be distinguished from related taxa. In describing new species, the complete data of

the type-series, together with the collection(s) in which it is deposited, will be recorded in the original description as illustrated below:

> MATERIAL EXAMINED. Holotype♀, ISRAEL: Jerusalem, 14.v.1956, on *Ficus carica*, F. Levi (BMNH). Paratypes, 20♀, same data as holotype, (USNM); 8♂ Tel Aviv, 3.v.1962, *Acacia* sp., G. Broan (ZTV).

Authors are required to deposit all type-material in nationally or internationally recognized institutions, not private collections.

Records of specimens other than type series will be listed at the end of each relevant chapter in a similar manner.

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