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Liberal Arts and Sciences
Genetics and Development Department
Arthur W. Ghent Papers, 1949-2001

EVENTS IN GHENT'S LIFE

1927	Born, Toronto, Ontario, Canada
1946	Entered University of Toronto
1950	B.Sc.F., with Honours, University of Toronto
1950	Appointed Agricultural Research Officer, Forest Insect Laboratory, Sault Ste. Marie, Ontario, Canada; appointment held on roughly an alternate-year basis, with intervening years on educational leave, until 1959
1950	Entered the Graduate School, Dept. of Zoology, University of Toronto
1950	Awarded Robert W. Lyons Fellowship, University of Toronto
1952	Awarded Ontario Research Council Scholarship, University of Toronto
1952	Demonstrator in Zoology, Dept. of Zoology, University of Toronto
1954	M.A., awarded upon completion of thesis: "A study of the Group-Feeding Behavior of Larvae of the Jack-Pine Sawfly, *Neodiprion banksianae Roh*." Supervised by Dr. C. E. Atwood
1955	Entered the Graduate School, Dept. of Zoology, University of Chicago
1955	Awarded University of Chicago Fellowship
1956	Elected Sigma Xi, Chicago Chapter
1959	Resigned, Canadian Government Service, to complete Ph.D. studies
September 1, 1960	Entered USA
1960	Ph.D., awarded upon completion of thesis: "Studies of the behavior of *Tribolium* flour beetles." Supervised by Dr. Thomas Park
1960	Appointed Assistant Professor of Quantitative Zoology, University of Oklahoma, Norman, Oklahoma
1964	Appointed Assistant Professor, School of Life Sciences, University of Illinois, Urbana, Illinois
1965	Appointed Associate Professor, School of Life Sciences, University of Illinois, Urbana, Illinois
1970	Appointed Professor, School of Life Sciences, University of Illinois, Urbana, Illinois
1973	Joint appointment as Professor, School of Basic Medical Sciences, University of Illinois, Urbana, Illinois
1974	Participant, Visiting Lecture Series on Mathematical Biology, Colby College, Maine
1975	Elected, American Society of Naturalists
1983	Appointed, Associate Editor for Statistical Biology, *American Midland Naturalist*
September 20-24, 1984	Invited lecture, "Mortality and Size-Class Distribution Patterns in Conifer Plantations", Weyerhaeuser Co., Tacoma, WA
August 17, 1985	Invited lecture, "Competition Effects in Red Pine and White Spruce Plantations", Ontario Ministry of the Environment, Maple, Ontario
2001	Died

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RESEARCH CONTRIBUTIONS

1952. A technique for determining the year of the outsidering of dead trees. *Forestry Chronicle* 28(4):85-93.
1954. The treatment of decayed wood from dead trembling aspen trees for growth-ring analysis. *Forestry Chronicle* 30(3):280-283.
1955. A guide for the re-aligment of off-center increment borings. *Forestry Chronicle* 31(4):353-355.
1955. Oviposition behaviour of the jack-pine sawfly, *Neodiprion americanus banksianae Roh*., as indicated by an analysis of egg clusters. *Canadian Entomologist* 87(6):229-238.
1956. Linear increment in width of the head capsule of two species of sawflies. *Canadian Entomologist* 88(1):17-23.
With D. A. Fraser, J. B. Thomas. 1957. Studies of regeneration in forest stands devastated by the spruce budworm. Part l. Evidence of trends in forest succession during the first decade following budworm devastation. *Forest Science* 3(2):184-208.
1958. Studies of Regeneration in Forest Stands Devastated by the Spruce Budworm. Part 2. Age, Height Growth and Related Studies of Balsam Fir Seedlings. *Forest Science* 4(2):135-146.
1958. Studies of the feeding orientation of the jack pine sawfly, *Neodiprion pratti banksianae* Roh. *Canadian Journal of Zoology* 36:175-183.
1958. Mortality of overstory trembling aspen in relation to outbreaks of the forest tent caterpillar and the spruce budworm. *Ecology* 39(2):222-232.
1959. Row-type oviposition in *Neodiprion* sawflies as exemplified by the european pine sawfly, *N. sertifer* (Geoff.). *Canadian Journal of Zoology* 37:267-281.
1960. A study of the group-feeding behaviour of larvae of the jack pine sawfly, *Neodiprion pratti banksianae Roh. Behaviour* 16(1-2):110-148.
With J. B. Thomas. 1960. Regularity in distribution of supernumerary needles on the terminal growth of young jack pine trees. *Forest Science* 6(4):331-333.
1962. On the anatomy of explanation. Part 1. The roles of inductive and deductive reason. *Bios* 33(2):74-81.
1962. On the anatomy of explanation. Part 2. Dependence on process, pattern, and time. *Bios* 33(3):133-144.
1963. On the anatomy of explanation. Part 3. Sequential and hierarchical description. *Bios* 34(1):11-23.
1963. Studies of behaviour of the Tribolium flour beetles. Part 1. Contrasting responses of *T. castaneum* and *T. confusum* to fresh and conditioned flours. *Ecology* 44(2):269-283.
1963. Kendall's “Tau” coefficient as an index of similarity in comparisons of plant or animal communities. *Canadian Entomologist* 95(6):568-575.
1963. A deficit of heresy. *The Biologist* 46(1-2):1-14.
1963. Studies of regeneration in forest stands devastated by the spruce budworm. Part 3. Problems of sampling precision and seedling distribution. *Forest Science* 9(3):295-310.
With Joan L. Larson. 1964. Regularities in the size and orientation of juniper fragments attached to the cases of the bagworm, *Thyridopteryx ephemeraeformis* (Haw). *Canadian Entomologist* 96(8):1097-1106.
With Houser, Alfred. 1964. An experimental gill net based on the principle of the Latin square. *Transactions of the American Fisheries Society* 93(3):233-242.

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1964. On the goals of science. *The Biologist* 47(1-2):1-16.
With B. Grinstead. 1965. A new method of assessing contagion, applied to a distribution of redear sunfish. *Transactions of the American Fisheries Society* 94(2):135-142.
1965. Number triangles yielding the numerators for exact solutions of the Wilcoxon rank sum test. *Canadian Entomologist* 97(7):701-715.
1965. Science, existentialism, and the search for a naturalistic ethic. *Bios* 36(3):103-125.
1966. The logic of experimental design in the biological sciences. *Bioscience* 16(1):17-22.
1966. Studies of behavior of the *Tribolium* flour beetles. II. Distributions in depth in fractionable shell vials. *Ecology* 47(3):355-367.
1966. A model of crossing-over based on alternately-oriented dipoles. *J. Theoret. Biol.* 11:87-111.
1966. Binomial corner-association assessment of contagion: A response to certain criticisms of the method. *Trans. Amer. Fish. Soc.* 95(4):437-441.
1967. On teaching "Population biology"--whatever that may be. *The Biologist*49(1-2):1-11.
1967. Selected problems in biometry. I. Some applications of elementary set theory in biology. *Bios* 38:7-21.
1967. Selected problems in biometry. II. The structure of the binomial distribution. *Bios* 39:115-134.
1967. Selected problems in biometry. III. Chi square as an index of disagreement. *Bios* 38(4):161-179.
With B. P. Hanna. 1968. Application of the "Broken Stick" formula to the prediction of random time intervals. *Amer. Mid. Nat.* 79(2):273-288.
1969. Selected problems in biometry. V. Applying the binomial in a research context. *Bios* 40(4):158-176.
1969. Studies of regeneration in forest stands devastated by the spruce budworm. IV. Problems of stocked-quadrat sampling. *Forest Science* 15(4):417-429.
1970. Principles of experimental design. In: *The study of botany* (P. Adams, J. J. W. Baker, G. E. Allen). Addison-Wesley Pub. Co., Calif.; Chap. 4, pages 41-50.
With B. P. Hanna. 1971. An interval-distribution generator for sequences of elements of two kinds, suited to behavioral and ecological studies. *Amer. Mid. Nat.* 85(1):188-195.
1971. Selected problems in biometry. VI. The Poisson distribution. *Bios* 42(2):78-92.
1971. Theory and applications of exponential formulae in common problems of population growth. *The Biologist* 53(1):1-21.
1971. Theory and applications of several tests of sequential nonrandomness. *The Biologist* 53(4):169-214.
1972. A graphic computation procedure for Kendall's *tau* suited to extensive species-density comparison. *Amer. Mid. Nat.* 87(2):459-47l.
1972. A method for exact testing of 2 x 2, 2 x 3, 3 x 3, and other contingency tables, employing binomial coefficients. *Amer. Mid. Nat.* 88(1):15-27.
1972. Selected problems in biometry. VII. Analyses of contingency tables by chi square. *Bios* 43(3):105-128.
1972. Calculation of equilibrium growth rates in a life-table format. *The Biologist* 54(4):137-139.
1973. Selected problems in biometry. VIII. Some applications of contingency tables in research. *Bios* 44(2):63-85.
1973. Gravity and the distribution of leaf shape in the trees of *Sassafras albidum*. *New Phytologist* 72:1141-1158.

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1973. Theory and application of some nonparametric statistics. I. Exact solutions (extended by number triangles) to the Wilcoxon two-sample and paired-sample tests. *The Biologist* 55(4):149-177.

1974. Theory and application of some nonparametric statistics. II. Normal approximations to the Wilcoxon two-sample and paired-sample tests, and two related tests. *The Biologist* 56(1):1-31.

1974. Theory and application of some nonparametric statistics. III. Spearman's *rho* and the "rankit" substitution as measures of rank-order correlation. *The Biologist* 56(3):130-151.

1976. Theory and application of some nonparametric statistics. IV. Kendall's *tau* as a measure of rank-order correlation. *The Biologist* 58(1):10-29.

1976. Theory and application of some nonparametric statistics. V. *Tau*, *gamma*, and W as measures of rank-order correlation in contingency tables and multiple rankings. *The Biologist* 58(2):41-60.

1976. Lagged differences as a means of strengthening the Moore-Wallis test for a predominant upward or downward trend. *American Midland Naturalist* 96(1):144-159.

With R. Singer and L. Johnson-Singer. 1978. Depth distributions determined with SCUBA, and associated studies of the freshwater unionid clams *Elliptio complanata* and *Anodonta grandis* in Lake Bernard, Ontario. *Canadian Journal of Zoology* 56(8):1654-1663.

1978. Computational shortcuts for the hypergeometric distribution: the appropriate generator where territoriality is suspected. *The Biologist* 60(4):113-122.

1979. Some considerations governing the selection of appropriate statistical procedures. I. Questions of numerical scale and research interest. *The Biologist* 61(2):59-73.

1981. Some considerations governing the selection of appropriate statistical procedures. II. Research involving nominal-scale data. *The Biologist* 63(2):48-68.

1981. Some consideration governing the selection of appropriate statistical procedures. III. Research involving ordinal-scale data. *The Biologist* 63:109-137.

1983. *Tau* as an index of similarity in community comparisons: an approach permitting the hypothesis of unequal species abundance. *Canadian Journal of Zoology* 61:687-690.

1984. *Gamma* as a paired statistic for replicate ordered samples in biology. *American Midland Naturalist* 112:192-195.

1984. Examination of five *tau* variants suited to ordered contingency tables, from the viewpoint of biological research. *American Midland Naturalist* 112:332-348.

With Waldbauer, G. P. 1985. Flower associations and mating behavior or its absence at blossoms by Spilomyia spp. (Diptera, Syrphidae). *Great Lakes Entomologist* 17(l):13-16

With Lorenzana, R. , V. R. Beasley, W. B. Buck, G. R. Lundeen, and R. H. Poppenga. 1985. Experimental T-2 Toxicosis in Swine. I. Changes in Cardiac Output, Aortic Mean Pressure, Catecholamines, 6-Keto-PGF Thromboxane B, and Acid-Base Parameters. *Fundamental and Applied Toxicology* 5:879-892.

With Lorenzana, R., V. R. Beasley, W. B. Buck. 1985. Experimental T-2 Toxicosis in Swine. II. Effect of Intravascular T-2 Toxin on Serum Enzymes and Biochemistry, Blood Coagulation, and Hematology. *Fundamental and Applied Toxicology* 5:893-90l.

With S. E. Franson. 1986. Changes in mortality and size-class spatial distribution patterns in pre-closure and post-closure conifer plantations. *Forest Science* 32(3):559-75.

With Kettler, M. K. and G. S. Whitt. 1986. Comparison of phylogenies based on structural and gene-expressional differences of enzymes in a family of teleost fishes (Salmoniformes: Umbridae). *Molecular Biology and Evolution* 3(6):485-498.

1987. *Tau* as an index of similarity in community comparisons: the opposite null orientations of contingency and correlation tests. *American Midland Naturalist* 117(1):22l-2.

With Stencel, J. 1988. Analyses of annual population counts of white and gray squirrels (S*ciurus carolensis*) in Olney, IL, 1976-1985. *American Midland Naturalist* 118(2):251-7.

With Waldbauer, G. P. , and J. G. Sternberg. 1988. Lakes Michigan and Huron limit gene flow between the subspecies of the butterfly *Limenitis arthemis*. *Can. J. Zool.*, 66:1790-1795.

With Godshalk, C. P. , and R. R. Badertscher II, M. K. Rippy. 1988. Quantitative ultrasonic assessment of liver size in the dog. *Veterinary Radiology* 29(4):162-167.

With N. Zucker. 1990. A readily interpreted index ofdispersion based on nearest-neighbor analyses. *American Midland Naturalist* 124:184-187.

1991. Insights into diversity and niche breadth analyses from exact small-sample tests of the equal abundance hypothesis. *American Midland Naturalist* 126(2):213-255.

With Friedman, S., G. P. Waldbauer, J. E. Eertmoed, Mohammed Maeem. 1991. Blood trehalose levels have a role in the control of dietary self-selection by *Heliothis zea* larvae. *J. Insect Physiol* 37:919-928.

With Echeverri, A.C., H. W. Gonyou. 1992. Preparturient behavior of confined ewes: time budgets, frequencies, spatial distribution and sequential analysis. *Applied Animal Behaviour Science* 34:329-344.

With R. E. Warner and P. C. Mankin. 1992. Accurate counts for Moran's joins tests in ecological studies. *American Midland Naturalist* 128:366-376.

With J. H. Zar. 1992. Runs of two kinds of elements on a circle: a redevelopment, with corrections from the perspective of biological research. *American Midland Naturalist* 128:377-396.

1993. An exact test and normal approximation for centrifugal and centripetal patterns in line and belt transects in ecological studies. *American Midland Naturalist* 130:338-355.

With Moore, A. S., H. W. Gonyou. 1993. Integration of newly introduced and resident sows following grouping. Applied Animal Behaviour Science 38:257-267.

1995. A possible mode of induction of pinnateness in Honey Locust as implied by consistent gradients of 1-, mixed-, and 2-pinnate leaves. *American Midland Naturalist* 133:213-228.

and S. G. Mochel. 1996. Testing tree-ring crossdatings and other correlated time series by means of first- and second-difference turn tests. *American Midland Naturalist* 135:317-333.

1997. A variant of the hypergeometric distribution for large or territorial organisms. *American Midland Naturalist* 137:195-205.