

PUBLICATIONS OF DR. ARNOLD H. SPARROW

1940-1978

1. SPARROW, A. H. AND REED, S. C. (1940). The "extra-bristle" complex in *Drosophila melanogaster* and its reaction with scute. *J. Genet.* 39, 411-435.
2. HINTON, T. AND SPARROW, A. H. (1941). The non-random occurrence of terminal adhesion in salivary chromosomes of *Drosophila*. *Genetics* 26, 155-156.
3. SPARROW, A. H. AND WILSON, G. B. (1941) Relational coiling in the chromosome spiralization cycle of *Trillium erectum* L. and *T. grandiflorum* Salisb. *Genetics* 26, 169-170.
4. SPARROW, A. H., HUSKINS, C. L. AND WILSON, G. B. (1941). Studies on the chromosome spiralization cycle in *Trillium*. *Can. J. Res. C* 19, 323-350.
5. SPARROW, A. H. (1942). Spiralization in microspore chromosomes of *Trillium*. *Genetics* 27, 169-70 (Abstr.).
6. SPARROW, A. H., RUTTLE, M. L. AND NEBEL, B. R. (1942). Sterility differences between auto-and allo-tetraploid *Antirrhinum*. *Genetics* 27, 1979. (Abstr.).
7. WILSON, G. B. AND SPARROW, A. H. (1942). Partial fusion of untreated root tip chromosomes of *Trillium erectum* L. *Genetics* 27, 175, (Abstr.).
8. SPARROW, A. H. (1942). The structure and development of the chromosome spirals in microspores of *Trillium*. *Can. J. Res. C* 20, 257-266.
9. SPARROW, A. H. (1942). Colchicine induced univalents in diploid *Antirrhinum majus* L. *Science* 96, 363-364.
10. SPARROW, A. H. (1942). Non-random uncoiling in heterobrachial chromosomes. *Proc. Nat. Acad. Sci.* 28, 463-466.
11. SPARROW, A. H., RUTTLE, M. L. AND NEBEL, B. A. (1942). Comparative cytology of sterile intra- and fertile inter-varietal tetraploids of *Antirrhinum majus* L. *Am. J. Bot.* 29, 711-715.
12. SPARROW, A. H. (1943). X-ray sensitivity of meiotic and microspore chromosomes of *Trillium*. *Rec. Genet. Soc. Am.* 12, 54-55.
13. SPARROW, A. H. (1945). X-ray sensitivity changes in meiotic chromosomes and the nucleic acid cycle. *Proc. Nat. Acad. Sci.* 30, 147-155.
14. SPARROW, A. H. (1945). Reduced chromonema elongation and abnormal spiralization following X-ray treatment of meiotic chromosomes. *Genetics* 30, 23, (Abstr.).
15. SCATCHARD, G., STRONG, L. E., HUGHES, JR. W. L., ASHWORTH, J. N. AND SPARROW, A. H. (1945). Chemical, clinical and immunological studies on the products of human plasma fractionation. XXVI. The properties of solutions of human serum albumin of low salt content. *J. Clin. In Invest.* 24, 671-679.
16. SPARROW, A. H. AND ROSENFIELD, F. M. (1946). X-ray-induced depolymerization of thymonucleohistone and of sodium thymonucleate. *Science* 104, 245-246.
17. SPARROW, A. H. (1947). Changes in sensitivity of chromosomes to X-ray breakage during microsporogenesis. *Genetics* 32, 106. (Abstr.).
18. SPARROW, A. H. AND HAMMOND, M. R. (1947). Desoxyribonucleic-acid-containing bodies in the cytoplasm of pollen mother cells at early meiotic prophase. *Genetics* 32, 107, (Abstr.).
19. SPARROW, A. H. AND HAMMOND, M. R. (1947). Cytological evidence for the transfer of desoxyribose nucleic acid from nucleus to cytoplasm in certain plant cells. *Am. J. Bot.* 34, 439-445.
20. SPARROW, A. H. (1947). Differential rejoining as a factor in apparent sensitivity of chromosomes to X-ray breakage. *Am. J. Bot.* 34, 589, (Abstr.).
21. SPARROW, A. H. AND SPARROW, R. C. (1949). Treatment of *Trillium erectum* prior to and during mass production of permanent smear preparations. *Stain Technol.* 24, 47-55.
22. SPARROW, A. H. (1948). Relative X-ray sensitivity of metaphase and interphase chromosomes. *Nature* 162, 651.

23. SPARROW, A. H. (1948). Some factors affecting sensitivity of chromosomes to X-ray breakage and subsequent recombination. *Proc. Int. Congr. Genet. 8th, 1948.* Suppl. vol. to *Hereditas 668*, (Abstr.).
24. SPARROW, A. H. (1951). Radiation sensitivity of cells during mitotic and meiotic cycles with emphasis on possible cytochemical changes. *Ann. N. Y. Acad. Sci. 51*, 1508-1540.
25. NOVICK, A. AND SPARROW, A. H. (1949). The effects of nitrogen mustard on mitosis in onion root tips. *J. Hered.* 40, 13-17.
26. SPARROW, A. H. AND MALDAWER, M. (1950). Differential rejoicing as a factor in apparent sensitivity of chromosomes to x-ray breakage. *Proc. Nat. Acad. Sci. 36*, 636-643.
27. SPARROW, A. H. (1950). Tolerance of *Tradescantia* to continuous exposures to gamma radiation from cobalt<sup>60</sup>. *Genetics 35*, 135, (Abstr.).
28. SPARROW, A. H. AND SPARROW, R. C. (1950). The frequency of spontaneous chromosome breakage in *Trillium*. *Genetics 35*, 135-136, (Abstr.).
29. SPARROW, A. H. AND CHRISTENSEN, E. (1950). Non-random distribution of chromosome fragmentation in unirradiated *Trillium*. *Genetics 35*, 135, (Abstr.).
30. SPARROW, A. H. AND CHRISTENSEN, E. (1948). Increased seed germination following x-ray treatment of potato tubers. AECU-484 (Abstr.).
31. SPARROW, A. H., MOSES, M. J. AND STEELE, R. (1950). Sensitivity of chromosomes to breakage by x-rays and its relationship to the nucleic acid cycle in dividing cells. *Cancer Res. 10*, 241-242, (Abstr.).
32. MOSES, M. J., STEELE, R. AND SPARROW, A. H. (1950). Quantitative determination of nucleic acids during meiosis in *Trillium*. *J. Nat. Cancer Inst. 10*, 134, (Abstr.).
33. SPARROW, A. H. (1950). A cytological and cytochemical approach to an understanding of radiation damage in dividing cells. *Proc. Int. Congr. Radiol. 6th, London*, p. 47 (1950), (Abstr.).
34. SPARROW, A. H. (1950). Consideration of the relationship between chromosome breakage and mitotic inhibition induced by ionizing radiation. *Proc. Intern. Cancer Congr., Paris*, p. 132, (Abstr.).
35. SPARROW, R. C. AND SPARROW, A. H. (1950). Spontaneous chromosome fragmentation in *Trillium erectum* L. *Am. Naturalist 84*, 477-488.
36. SPARROW, A. H. AND POND, V. (1950). Supernumerary chromosomes in diploid and triploid *Trillium erectum* L. *Genetics 35*, 694 (Abstr.).
37. SPARROW, A. H. AND CHRISTENSEN, E. (1950). Effects of x-ray, neutron, and chronic gamma irradiation on growth and yield of potatoes. *Am. J. Bot. 37*, 667, Abstr.).
38. MOSES, M. J., DUBOW, R. AND SPARROW, A. H. (1951). The effects of x-rays on desoxypentose nucleic acid *in situ*. Quantitative cytochemical studies on *Trillium*. *J. Nat. Cancer Inst. 12*, 232-233, (Abstr.).
39. SPARROW, A. H. AND RUBIN, B. A. (1952). Effects of radiations on biological systems. *Survey of Biological Progress*, Academic Press, New York. Vol. II, pp. 227-292.
40. SPARROW, A. H., MOSES, M. J. AND STEELE, R. (1952). A cytological and cytochemical approach to an understanding of radiation damage in dividing cells. *Br. J. Radiol. 25*, 182-188.
41. SPARROW, A. H. (1951). Nuclear disturbances caused by ionizing radiations. Presented at Conf. on Chemistry and Physiology of the Nucleus, Brookhaven National Laboratory (Abstrs.).
42. SPARROW, A. H. POND, V. AND SPARROW, R. C. (1952). Distribution and behavior of supernumerary chromosomes during microsporogenesis in a population of *Trillium erectum* L. *Am. Nat. 86*, 277-292.
43. SPARROW, A. H. (1951). Some cytological and morphological changes induced in plants by ionizing radiation. *Science 114*, 448, (Abstr.).
44. SPARROW, A. H., MOSES, M. J. AND DUBOW, R. J. (1952). Relationships between ionizing radiation, chromosome breakage and certain other nuclear disturbances. *Exp. Cell Res. 2*, 245-267.
45. SPARROW, A. H. AND SINGLETON, W. (1953). The use of radiocobalt as a source of gamma rays and some effects of chronic irradiation on growing plants. *Am. Nat. 87*, 29-48.
46. GUNCKEL, J. E., SPARROW, A. H., MORROW, I. B. AND CHRISTENSEN, E. (1953). Vegetative and floral morphology of irradiated and non-irradiated plants of *Tradescantia paludosa*. *Am. J. Bot. 40*, 317-332.
47. SPARROW, A. H., DENEGRE, M. AND HANEY, W. J. (1952). Somatic mutations in *Antirrhinum* produced by chronic gamma irradiation. *Genetics 37*, 627-628, (Abstr.).

48. GUNCKEL, J. E., MORROW, I. B., SPARROW, A. H. AND CHRISTENSEN, E. (1953). Variations in the floral morphology of normal and irradiated plants of *Tradescantia paludosa*. *Bull. Torrey Bot. Club* 80, 445-456.
49. SPARROW, A. H. AND SPARROW, R. C. (1954). The formation of polyploid microspores in *Trillium erectum* following x-ray treatment at first meiotic metaphase. *Radiat. Res.* 1, 229, (Abstr.).
50. SPARROW, A. H. (1954). Somatic mutations induced in plants by treatment with X and  $\gamma$  radiation. *Caryologia, Suppl. Pt. 2, 6*, 1105-1106, (Abstr.).
51. SPARROW, A. H. AND FORRO, JR. F. (1953). Cellular radiobiology. *Ann. Rev. Nucl. Sci.* 3, 339-368.
52. SPARROW, A. H. AND CHRISTENSEN, E. (1953). Tolerance of certain higher plants to chronic exposure to gamma radiation from Cobalt-60. *Science* 118, 697-698.
53. GUNCKEL, J. E. AND SPARROW, A. H. (1954). Aberrant growth in plants induced by ionizing radiation. *Brookhaven Symp. Biol.* 6, 252-279.
54. MOSES, M. J., AGNEW, AND SPARROW, A. H. (1953). The relationship between desoxypentose nucleic acid (DNA) content and ploidy in the tomato. *J. Histochem. Cytochem.* 1, 383-384, (Abstr.).
55. SPARROW, A. H. (1954). Charles Leonard Huskins: 1897-1953. *Science* 119, 306-307.
56. SPARROW, A. H. AND GUNCKEL, J. E. (1954). Tumor formation in hybrid *Nicotiana glauca* x *langsiorffii* exposed to chronic gamma irradiation from Cobalt 60. *Int. Congr. Bot. 8th*, Paris, (Abstr.).
57. SPARROW, A. H. (1954). *General Cytology*, 2nd ed. E. D. P. De Robertis, W. W. Nowinski and Francisco A. Saez. W. B. Saunders Co., Phila. and London. \$7.75 xiv + 456 pp.; ill. Book review.
58. SPARROW, A. H., KOJAN, S. AND POND, V. (1954). Growth of excised anthers from *Trillium erectum* in various sterile culture media. *Int. Congr. Bot. 8th*, Paris, (Abstr.).
59. SPARROW, A. H. (1954). Stimulation and inhibition of plant growth by ionizing radiation. *Radiat. Res.* 6, 562, (Abstr.).
60. JAROWSKA, S., NIGRELLI, R. F. AND SPARROW, A. H. (1954). Local cell responses to induced skin infection in *Triturus viridescens* after whole-body irradiations. *Radiat. Res.* 1, 569, (Abstr.).
61. BOWEN, C. C. AND SPARROW, A. H. (1954). Radiosensitivity of several meiotic stages of *Lilium*. *Rec. Genet. Soc. Am.* 23, 33, (Abstr.).
62. SPARROW, A. H., POND, V. AND KOJAN, S. (1955). Microsporogenesis in excised anthers of *Trillium erectum* grown on sterile media. *Am. J. Bot.* 42, 384-394.
63. SPARROW, A. H. AND SCHAIRER, L. A. (1954). Tumor formation in *Nicotiana* hybrids exposed to chronic gamma radiation. *Am. Soc. Plant Physiol.* 29 th Ann. Mtg., Gainesville, Fla. p. 10 (Abstr.).
64. SAND, S. A., SMITH, H. H. AND SPARROW, A. H. (1954). Stimulation by chronic gamma irradiation of the spontaneous rates of heritable somatic instabilities in a clone of *Nicotiana*. *Rec. Genet. Soc. Am.* 23, 64-65, (Abstr.).
65. SPARROW, A. H. AND CHRISTENSEN, E. Improved storage quality of potato tubers after exposure to  $\text{Co}^{60}$  gammas. *Nucleonics* 12, 16-17.
66. DESCHNER, E. AND SPARROW, A. H. (1955). Chromosome rejoining capacity with respect to breakage sensitivity to x-rays and thermal neutrons. *Genetics* 40, 460-475.
67. SPARROW, A. H. (1953). *Basic mechanisms in radiobiology. II. Physical and chemical aspects*. Edited by J. L. Magee, M. D. Kamen and R. L. Platzman. NAS/NRC Publ. 305, Washin. D. C. 145 pages. Book review.
68. DALLYN, S. L., SAWYER, R. L. AND STARROW, A. H. (1955). Extending onion storage life by gamma irradiation. *Nucleonics* 13, 48-49.
69. SPARROW, A. H., GUNCKEL, J. E., SCHAIRER, L. A. AND HAGEN, G. (1955). Radiation-induced tumors in an amphidiploid tobacco hybrid. *Radiat. Res.* 3, 349-350, (Abstr.).
70. SPARROW, A. H. (1955). A survey of the radiosensitivity of some higher plants. *Radiat. Res.* 3, 349, (Abstr.).
71. SPARROW, A. H. AND GUNCKEL, J. E. (1956). The effects on plants of chronic exposure to gamma radiation from radiocobalt. *Proc. Int. Conf. Peaceful Uses At. Energy* 12, 52-59.
72. SPARROW, A. H., GUNCKEL, J. E., SCHAIRER, L. A. AND HAGEN, G. L. (1956). Tumor formation and other morphogenetic responses in an amphidiploid tobacco hybrid exposed to chronic gamma irradiation. *Am. J. Bot.* 43, 377-388.

73. FASSULIOTIS, G. AND SPARROW, A. H. (1955). Preliminay report of x-ray studies on the Golden Nematode. *Plant Disease Reporter* 39, 572.
74. SINGLETON, W. R., KONZAK, C. F., SHAPIRO, S. AND SPARROW, A. H. (1956). The contribution of radiation genetics to crop improvement. *Proc. Int. Conf. Peaceful Uses At. Energy* 12, 25-30.
75. SPARROW, A. H. (1956). Discussion of A. D. Conger's paper — Radiation effects on ascites tumor chromosomes. *Ann. N. Y. Acad. Sci.* 63, 936-937.
76. SPARROW, A. H. AND GUNCKEL, J. E. (1956). Inductions of tumours by ionising radiation on stems, leaves and roots of an inter-specific *Nicotiana* hybrid. In: J. S. Mitchel, B. E. Holmes and C. L. Smith, Eds. *Progress in Radiobiology*, pp. 485-488.
77. SPARROW, A. H. AND SCHAIRER, L. (1955). Effect of x rays, gamma rays, fast electrons and fast neutrons on inhibition of growth and sprouting in potatoes. In *Conference on Biological, Physical and Industrial Aspects of Potato Irradiation*, Upton, N. Y. pp. 7-12. W
78. KUHL, O. A., SPARROW, A. H. AND MANOWITZ, B. (1955). Portable pilot plant for irradiating potatoes. *Nucleonics* 13, 128-129.
79. SPARROW, A. H. AND POND, V. (1956). The relationship between dose rate and somatic mutation in *Antirrhinum majus* exposed to chronic gamma-irradiation. *Radiat. Res.* 5, 596, (Abstr.).
80. SPARROW, A. H. AND POND, V. (1956). Some cytogenetic and morphogenetic effects of ionizing radiation on plants. *Proc. Conf. Radioactive Isotopes Agr.* U. S. Govt. Printing Office, Wash., D. C. pp. 125-130. TID-7512.
81. SPARROW, A. H. (1956). A new method of potato sprout inhibition by exposure to irradiation. *Am. Potato Yearbook* 17-18
82. SPARROW, A. H. (1957) Symposium on the effects of ionizing radiation on plants. Introductory remarks. *Quart. Rev. Biol.* 32, 1-2.
83. SPARROW, A. H. (1958). Cytological changes induced by ionizing radiations and their possible relation to the production of useful mutations in plants. *Work Conf. on Radiation Induced Mutations*, Brookhaven National Laboratory, Ppton, N. Y. pp. 76-113.
84. SPARROW, A. H., STEIN, O. AND SCHAIRER, L. (1957). Abnormal proliferations in plant tissue produced by ionizing radiation. *Abstracts Natl. Biophysical Conference*, p. 67.
85. SPARROW, A. H. AND KONZAK, C. F. (1958). The use of ionizing radiation in plant breeding: Accomplishments and prospects. In, *Camellia Culture*, E. C. Tourje (Ed.), MacMillan Co. pp. 425-452.
86. SPARROW, A. H., CUANY, R. L. AND POND, V. (1958). Genetic response of *Antirrhinum majus* to acute and chronic plant irradiation. In: H. Stubbe, Ed. *Antirrhinum-Forschungsberichte*. No. 2, Berlin, Akademia Verlag, p. 18-19.
87. CUANY, R. L., SPARROW, A. H. AND POND, V. (1957). Genetic response of *Antirrhinum majus* to acute and chronic plant irradiation. *Genetics* 42, 366, (Abstr.).
88. SPARROW, A. H., POND, V. AND SPARROW, R. (1957). Evidence for time of occurrence of the tertiary split in meiotic chromosomes of *Trillium erectum*. *Genetics* 42, 397-398, (Abstr.).
89. SMOCK, R. M. AND SPARROW, A. H. (1957). A study of the effect of gamme radiation on apples. *Proc. Am. Soc. Hort. Sci.* 70, 67-69.
90. MEISELMAN, N., GUNCKEL, J. E. AND SPARROW, A. H. (1961). The general morphology and growth responses of two species of *Nicotiana* and ther interspecific hybrid after chronic gamma irradiation. *Radiat. Bot.* 1, 69-79.
91. MEISELMAN, N., SPARROW, A. H. AND GUNCKEL, J. E. (1961). The radiosensitivity of two species of *Nicotiana* and of their interspecific hybrid. *Bull. Torrey Bot. Club* 88, 30-38.
92. CUANY, R. L., SPARROW, A. H. AND POND, V. (1958). Genetic response of *Antirrhinum majus* to acute and chronic plant irradiation. *Z. Indukt. Abstamm Vererbungs.* 89, 7-13.
93. JAROWSKA, S., NIGRELLI, R. F. AND SPARROW, A. H. (1958). Radiobiology of the newt, *Diemictylus viridescens*. Hematological effects of whole-hody x irradiation. *Zoologica* 43, 155-160.
94. STEIN, O. L., SPARROW, A. H. AND SCHAIRER, L. A. (1959). Leaf tumors induced in *Graptophyllum paraguayense* by gamma radiation. *Cancer Res.* 19, 746-748.
95. SPARROW, A. H. AND SCHAIRER, L. A. (1958). Some factors influencing radioresistance and tumor induction in plants. *Proc. Int. Conf. Peaceful Uses At. Energy*, 2nd. 27, 335-340.

96. WILSON, G. B., SPARROW, A. H. AND POND, V. (1958). Radiation-induced sub-chromatid breakages and rejoining during meiosis of *Trillium erectum* L. *Proc. Int. Congr. Genet.*, 10th, Montreal 2, 317-318, (Abstr.).
97. CUANY, R. L., SPARROW, A. H. AND JAHN, A. H. (1958). Spontaneous and radiation-induced somatic mutation rates in *Antirrhinum*, Petunia, *Tradescantia* and *Lilium*. *Proc. Int. Congr. Genet.* 10th, Montreal, 2, 62-63, (Abstr.).
98. SPARROW, A. H. AND SCHAIRER, L. A. (1958). The radioresistance of high polyploids. *Radiat. Res.* 9, 187, (Abstr.).
99. WILSON, G. B., SPARROW, A. H. AND POND, V. (1959). Sub-chromatid rearrangements in *Trillium erectum*. I. Origin and nature of configuration induced by ionizing radiation. *Am. J. Bot.* 46, 309-316.
100. SPARROW, A. H., BINNINGTON, J. P. AND POND, V. (1958). Bibliography on the effects of ionizing radiations on plants. *Brookhaven National Laboratory*, Upton, N. Y. BNL 504 (L-103) 222 pp.
101. GUNCKEL, J. E. AND SPARROW, A. H. (1961). Ionizing radiations: Biochemical, physiological and morphological aspects of their effects on plants. In *Encyclopedia of Plant Physiology* vol. 16, pp. 555-611, (Review).
102. WILSON, G. B. AND SPARROW, A. H. (1960). Configurations resulting from iso-chromatid and iso-subchromatid unions after meiotic and mitotic prophase irradiation. *Chromosoma* 11, 229-244.
103. SPARROW, A. H., SPARROW, R. C. AND POND, V. (1961). Sterile culture of excised anthers of *Trillium erectum*. *Proc. Int. Bot. Congr.* 9th, Montreal 2, 373, 1959. Also *Recent advances in Botany*, Univ. of Toronto Press, Toronto, pp. 718-821, (Abstr.).
104. SPARROW, A. H. AND SCHAIRER, L. A. (1959). The role of certain chemical and physical factors in tumor formation in several plant genera. *Proc. Int. Bot. Congr.* 9th, Montreal 2, 373, (Abstr.).
105. WIMBER, D. E. AND SPARROW, A. H. (1959). Cytogenetic consequences of incorporated tritium-labeled thymidine in *Tradescantia*. *Radiat. Res.* 11, 478, (Abstr.).
106. SPARROW, A. H. (1960). Uses of large sources of ionizing radiation in botanical research and some possible practical applications. Pages 195-219 in *Large radiation sources in industry*, vol. 2, IAEA, Vienna.
107. SPARROW, A. H. AND CUANY, R. L. (1959). Radiation-induced somatic mutations in plants. *Proc. Conf. Radioactive Isotopes Agr.*, Oklahoma State Univ., 1959. USAEC TID-7578, pp. 153-156.
108. SAND, S. A., SPARROW, A. H. AND SMITH, H. H. (1960). Chronic gamma irradiation effects on the mutable V and stable R loci in a clone of *Nicotiana*. *Genetics* 45, 289-308.
109. SPARROW, A. H., SPARROW, R. C. AND SCHAIRER, L. A. (1960). The use of x rays to induce somatic mutations in *Saintpaulia*. *African Violet Mag.* 13, 32-37.
110. SPARROW, A. H. AND MIKSCHE, J. P. (1960). The relationship between chromosomeal, nuclear, or cellular size and the radiosensitivity of different plant taxa. *Radiat. Res.* 12, 474, (Abstr.).
111. SPARROW, A. H., CUANY, R. L., MIKSCHE, J. P. AND SCHAIRER, L. A. (1961). Some factors affecting the responses of plants to acute and chronic radiation exposures. Pages 289-320 in *Effects of ionizing radiations on seeds*. IAEA, Vienna.
112. SPARROW, A. H. (1961). Comments with respect to advances in the fundamental aspects of plant and seed radiobiology. Pages 643-646 in *Effects of ionizing radiations on seeds*. IAEA, Vienna.
113. ALSTON, R. E. AND SPARROW, A. H. (1952). Somatic mutation rates in double and triple heterozygotes of *Impatiens balsamina* following chronic gamma irradiation. *Radiat. Bot.* 1, 229-232.
114. SPARROW, A. H. (1961). Types of ionizing radiation and their cytogenetic effects. Pages 55-112 in *Mutation and Plant Breeding*. NAS-NRC 891.
115. SPARROW, A. H. AND WILSON, G. B. (1960). Some cytogenetic implications of meiotic prophase irradiation. Abstracts of contributions to the workshop at *Symp. on Mutation and Plant Breeding*, Cornell Univ., Ithaca, N. Y.
116. HAOEN, G. L., GUNCKEL, J. E. AND SPARROW, A. H. (1961). Morphology and histology of tumor types induced by X, gamma and beta irradiation of a tobacco hybrid. *Am. J. Bot.* 48, 691-699.
117. SPARROW, A. H. AND MIKSCHE, J. P. (1961). Correlation of nuclear volume and DNA content with higher plant tolerance to chronic radiation. *Science* 134, 282-283.

118. SPARROW, A. H. AND EVANS, H. J. (1961). Nuclear factors affecting radiosensitivity. I. The influence of nuclear size and structure, chromosome complement, and DNA content. *Brookhaven Symp. Biol.* 14, 76-100.
119. EVANS, H. J. AND SPARROW, A. H. (1961). Nuclear factors affecting radiosensitivity. II. Dependence on nuclear and chromosome structure and organization. *Brookhaven Symp. Biol.* 14, 101-127.
120. SPARROW, A. H., MIKSCHE, J. P. AND EVANS, H. J. (1961). Nuclear variables as a basis for determining or predicting radiosensitivity. *Radiat. Res.* 14, 153, (Abstr.).
121. MIKSCHE, J. P., SPARROW, A. H. AND ROGERS, A. P. (1961). Effects of chronic gamma irradiation on the apical meristems of *Pinus strobus* and *Taxus media*. *Am. J. Bot.* 48, 529, (Abstr.).
122. SPARROW, A. H., SCHAIRER, L. A. AND MIKSCHE, J. P. (1961). Tolerance of vegetation to chronic exposures of ionizing radiation. *Bull. Ecol. Soc. Am.* 42, 95, (Abstr.).
123. SPARROW, A. H. AND WOODWELL, G. M. (1962). Prediction of the sensitivity of plants to chronic gamma irradiation. *Radiat. Bot.* 2, 9-26.
124. JAKOWSKA, S., NIGRELLI, R. F. AND SPARROW, A. H. (1961). Effects of chronic gamma irradiation on adult newts, *Dicmictylus viridescens*. *Am. Zoologist* 1, 361-362, (Abstr.).
125. SHIELDS, L. M., DURRELL, L. W. AND SPARROW, A. H. (1961). Preliminary observations on radiosensitivity of algae and fungi from soils of the Nevada test site. *Ecology* 42, 440-441.
126. JAKOWSKA, S., NIGRELLI, R. F. AND SPARROW, A. H. (1962). Additional radiobiological studies on normal and anemic newts, *Dicmictylus viridescens*. *Am. Zoologist* 1, 454-455. (Abstr.).
127. SHAVER, D. L. AND SPARROW, A. H. (1962). The relationship between nuclear or chromosome volume and rate of radiation-induced somatic mutation in higher plants. *Genetics* 47, 984. (Abstr.).
128. SPARROW, A. H. (1962). Predictions of radiosensitivities of plant species. Int. Congr. Radiat. Res., 2nd, Harrogate, England. *Abstracts of Papers*, p. 178.
129. SPARROW, A. H., SCHAIRER, L. A., SPARROW, R. C. AND CAMPBELL, W. F. (1963). The radiosensitivity of gymnosperms. I. The effect of dormancy on the response of *Pinus strobus* seedlings to acute gamma irradiation. *Radiat. Bot.* 3, 169-173.
130. SPARROW, A. H. AND SCHAIRER, L. A. (1962). Plant radiosensitivities and potential damage from fallout radiation. *Radiat. Res.* 16, 584, (Abstr.).
131. SPARROW, A. H. (1962). The role of the cell nucleus in determining radiosensitivity. *Brookhaven Lecture Series* 17, BNL-766 (T-287). Brookhaven Natl. Lab., Upton, N. Y. p. 29.
132. SHAVER, D. L. AND SPARROW, A. H. (1962). The relationship between nuclear or chromosome volume and rate of radiation-induced somatic mutation in higher plants. *Genetics* 47, 984, (Abstr.).
133. MERICLE, L. W., MERICLE, R. P. AND SPARROW, A. H. (1962). Cumulative radiation damage in oak trees. *Radiat. Bot.* 2, 265-271.
134. MIKSCHE, J. P., SPARROW, A. H. AND ROGERS, A. F. (1962). The effects of chronic gamma irradiation on the apical meristem and bud formation of *Taxus media*. *Radiat. Bot.* 2, 125-129.
135. SPARROW, A. H., SCHAIRER, L. A. AND SPARROW, R. C. (1963). Relationship between nuclear volumes, chromosome numbers, and relative radiosensitivities. *Science* 141, 163-166.
136. STEIN, O. I. AND SPARROW, A. H. (1963). Effects of chronic gamma irradiation on the growth of *Kalanchoe* cv. "Brilliant Star". *Radiat. Bot.* 3, 207-222.
137. SPARROW, A. H. (1961). *Mechanisms in Radiobiology*. Errera M. and A. Forssberg (Eds.), Vols. 1 and 2, Academic Press, N. Y. Book review.
138. SPARROW, A. H. (1963). A survey of radiosensitivities of plant species and a method of predicting radiosensitivity. *Health Phys.* 9, 876, (Abstr.).
139. SPARROW, A. H. (1963). Radiosensitivity, comparative, of organisms. Page 907 in *Encycl. of X-rays and gamma Rays*, G. L. Clark (Ed.), Reinhold Publishing Corp., N. Y.
140. SPARROW, A. H., SCHAIRER, L. A. AND SPARROW, R. C. (1963). A relationship between estimated interphase chromosome volumes and relative radiosensitivities. *Genetics* 48, 911-912, (Abstr.).
141. VAN'T HOF, J. AND SPARROW, A. H. The effect of chronic gamma irradiation on

- cell proliferation and growth inhibition in root meristems of *Pisum*. *Radiat. Res.* 19, 187, (Abstr.).
142. VAN'T HOF, J. AND SPARROW, A. H. (1963). The influence of mitotic cycle duration on chromosome damage and cell survival in chronically irradiated *Pisum* root meristems. Page 90 in *Genetics Today*, Proc. Int. Congr. Genet., 11th, The Hague, The Netherlands.
  143. VAN'T HOF, J. AND SPARROW, A. H. (1963). A relationship between DNA content, nuclear volume, and minimum mitotic cycle time. *Proc. Nat. Acad. Sci.* 49, 897-902.
  144. VAN'T HOF, J. AND SPARROW, A. H. (1963). The effect of mitotic cycle duration on chromosome breakage in meristematic cells of *Pisum sativum*. *Proc. Nat. Acad. Sci.* 50, 855-860.
  145. WOODWELL, G. M. AND SPARROW, A. H. (1963). Effects of ionizing radiation on major ecosystems. *Bull. Ecol. Soc. Am.* 44, 82, (Abstr.).
  146. DONNELLY, G. M. AND SPARROW, A. H. (1963). Karotype and revised chromosome number of *Amphiuma*. *Nature* 199, 1207-1208.
  147. VAN'T HOF, J. AND SPARROW, A. H. (1963). Growth inhibition, mitotic cycle time and cell number in chronically irradiated root meristems of *Pisum*. *Radiat. Bot.* 3, 239-247.
  148. DONNELLY, G. M. AND SPARROW, A. H. (1963). The somatic and meiotic chromosomes of *Amphiuma*. *Genetics* 48, 887, (Abstr.).
  149. WOODWELL, G. M. AND SPARROW, A. H. (1963). Predicted and observed effects of chronic gamma radiation on a near-climax forest ecosystem. *Radiat. Bot.* 3, 231-237.
  150. WOODWELL, G. M. AND SPARROW, A. H. (1963). Effects of ionizing radiation on ecological systems. Pages 20-38 in *Ecological effects of nuclear war*. G. M. Woodwell (Ed.), BNL 917 (C-43) Brookhaven National Laboratory, Upton, N. Y.
  151. SPARROW, A. H. (1963). The tolerance of plants to ionizing radiation: variations, modifications and predictions. Based on a talk presented at the *Second Annual Conference, The Congress of Scientists on Survival*, held in New York City, 14-16 June. (To be published in "Thermonuclear War: Some Effects on People and Nature" — T. Stonier, Ed., Blaisdell, N. Y.).
  152. DAVIES, D. R., SPARROW, A. H., WOODLEY, R. G. AND MASCHKE, A. (1963). Relative biological efficiency of negative  $\mu$ -mesons and cobalt  $\gamma$ -rays. *Nature* 200, 277-278.
  153. POSNER, H. B. AND SPARROW, A. H. (1964). Survival of *Chlorella* and *Chlamydomonas* after acute and chronic gamma radiation. *Radiat. Bot.* 4, 253-257.
  154. SPARROW, A. H. (1964). Panel on biophysical considerations in neutron experimentation. Pages 397-404 in *Biological Effects of Neutron & Proton Irradiations, II.*, IAEA, Vienna.
  155. SPARROW, A. H. (1964). Variations in the sensitivity of plant taxa to ionizing radiation. *Int. Botan. Congr., 10th*, Abstr. of Papers, p. 319.
  156. SPARROW, A. H., SCHAIRER, L. A. AND WOODWELL, G. M. (1965). Tolerance of *Pinus rigida* trees to a ten-year exposure to chronic gamma irradiation from cobalt-60. *Radiat. Bot.* 5, 7-22.
  157. SPARROW, A. H., SPARROW, R. C., THOMPSON, K. H. AND SCHAIRER, L. A. (1965). The use of nuclear and chromosomal variables in determining and predicting radiosensitivities. Pages 101-132 in *Proc. Use of Induced Mutations in Plant Breeding*. *Radiat. Bot. Suppl.* 5, 101-132.
  158. DONNELLY, G. M. AND SPARROW, A. H. (1965). Mitotic and meiotic chromosomes of *Amphiuma*. *J. Heredity*, 56, 91-98.
  159. SPARROW, A. H. (1965). Relationship between chromosome volume and radiation sensitivity in plant cells. Pages 199-218 in *Cellular Radiation Biology*, William & Wilkins, Baltimore, Md.
  160. SPARROW, A. H. (1965). Comparisons of the tolerances of higher plant species to acute and chronic exposures of ionizing radiation. *Japan J. Genet.* 40 (Suppl.), 12-37.
  161. SPARROW, A. H. AND VAN'T HOF, J. (1964). Studies on the kinetics and radiosensitivity of meristems. *Rad. Res. Soc. Ann. Mtg*, 12th (not published-private distribution only).
  162. SPARROW, R. C. AND SPARROW, A. H. (1965). Relative radiosensitivities of woody and herbaceous spermatophytes. *Science* 147, 1449-1451.
  163. SPARROW, A. H. (1966). Plant growth stimulation by ionizing radiation. Pages 12-15. in *Effects of low doses of ionizing radiation on crop plants*. IAEA Tech. Rept. Ser 64.
  164. MILLER, M. W., SPARROW, A. H. AND ROGERS, A. F. (1965). The radiosensitivity of gemmae of *Marchantia polymorpha* L. to acute gamma irradiation. *Bryologist* 68, 31-47.

165. MILLER, M. W. AND SPARROW, A. H. (1964). Relationship between nuclear volume and radiosensitivity of different cell types in gemmae of *Marchantia polymorpha* L. *Nature* 204, 596-597.
166. YAMAKAWA, K. AND SPARROW, A. H. (1965). Correlation of interphase chromosome volume and reduction of viable seed set by chronic irradiation in 21 plant species. *Radiat. Res.* 25, 253, (Abstr.).
167. MILLER, M. W. AND SPARROW, A. H. (1965). Radiosensitivity and cell survival studies on the gemmae of *Marchantia polymorpha* L. acutely exposed to  $\text{Co}^{60}$  gamma rays. *Radiat. Res.* 25, 219, (Abstr.).
168. SPARROW, A. H., SPARROW, R. C., SCHAIRER, L. A. AND POND, V. (1965). Evidence that genetic redundancy does not have a radioprotective effect in polyploids of higher plants. *Radiat. Res.* 25, 243, (Abstr.).
169. MILLER, M. W. AND SPARROW, A. H. (1965). Differential radiosensitivity of cell types in gemmae and thalli of *Marchantia*. *A.I.B.S. Ann. Mtg.*, Urbana, Illinois, Aug. 15-22, (Abstr.).
170. MILLER, M. W. AND SPARROW, A. H. (1966). The radiosensitivity of *Marchantia* thalli as related to nuclear and interphase chromosome volumes. Pages 53-57 in *Mechanism of mutation and inducing factors*, Zdenek Landa (Ed.), Academia, Prague.
171. ALVAREZ, M. R. AND SPARROW, A. H. (1965). Comparison of reproductive integrity in the stamen hair and root meristem of *Tradescantia paludosa* following acute gamma irradiation. *Radiat. Bot.* 5, 423-430.
172. MILLER, M. W. AND SPARROW, A. H. (1965). The radiosensitivity of talli of *Marchantia polymorpha* L. to acute gamma irradiation. *Radiat. Bot.* 5, 567-680.
173. VAN'T HOF, J. AND SPARROW, A. H. (1966). Radiation effects on the growth rate and cell population kinetics of actively growing and dormant roots of *Tradescantia paludosa*. *J. Cell. Biol.* 26, 187-199.
174. YAMAKAWA, K. AND SPARROW, A. H. (1965). Correlation of interphase chromosome volume and reduction of viable seed set by chronic irradiation of 21 cultivated plants during reproductive stages. *Radiat. Bot.* 5, 557-566.
175. YAMAKAWA, K. AND SPARROW, A. H. (1966). The correlation of interphase chromosome volume with pollen abortion induced by chronic gamma irradiation. *Radiat. Bot.* 6, 21-38.
176. YAMAKAWA, K. AND SPARROW, A. H. (1966). Correlation of interphase chromosome volume with pollen abortion induced by chronic gamma irradiation. *Radiat. Res.* 27, 494-495, (Abstr.).
177. STEIN, O. L. AND SPARROW, A. H. (1966). The effect of acute irradiation in air,  $\text{N}_2$  and  $\text{CO}_2$  on the growth of the shoot apex and internodes of *Kalanchoe* cv "Brilliant Star". *Radiat. Bot.* 6, 187-201.
178. ALVAREZ, M. R. AND SPARROW, A. H. (1966). Relationship between root growth, meristem cell population, and interphase chromosome volume following acute gamma irradiation. *Radiat. Res.* 27, 495, (Abstr.).
179. NAYAR, G. C. AND SPARROW, A. H. (1966). Induced somatic mutations and the loss of reproductive integrity in *Tradescantia* stamen hairs. *Radiat. Res.* 27, 494, (Abstr.).
180. SPARROW, A. H. (1966). Variation in the radiation sensitivity of chromosomes associated with their size and DNA content. *Int. Congr. Radiat. Res. 3rd, Cortina*, Italy, Page 208 in *Book of Abstracts*.
181. SPARROW, A. H., ICHIKAWA, S. AND SCHWEMMER, S. S. (1966). Radiobiological studies of haploid, diploid and polyploid plants. *Int. Congr. Radiat. Res. 3rd, Cortina*, Italy, Page 208 in *Book of Abstracts*.
182. SPARROW, A. H. (1966). Some recent advances in cellular radiobiology. North Dakota State Univ. Res. Conf. (Abstr. of talk - never published—distributed at talk).
183. SPARROW, A. H., UNDERBRINK, A. G. AND SPARROW, R. C. (1966). Classification of genetic systems by means of "chromosomal" and radiobiological parameters. *Genetics* 54, 365, (Abstr.).
184. ICHIKAWA, S. AND SPARROW, A. H. (1966). Polyploidy and radiosensitivity in the genus *Rumex*. *Genetics* 54, 341, (Abstr.).
185. SPARROW, A. H. (1966). Research uses of the gamma field and related radiation facilities at Brookhaven National Laboratory. *Radiat. Bot.* 6, 377-405.
186. BAETCKE, K. P., SPARROW, A. H. AND NAUMAN, C. H. (1966). The relationship of DNA content to nuclear volume and radiosensitivity. *J. Cell Biol.* 31, 7A, (Abstr.).

187. UNDERBRINK, A. G., SPARROW, A. H. AND SPARROW, R. C. (1966). Some phylogenetic relationships between nucleotide content and chromosome volume. *J. Cell Biol.* 31, 119A, (Abstr.).
188. ICHIKAWA, S. AND SPARROW, A. H. (1967). Nuclear and interphase chromosome volumes of four *Triticum* species and of eight species from related genera. *Wheat Inf. Service* 23-24, 18-20.
189. SPARROW, A. H., UNDERBRINK, A. G. AND SPARROW, R. C. (1967). Chromosomes and cellular radiosensitivity. I. The relationship of  $D_0$  to chromosome volume and complexity in seventy-nine different organisms. *Radiat. Res.* 32, 915-945.
190. DONINI, B., SPARROW, A. H., SCHAIRER, L. A. AND SPARROW, R. C. (1967) The relative biological efficiency of gamma rays and fission neutrons in plant species with different nuclear and chromosome volumes. *Radiat. Res.* 32, 692-705.
191. DONINI, B., SPARROW, A. H., SCHAIRER, L. A. AND SPARROW, R. C. (1967). The relative biological efficiency of gamma rays and fission neutrons in plant species with different nuclear and chromosome volumes. *Radiat. Res.* 31, 637, (Abstr.).
192. UNDERBRINK, A. G., SPARROW, A. H. SCHWEMMER, S. S. AND NAUMAN, C. H. (1967). Relationships of various chromosomal parameters to the radiosensitive target at  $D_{50}$  in 79 diverse organisms. *Radiat. Res.* 31, 636, (Abstr.).
193. SPARROW, A. H. AND ICHIKAWA, S. (1967). Comparison of radiation-induced loss of reproductive integrity in the stamen hairs of a polyploid series in *Tradescantia*. *Radiat. Res.* 31, 636, (Abstr.).
194. BAETCKE, K., SPARROW, A. H. SHAVER, D. L. AND POND, V. (1967). The relationship of mutation rate and  $LD_{50}$  to each other and to DNA content per chromosome and interphase chromosome volume. *Radiat. Res.* 31, 635-636, (Abstr.).
195. UNDERBRINK, A. G. AND SPARROW, A. H. (1968). The fine structure of the alga *Brachiomonas submarina*. *Bot. Gaz.* 129, 259-266.
196. UNDERBRINK, A. G., SPARROW, A. H., ROGERS, A. F. AND POND, V. (1967). Observations on the cytology and fine structure of mitosis in the fern, *Ophioglossum petiolatum* Hook. *Cytologia* 32, 489-499.
197. UNDERBRINK, A. G., TING, Y. C. AND SPARROW, A. H. (1967). Note on the occurrence of a synaptinemal complex at meiotic prophase in *Zea mays* L. *Can. J. Genet. Cytol.* 9, 606-609.
198. UNDERBRINK, A. G., SPARROW, A. H. AND POND, V. (1968). Chromosomes and cellular radiosensitivity. II. Use of interrelationships among chromosome volume, nucleotide content and  $D_0$  of 120 diverse organisms in predicting radiosensitivity. *Radiat. Bot.* 8, 205-238.
199. ICHIKAWA, S. AND SPARROW, A. H. (1967). Radiation-induced loss of reproductive integrity in the stamen hairs of *Tradescantia blossfeldiana* Mildbr., a twelve-ploid species. *Radiat. Bot.* 7, 333-345.
200. ICHIKAWA, S. AND SPARROW, A. H. (1967). Radiation-induced loss of reproductive integrity in the stamen hairs of a polyploid series of *Tradescantia* species. *Radiat. Bot.* 7, 429-441.
201. BAETCKE, K. P., SPARROW, A. H., NAUMAN, C. H. AND SCHWEMMER, S. S. (1967). The relationship of DNA content to nuclear and chromosome volumes and to radiosensitivity ( $LD_{50}$ ). *Proc. Nat. Acad. Sci.* 58, 553-540.
202. NAYAR, G. C. AND SPARROW, A. H. (1967). Radiation-induced somatic mutations and the loss of reproductive integrity in *Tradescantia* stamen hairs. *Radiat. Bot.* 7, 257-267.
203. ICHIKAWA, S. AND SPARROW, A. H. —1968). The use of induced somatic mutations to study cell division rates in irradiated stamen hairs of *Tradescantia virginiana* L. *Japan. J. Genet.* 43, 57-63.
204. SPARROW, A. H., FURUYA, M. AND SCHWEMMER, S. S. (1968). Effects of X-and gamma radiation on anthocyanin content in leaves of *Rumex* and other plant genera. *Radiat. Bot.* 8, 7-16.
205. SPARROW, A. H., BAETCKE, K. P., SHAVER, D. L. AND POND, V. (1968). The relationship of mutation rate per roentgen to DNA content per chromosome and to interphase chromosome volume. *Genetics* 59, 65-78.
206. UNDERBRINK, A. G. AND SPARROW, A. H. (1968). Chromosomes and cellular radiosensitivity. III. Note on the inability to demonstrate a correlation between nucleic acid base ratios and radiation response at  $D_0$  in several diverse organisms. *Radiat. Res.* 35, 311-317.

187. UNDERBRINK, A. G., SPARROW, A. H. AND SPARROW, R. C. (1966). Some phylogenetic relationships between nucleotide content and chromosome volume. *J. Cell Biol.* 31, 119A, (Abstr.).
188. ICHIKAWA, S. AND SPARROW, A. H. (1967). Nuclear and interphase chromosome volumes of four *Triticum* species and of eight species from related genera. *Wheat Inf. Service* 23-24, 18-20.
189. SPARROW, A. H., UNDERBRINK, A. G. AND SPARROW, R. C. (1967). Chromosomes and cellular radiosensitivity. I. The relationship of  $D_0$  to chromosome volume and complexity in seventy-nine different organisms. *Radiat. Res.* 32, 915-945.
190. DONINI, B., SPARROW, A. H., SCHAIRER, L. A. AND SPARROW, R. C. (1967) The relative biological efficiency of gamma rays and fission neutrons in plant species with different nuclear and chromosome volumes. *Radiat. Res.* 32, 692-705.
191. DONINI, B., SPARROW, A. H., SCHAIRER, L. A. AND SPARROW, R. C. (1967). The relative biological efficiency of gamma rays and fission neutrons in plant species with different nuclear and chromosome volumes. *Radiat. Res.* 31, 637, (Abstr.).
192. UNDERBRINK, A. G., SPARROW, A. H. SCHWEMMER, S. S. AND NAUMAN, C. H. (1967). Relationships of various chromosomal parameters to the radiosensitive target at  $D_{50}$  in 79 diverse organisms. *Radiat. Res.* 31, 636, (Abstr.).
193. SPARROW, A. H. AND ICHIKAWA, S. (1967). Comparison of radiation-induced loss of reproductive integrity in the stamen hairs of a polyploid series in *Tradescantia*. *Radiat. Res.* 31, 636, (Abstr.).
194. BAETCKE, K., SPARROW, A. H. SHAVER, D. L. AND POND, V. (1967). The relationship of mutation rate and  $LD_{50}$  to each other and to DNA content per chromosome and interphase chromosome volume. *Radiat. Res.* 31, 635-636, (Abstr.).
195. UNDERBRINK, A. G. AND SPARROW, A. H. (1968). The fine structure of the alga *Brachiomonas submarina*. *Bot. Gaz.* 129, 259-266.
196. UNDERBRINK, A. G., SPARROW, A. H., ROGERS, A. F. AND POND, V. (1967). Observations on the cytology and fine structure of mitosis in the fern, *Ophioglossum petiolatum* Hook. *Cytologia* 32, 489-499.
197. UNDERBRINK, A. G., TING, Y. C. AND SPARROW, A. H. (1967). Note on the occurrence of a synaptinemal complex at meiotic prophase in *Zea mays* L. *Can. J. Genet. Cytol.* 9, 606-609.
198. UNDERBRINK, A. G., SPARROW, A. H. AND POND, V. (1968). Chromosomes and cellular radiosensitivity. II. Use of interrelationships among chromosome volume, nucleotide content and  $D_0$  of 120 diverse organisms in predicting radiosensitivity. *Radiat. Bot.* 8, 205-238.
199. ICHIKAWA, S. AND SPARROW, A. H. (1967). Radiation-induced loss of reproductive integrity in the stamen hairs of *Tradescantia blossfeldiana* Mildbr., a twelve-ploid species. *Radiat. Bot.* 7, 333-345.
200. ICHIKAWA, S. AND SPARROW, A. H. (1967). Radiation-induced loss of reproductive integrity in the stamen hairs of a polyploid series of *Tradescantia* species. *Radiat. Bot.* 7, 429-441. .
201. BAETCKE, K. P., SPARROW, A. H., NAUMAN, C. H. AND SCHWEMMER, S. S. (1967). The relationship of DNA content to nuclear and chromosome volumes and to radiosensitivity ( $LD_{50}$ ). *Proc. Nat. Acad. Sci.* 58, 553-540.
202. NAYAR, G. C. AND SPARROW, A. H. (1967). Radiation-induced somatic mutations and the loss of reproductive integrity in *Tradescantia* stamen hairs. *Radiat. Bot.* 7, 257-267.
203. ICHIKAWA, S. AND SPARROW, A. H. —1968). The use of induced somatic mutations to study cell division rates in irradiated stamen hairs of *Tradescantia virginiana* L. *Japan. J. Genet.* 43, 57-63.
204. SPARROW, A. H., FURUYA, M. AND SCHWEMMER, S. S. (1968). Effects of X-and gamma radiation on anthocyanin content in leaves of *Rumex* and other plant genera. *Radiat. Bot.* 8, 7-16.
205. SPARROW, A. H., BAETCKE, K. P., SHAVER, D. L. AND POND, V. (1968). The relationship of mutation rate per roentgen to DNA content per chromosome and to interphase chromosome volume. *Genetics* 59, 65-78
206. UNDERBRINK, A. G. AND SPARROW, A. H. (1968). Chromosomes and cellular radiosensitivity. III. Note on the inability to demonstrate a correlation between nucleic acid base ratios and radiation response at  $D_0$  in several diverse organisms. *Radiat. Res.* 35, 311-317.

207. UNDERBRINK, A. G. AND SPARROW, A. H. (1968). Chromosomes and cellular radiosensitivity: considerations of nucleic acid base ratios and fine structural damage. *Radiat. Res.* 35, 531, (Abstr.).
208. DONNELLY, G. M., SPARROW, A. H., NAUMAN, C. T. AND BAKER, D. G. (1968). Radiosensitivity of selected amphibians. *Radiat. Res.* 35, 574, (Abstr.).
209. BAETCKE, K. P., SPARROW, A. H. AND NAUMAN, C. H. (1968). Correlations between nuclear parameters and radiosensitivities of woody and herbaceous plants. *Radiat. Res.* 35, 526-527, (Abstr.).
210. SPARROW, A. H., SCHAIRER, L. A. AND MARIMUTHU, K. M. (1968). Radiobiological studies of *Tradescantia* plants orbited in Biosatellite II. *Radiat. Res.* 35, 502, (Abstr.).
211. SPARROW, A. H., ROGERS, A. F. AND SCHWEMMER, S. S. (1968). Acute gamma radiosensitivity of 28 woody-plant species. *Radiat. Res.* 35, 574, (Abstr.).
212. SPARROW, A. H., ROGERS, A. F. AND SCHWEMMER, S. S. (1968). Radiosensitivity studies with woody plants -- I. Acute gamma irradiation survival data for 28 species and predictions for 190 species. *Radiat. Bot.* 8, 149-186.
213. ICHIKAWA, S. AND SPARROW, A. H. (1968). Radiation-induced loss of reproductive integrity, morphologically abnormal cells, and somatic mutations in *Tradescantia* stamen hairs. *Proc. Int. Congr. Genet. 12th, Tokyo, 1*, 108 (Abstr.).
214. SPARROW, A. H., SCHAIRER, L. A. AND MARIMUTHU, K. M. (1968). Genetic and cytologic studies of *Tradescantia* irradiated during orbital flight. *BioScience* 18, 582-590.
215. SPARROW, A. H., SCHAIRER, L. A. AND MARIMUTHU, K. M. (1968). Genetic and cytological studies of *Tradescantia* irradiated during orbital flight. *Japan J. Genet.* 43, 470-471.
216. SPARROW, A. H., UNDERBRINK, A. G. AND BAETCKE, K. P. (1968). Chromosome volume, nucleic acid content and phylogeny. *Proc. Int. Congr. Genet. 12th, Tokyo, 1*, 327, (Abstr.).
217. BANKES, D. A. AND SPARROW, A. H. (1969). Effect of acute gamma irradiation on the incidence of tumor-like structures and adventitious roots in lettuce plants. *Radiat. Bot.* 9, 21-26.
218. UNDERBRINK, A. G., SPARROW, A. H. AND OWENS, R. A. (1969). The fine structure of the alga *Brachiomonas submarina* Bohlin after X-and  $\gamma$ -irradiation. *Radiat. Bot.* 9, 241-250.
219. SPARROW, A. H. AND PUGLIELLI, L. (1969). Effects of simulated radioactive fallout decay on growth and yield of cabbage, maize, peas and radish. *Radiat. Bot.* 9, 77-92.
220. ICHIKAWA, S. AND SPARROW, A. H. (1969). Analyses of radiation-induced loss of reproductive integrity in *Tradescantia* stamen hairs, an essentially single-meristematic-cell system. *Japan J. Genet.* 44, 23-24.
221. ICHIKAWA, S., SPARROW, A. H. AND THOMPSON, K. H. (1969). Morphologically abnormal cells, somatic mutations and loss of reproductive integrity in irradiated *Tradescantia* stamen hairs. *Radiat. Bot.* 9, 195-211.
222. BANKES, D. A., SPARROW, A. H. AND POPHAM, R. A. (1969). Some effects of localized internode and entire shoot x-irradiation on survival and morphology of sunflower plants. *Radiat. Res.* 39, 498, (Abstr.).
223. UNDERBRINK, A. G., SPARROW, R. C., SPARROW, A. H. AND ROSSI, H. H. (1969). Preliminary report on monoenergetic neutron experiments with *Tradescantia*. *Radiat. Res.* 39, 463, (Abstr.).
224. HOLM, G. AND SPARROW, A. H. (1969). An improved method of predicting cellular radiosensitivity ( $D_0$ ) from chromosome volume. *Radiat. Res.* 39, 494, (Abstr.).
225. SPARROW, A. H. (1969). Effects of radiation on field, fruit and vegetable crops. *Health Physics Soc. Ann. Mtg., Pittsburgh, Pa.* (Abstr.).
226. SCHAIRER, L. A., SPARROW, A. H. AND MARIMUTHU, K. M. (1970). Radiobiological studies of plants orbited en Biosatellite II. Pages 19-24 in *Life Sciences and Space Research VIII*, G. F. Favorite and W. Vishniac, 9ds., North Holland Publ. Co., Amsterdam.
227. SPARROW, A. H., SCHAIRER, L. A. AND MARIMUTHU, K. M. (1969). Radiobiological studies of *Tradescantia* plants orbited in Biosatellite II. *COSPAR Meeting*.
228. MARIMUTHU, K. M., SPARROW, A. H. AND SCHAIRER, L. A. (1969). The effects of space flight factors radiation, vibration and clinostat on mortality and nuclear division in *Tradescantia* microspores. *Int. Bot. Mtg., Seattle, Wash.*, (Abstr.).
229. BOSTRACK, J. M. AND SPARROW, A. H. (1969). Effects of chronic gamma irradiation on the anatomy of vegetative tissues of *Pinus rigida* mill. *Radiat. Bot.* 9, 367-374.

230. CONGER, A. D., THOMPSON, K. AND SPARROW, A. H. (1969). Survival curve steepness for higher plants and animals. *Radiat. Res.* 39, 527-528, (Abstr.).
231. SPARROW, A. H., SCHAIRER, L. A., UNDERBRINK, A. G. AND SPARROW, R. C. (1970). The use of flower color genes as somatic markers in various plant species. *Somatic Cell Genetics 8th Conf.* Chatham, Caped Cod, Mass., 1969. (Abstr.). *Mammalian Chromosomes Newslett.* 11, 74-75.
232. BOSTRACK, J. M. AND SPARROW, A. H. (1970). The radiosensitivity of gymnosperms. II. On the nature of radiation injury and cause of death of *Pinus rigida* and *P. strobus* after chronic gamma irradiation. *Radiat. Bot.* 10, 131-143.
233. BOSTRACK, J. M. AND SPARROW, A. H. (1970). Radiation injury and cause of death of *Pinus rigida* and *P. strobus* after chronic gamma irradiation. *Radiat. Res.* 43, 226-227, (Abstr.).
234. MARIMUTHU, K. M., SPARROW, A. H. AND SCHAIRER, L. A. (1970). The cytological effects of space flight factors, vibration, clinostat and radiation on root tip cells of *Tradescantia*. *Radiat. Res.* 42, 105-119.
235. SPARROW, A. H., NAUMAN, C. H., DONNELLY, G. M., WILLIS, D. L. AND BAKER, D. G. (1970). Radiosensitivities of selected amphibians in relation to their nuclear and chromosome volumes. *Radiat. Res.* 42, 353-371.
236. SPARROW, A. H., BOTTINO, P. J. AND SCHAIRER, L. A. (1969). The use of higher plant test systems for chemical mutagenesis. Pages 757-585 in *Mutagenicity of Pesticides*. Rept. of the Sec'y's. Comm. on Pesticides and their relationship to environmental health, Parts I and II, U. S. Dept. Health, Education and Welfare.
237. SPARROW, A. H., FLOYD, B. AND BOTTINO, P. P. (1970). Effects of simulated radioactive fallout buildup and decay on survival and yield of lettuce, maize, radish, squash and tomato. *Radiat. Bot.* 10, 445-455.
238. SPARROW, A. H., SCHWEMMER, S. S., KLUG, E. E. AND PUGLIELLI, L. (1970). Radio-sensitivity studies with woody plants. II. Survival data for 13 species irradiated chronically for up to 8 years. *Radiat. Res.* 44, 154-177.
239. UNDERBRINK, A. G., SPARROW, R. C. SPARROW, A. H. AND ROSSI, H. H. (1970). RBE values of x-rays, 0.43-MeV and 80-keV neutron on somatic mutations and loss of reproductive integrity in *Tradescantia* stamen hairs. *Radiat. Res.* 43, 246, (Abstr.).
240. SPARROW, A. H. AND SCHWEMMER, S. S. (1970). The effect of postirradiation temperature on survival times in herbaceous plants exposed to gamma radiation. *Radiat. Res.* 43, 227, (Abstr.).
241. BOTTINO, P. J. AND SPARROW, A. H. (1970). Comparison of the effects of simulated fallout decay and constant exposure rate treatments on the survival and yield of agricultural crops. *Int. Congr. Radiat. Res.* 4th, Envian France. *Book of Abstracts*, p. 30. (Abstr.).
242. UNDERBRINK, A. G., SPARROW, A. H. AND ROSSI, H. H. (1970). RBEs of x rays, 0.43-meV and 80 keV neutrons on somatic mutations and loss of reproductive integrity in *Tradescantia* stamen hairs. *Int. Congr. Radiat. Res.* 4th, Envian, France. *Book of Abstracts*, p. 205.
243. SPARROW, A. H., SCHWEMMER, S. S. AND KLUG, E. E. (1970). Long-term survival of 13 species of woody plants under chronic <sup>60</sup>Co gamma irradiation. *Int. Congr. Radiat. Res.* 4th, Envian, France. *Book of Abstracts*, p. 205.
244. SPARROW, R. C., UNDERBRINK, A. G. AND THOMPSON, K. H. (1970). Relation between cell number, mutant or aberrant events per hair and loss of reproductive integrity in irradiated *Tradescantia* stamen hairs. *Int. Congr. Radiat. Res.* 4th, Evian, France. *Book of Abstracts*, p. 205.
245. MARIMUTHU, K. M., SCHAIRER, L. A. AND SPARROW, A. H. —(1970). The effects of space flight factors and gamma radiation on flower production and microspore division and development in *Tradescantia*. *Radiat. Bot.* 10, 249-259.
246. SPARROW, A. H. (1970). Report to the Radiation Research Society by its seventeenth president. *Radiat. Res.* 42, 195-199.
247. SPARROW, A. H., SCHWEMMER, S. A., KLUG, E. E. AND PUGLIELLI, L. (1970). Woody plants: changes in survival in response to long-term (8 years) chronic gamma irradiation. *Science* 169, 1082-1084.
248. SPARROW, A. H., SCHAIRER, L. A. AND MARIMUTHU, K. M. (1971). Radiobiologic studies of *Tradescantia* plants orbited in Biosatellite II. Pages 99-122 in *The Experiment of Biosatellite II*, J. F. Saunders, Ed. NASA SP-204, Supt. of Documents, U.S. Govt. Printing Office, Wash., D. C. 20402.

249. UNDERBRINK, A. G., SPARROW, R. C., SPARROW, A. H. AND ROSSI, H. H. (1970). Relative biological effectiveness of x-rays and 0.43-MeV monoenergetic neutrons on somatic mutations and loss of reproductive integrity in *Tradescantia* stamen hairs. *Radiat. Res.* 44, 187-203.
250. MARIMUTHU, K. M., SCHAIRER, L. A., SPARROW, A. H. NAWROCKY, M. M. (1972). Effects of space flight (Biosatellite II) and radiation on female gametophyte development in *Tradescantia*. *J. Bot.* 59, 359-366.
251. BANKS, D. A., POPHAM, R. A. AND SPARROW, A. H. (1970). Effects of internode x-irradiation on anatomy of sunflower. *Ohio Acad. Sci. Mtgs.*, Wittenburg Univ., Springfield, Ohio.
252. BOTTINO, P. J. AND SPARROW, A. H. (1970). Effects of simulated fallout gamma radiation exposures on survival and yield of crop plants. *Ann. Mtg. of The Agronomy Soc. of Am.*, Tucson, Arizona.
253. SPARROW, A. H., SCHAIRER, L. A. AND MARIMUTHU, K. M. (1973). *Tradescantia* experiment in Biosatellite II. Pages 675-687 in *Advances in Radiation Research, Biology and Medicine*, Vol. 2, J. F. Duplan and A. Chapiro (Eds.), Gordon and Breach, N. Y.
254. BOTTINO, P. J. AND SPARROW, A. H. (1971). The effects of exposure time and rate on the survival and yield of lettuce, barley, and wheat. *Radiat. Bot.* 11, 147-156.
255. SPARROW, A. H., SCHWEMMER, S. S. AND BOTTINO, P. J. (1971). The effects of external gamma radiation from radioactive fallout on plants with special reference to crop production. *Radiat. Bot.* 11, 85-118.
256. UNDERBRINK, A. G., SPARROW, R. C., SPARROW, A. H. AND ROSSI, H. H. (1971). Relative biological effectiveness of 0.43-MeV and lower energy neutrons on somatic aberrations and hair-length in *Tradescantia* stamen hairs. *Int. J. Radiat. Biol.* 19, 215-228.
257. UNDERBRINK, A. G. AND SPARROW, A. H. (1971). Power relations as an expression of relative biological effectiveness (RBE) in *Tradescantia* stamen hairs. *Radiat. Res.* 46, 580-587.
258. SPARROW, A. H. (1970). Report of Committee on Vulnerability of Crops to Fallout Gamma Irradiation. Convened as part of the "Symposium on Survival of Food Crops and Livestock in the Event of Nuclear War", Brookhaven Nat'l. Lab.
259. SPARROW, A. H. AND SCHAIRER, L. A. (1972). Biological effects of ambient and on-board radiation on *Tradescantia* during prolonged free flight. National Symp. on Natural and Manmade Radiation in Space, Las Vegas, Nev. March 1971. *Abstr. of Symp. Papers*, p. 74. Also, *Proc. Natl. Symp. Natural & Manmade Radiation in Space*, E. A. Warman, Ed., p. 981, NASA, Wash., D. C.
260. BOTTINO, P. J. AND SPARROW, A. H. (1971). Sensitivity of lime bean (*Phaseolus limensis* Macf.) to  $^{60}\text{Co}$  gamma radiation given at three reproductive stages. *Crop Sci.* 11, 436-437.
261. UNDERBRINK, A. G., SPARROW, R. C. AND SPARROW, A. H. (1971). Relations between phenotypic aberrations and loss of reproductive integrity in *Tradescantia* stamen hairs. *Radiat. Bot.* 11, 473-481.
262. SPARROW, A. H., SCHAIRER, L. A. AND UNDERBRINK, A. G. (1971). Somatic mutation rates in *Tradescantia* induced by low levels of ionizing radiations. *Environ. Mutagen Soc. 2nd. Ann. Mtg.*, Wash., D. C. *Program & Abstracts*, pp. 18-19, (Abstr.).
263. UNDERBRINK, A. G., SPARROW, R. C., SPARROW, A. H. AND ROSSI, H. H. (1971). Dose-response curves for somatic aberrations in *Tradescantia* stamen hairs at very low doses of 0.43-MeV neutrons and x rays. *Radiat. Res.* 47, 274, (Abstr.).
264. BOTTINO, P. J. AND SPARROW, A. H. (1971). Comparison of the effects of simulated fallout decay and constant exposure rate gamma treatments on the survival and yield of wheat and oats. *Radiat. Res.* 47, 271, (Abstr.).
265. SPARROW, A. H., SCHAIRER, L. A., NAWROCKY, M. M. AND SAUTKULIS, R. G. (1971). Effects of low temperature and low level chronic gamma radiation on somatic mutation rates in *Tradescantia*. *Radiat. Res.* 47, 273-274, (Abstr.).
266. BOTTINO, P. J. AND SPARROW, A. H. (1971). Comparison of the effects of simulated fallout decay and constant exposure-rate gamma-ray treatments on the survival and yield of wheat and oats. *Radiat. Bot.* 11, 405-410.
267. ICHIKAWA, S., SPARROW, A. H., FRANKTON, C., NAUMAN, A. F., SMITH, E. B. AND POND, V. (1971). Chromosome number, volume and nuclear volume relationships in a polyploid series (2X-20X) of the genus *Rumex*. *Can. J. Genet. Cytol.* 13, 842-863.

268. SPARROW, A. H., PRICE, H. J. AND UNDERBRINK, A. G. (1972). A survey of DNA content per cell and per chromosome of prokaryotic and eukaryotic organisms: some evolutionary considerations. *Brookhaven Symp. Biol.* 23, 451-494. Gordon & Breach, N. Y.
269. PRICE, H. J., SPARROW, A. H. AND UNDERBRINK, A. G. (1971). DNA contents per cell and per chromosome in prokaryotic and eucaryotic organisms: evolutionary considerations. *Genetics*, 68, s52-s53, (Abstr.).
270. COGGINS, L. W. AND SPARROW, A. H. (1971). DNA content during development of normal and irradiated *Tradescantia* stamen hair nuclei. *Am. Soc. Cell Biol., 11th Ann. Mtg. Abstract of Paper*, p. 57 (Abstr.).
271. SPARROW, A. H. AND SCHAIRER, L. A. (1971). Mutational response in *Tradescantia* after accidental exposure to a chemical mutagen. *Environ. Mutagen Newslett.* 5, 16-19.
272. KAPPAS, A., SPARROW, A. H. AND NAWROCKY, M. M. (1972). Relative biological effectiveness (RBE) of 0.43-MeV neutrons and 260-kVp x-rays for somatic aberrations in *Tradescantia subacaulis* Bush. *Radiat. Bot.* 12, 271-281.
273. SPARROW, A. H., UNDERBRINK, A. G. AND ROSSI, H. H. (1972). Mutations induced in *Tradescantia* by small doses of x-rays and neutrons: analysis of dose-response curves. *Science* 176, 916-918.
274. PRICE, H. J., SPARROW, A. H. AND NAUMAN, A. F. (1973). Evolutionary and developmental considerations of the variability of nuclear parameters in higher plants. I. Genome volume, interphase chromosome volume, and estimated DNA content of 236 gymnosperms. *Brookhaven Symp. Biol.* 25, 390-421.
275. PRICE, H. J., LEVIS, R. W., COGGINS, L. W. AND SPARROW, A. H. (1972). High DNA content of *Sprekelia formosissima* Herbert (Amaryllidaceae) and *Ophioglossum petiolatum* Hook. (Ophioglossaceae). *Exp. Cell Res.* 73, 187-191.
276. SPARROW, A. H., SCHAIRER, L. A. AND BOTTINO, P. J. (1971). Plants. Pages 13-27 in *The Mutagenicity of Pesticides, Concepts and Evaluation*, Samuel S. Epstein and Marvin S. Legator, Eds. The MIT Press, Cambridge, Mass.
277. BOTTINO, P. J. AND SPARROW, A. H. (1972). Nonlinear response of survival and yield of wheat to variation in exposure time. *Radiat. Res.* 51, 533, (Abstr.).
278. UNDERBRINK, A. G., SPARROW, A. H., POND, V., TAKAHASHI, C. S. AND KAPPAS, A. (1972). Radiation-induced pollen abortion in several commelinaceous taxa: its relation to chromosomal parameters. *Radiat. Bot.* 13, 215-227.
279. SPARROW, A. H. AND UNDERBRINK, A. G. (1972). RBE studies using the *Tradescantia* stamen hair test system. Page 169 in *Radiobiological applications of neutron irradiation*. Proc. of a panel, Vienna 1971, IAEA, Vienna, (Abstr.).
280. PRICE, H. J., SPARROW, A. H. AND NAUMAN, A. F. (1973). Correlations between nuclear volume, cell volume and DNA content in meristematic cells of herbaceous angiosperms. *Experientia* 29, 1028-1029.
281. UNDERBRINK, A. G., SCHAIRER, L. A. AND SPARROW, A. H. (1973). *Tradescantia* stamen hairs: a radiobiological test system applicable to chemical mutagenesis. Pages 171-207 in *Chemical Mutagens: Principles and methods for their detection*, A. Hollaender, ed., Vol. 3. Plenum Press New York-London.
282. BOTTINO, P. J. AND SPARROW, A. H. (1973). The influence of seasonal variation on survival and yield of lettuce irradiated with constant rate, fallout decay or buildup and fallout decay simulation treatments. *Radiat. Bot.* 13, 27-36.
283. UNDERBRINK, A. G., SCHAIRER, L. A. AND SPARROW, A. H. (1973). The biophysical properties of 3.9-GeV nitrogen ions. V. Determination of the relative biological effectiveness for somatic mutations in *Tradescantia*. *Radiat. Res.* 55, 437-446.
284. BOTTINO, P. J. AND SPARROW, A. H. (1972). Non-linear response of survival to variation in exposure time in wheat. *Int. J. Radiat. Biol.* 22, 411-416.
285. SPARROW, A. H., SCHWEMMER, S. S. AND BOTTINO, P. J. (1973). Influence of dose, environmental conditions and nuclear volume on survival times in several gamma-irradiated plant species. *Int. J. Radiat. Biol.* 24, 377-388.
286. SPARROW, A. H. (1972). Coauthor as member of *Ad Hoc Committee of the Environmental Mutagen Society and the Institute for Medical Research*. *Toxicol. Applied Pharmacol.* 22, 269-275.
287. SPARROW, A. H. AND HOWARD, A. (1973). Radiosensitivity of germinating fern spores: a new radiotaxon. *Radiat. Res.* 55, 552, (Abstr.).
288. UNDERBRINK, A. G., NAUMAN, C. H. AND SPARROW, A. H. Oxygen enhancement ratios

- for somatic mutations in *Tradescantia* stamen hairs: preliminary results. *Radiat. Res.* 55, 600, (Abstr.).
289. NAUMAN, C. H., UNDERBRINK, A. G. AND SPARROW, A. H. (1973). Effects of dose rate on somatic mutation induction in *Tradescantia* stamen hairs. *Radiat. Res.* 55, 600, (Abstr.).
290. SCHAIRER, L. A., SPARROW, A. H. AND SAUTKULIS, R. C. (1973). Somatic mutation rates induced by 0.43-MeV neutrons, x rays and ethyl methane sulfonate (EMS) in *Tradescantia*. *Radiat. Res.* 55, 599, (Abstr.).
291. BOTTINO, P. J., BORES, R. J. AND SPARROW, A. H. (1973). Relative biological effectiveness of  $\beta$ ,  $\gamma$  and X irradiation for seedling growth and survival in barley and somatic mutations in *Tradescantia*. *Radiat. Res.* 55, 602, (Abstr.).
292. McNULTY, P. J., SPARROW, A. H., SCHAIRER, L. A. AND CRUTY, M. R. (1973). RBE of 6 GeV/c Muons and  $^{137}\text{Cs}$  gamma rays for pink somatic mutations in *Tradescantia* stamen hairs. *Radiat. Res.* 55, 599, (Abstr.).
293. SPARROW, A. H. (1973). Hazards of chemical carcinogens and mutagens. *Science* 181, 700-701.
294. SPARROW, A. H. AND NAUMAN, A. F. (1973). Evolutionary changes in genome size and DNA content in grasses. *Genetics* 74, s263, (Abstr.).
295. UNDERBRINK, A. G. AND SPARROW, A. H. (1974). The influence of experimental end points, dose, dose rate, neutron energy, nitrogen ions, hypoxia, chromosome volume and ploidy level on RBE in *Tradescantia* stamen hairs and pollen. Pages 185-214 in *Biological effects of neutron irradiation*, IAEA, Vienna.
296. SPARROW, A. H., SCHAIRER, L. A. AND VILLALOBOS, R. (1973). Comparison of somatic mutation rates induced in *Tradescantia* by chemical and physical mutagens. *Mutation Res.* 21, 238-239.
297. SPARROW, A. H. (1973). Evolutionary changes in genome size and DNA content in angiosperms and gymnosperms. Presented at Int. Congr. Systematic & Evolutionary Biology, st, Boulder, Colorado. (Abstr. not published).
298. SPARROW, A. H. AND SCHAIRER, L. A. (1973). Comparison of somatic mutation rates induced in *Tradescantia* by chemical and physical mutagens. Text of talk presented to: Working Group on the "Biological and Genetic Effects of Pollutants" of the U.S.-U.S.S.R. Agreement on Cooperation in the Field of Environmental Protection, at the National Inst. of Environmental Health Science, Research Triangle Park, N. C.
299. SPARROW, A. H. AND NAUMAN, A. F. (1973). Evolutionary changes in genome and chromosome sizes and in DNA content in the grasses. *Brookhaven Symp. Biol.* 25, 367-389..
300. McNULTY, P. J., SPARROW, A. H. AND SCHAIRER, L. A. (1974). Somatic mutations induced in stamen hairs of *Tradescantia* clone 02 by relativistic muons. *Int. J. Radiat. Biol.* 25, 315-320.
301. NAUMAN, C. H., UNDERBRINK, A. G. AND SPARROW, A. H. (1975). Influence of radiation dose rate on somatic mutation induction in *Tradescantia* stamen hairs. *Radiat. Res.* 62, 79-96.
302. SPARROW, A. H. AND SCHWEMMER, S. S. (1974). Correlations between nuclear characteristics, growth inhibition, and survival-curve parameters ( $LD_{50}$ , whole plant  $D_o$  and  $D_n$ ) for whole-plant acute gamma-irradiation of herbaceous species. *Int. J. Radiat. Biol.* 25, 565-581.
303. SPARROW, A. H., SCHAIRER, L. A. AND VILLALOBOS-PIETRINI, R. (1974). Comparison of somatic mutation rates induced in *Tradescantia* by chemical and physical mutagens. *Mutat. Res.* 26, 265-276.
304. BOTTINO, P. J., SPARROW, A. H., SCHWEMMER, S. S. AND THOMPSON, K. H. (1975). Interrelation of exposure and exposure rate in germinating seeds of barley and its concurrence with dose-rate theory. *Radiat. Bot.* 15, 17-27.
305. SPARROW, A. H. AND SCHAIRER, L. A. (1974). Mutagenic response of *Tradescantia* to treatment with x rays, EMS, DBE, ozone,  $\text{SO}_2$ ,  $\text{N}_2\text{O}$  and several insecticides. *Mutat. Res.* 26, 445, (Abstr.).
306. SPARROW, A. H. (1974). Increased somatic mutation rates induced by specific air pollutants and chemical mutagens in *Tradescantia*. Presented at Symposium titled "The Potential Genetic Effects of Environmental Pollutants on Man", held in Moscow, USSR, under the auspices of the US-USSR Joint Committee on Cooperation in the Field of Environmental Protection (not published).
307. SPARROW, A. H. AND SCHAIRER, L. A. (1977). The effects of chemical mutagens

- (EMS, DBE) and specific air pollutants ( $O_3$ ,  $SO_2$ ,  $NO_2$ ,  $N_2O$ ) on somatic mutation rates in *Tradescantia*, pp. 50-62. In: *Geneticheskie Posledstviya Zagryazneniya Okruzhayuschhei Sredy* (Genetic Effect of Pollution in the Environment), N. P. Dubinin (Ed.) Akad. Nauk SSSR Institut Obschchei Genetiki, Moscow, USSR. In Russian, Russian summary. 37BFAA.
308. NAUMAN, C. H., SPARROW, A. H., SCHAIRER, L. A. AND KLUG, E. E. (1974). Comparative effects of ionizing radiation and gaseous chemical mutagens on mutation induction in a mutable clone of *Tradescantia*. *Radiat. Res.* 59, 153-154, (Abstr.).
309. SPARROW, A. H., NAUMAN, C. H., BOTTINO, P. J. AND POND, V. (1974). Patterns of response to varying exposure rates and total exposures for mutation, survival and growth inhibition end points. *Radiat. Res.* 59, 153, (Abstr.).
310. UNDERBRINK, A. G., SPARROW, A. H. AND SAUTKULIS, D. (1974). OER values for pink mutations in *Tradescantia* at various neutron energies and at high and low x-ray doses. *Radiat. Res.* 59, 125 (Abstr.).
311. VILLALOBOS-PIETRINI, R., SPARROW, A. H., SCHAIRER, L. A. AND SPARROW, R. C. (1974). Variation in somatic mutation rates induced by x rays, DBE and EMS in several *Tradescantia* species and hybrids. *Radiat. Res.* 59, 153 (Abstr.).
312. SCHWEMMER, S. S., SPARROW, A. H. AND NAUMAN, A. F. (1974). Predictions and implications of probable limits of acute and chronic gamma-radiation-induced  $LD_{50}$  for some families and genera of gymnosperms and herbaceous angiosperms. *Radiat. Res.* 59, 72, (Abstr.).
313. UNDERBRINK, A. G., SPARROW, A. H., SAUTKULIS, D. AND MILLS, R. E. (1975). Oxygen enhancement ratios (OERs) for somatic mutations in *Tradescantia* stamen hairs. *Radiat. Bot.* 15, 161-168.
314. SPARROW, A. H., HOWARD, A., COWIE, F. G., SCHWEMMER, S. S. AND NAUMAN, A. F. (1975). Chromosomes and cellular radiosensitivity. IV. A new radiotaxon represented by the ferns. *Int. J. Radiat. Biol.* 27, 343-354.
315. SPARROW, A. H. AND SPARROW, R. C. (1976). Spontaneous somatic mutation frequencies for flower color in several *Tradescantia* species and hybrids. *Environ. Explot. Bot.* 16, 23-43.
316. UNDERBRINK, A. G., SPARROW, A. H., SAUTKULIS, D. AND MILLS, R. E. (1975). An elusive factor affecting mutation frequency in *Tradescantia* stamen hairs: its influence on r.b.e. *Int. J. Radiat. Biol.* 28, 527-538.
317. NAUMAN, C. H., SPARROW, A. H. AND SCHAIER, L. A. (1976). Comparative effects of ionizing radiation and two gaseous chemical mutagens on somatic mutation induction in one mutable and two non-mutable clones of *Tradescantia*. *Mutat. Res.* 38, 53-70.
318. SPARROW, A. H. AND SCHAIER, L. A. (1975). Interaction of exposure time and gaseous mutagen concentration on somatic mutation frequency in *Tradescantia*. *Mutat. Res.* 31, 319, (Abstr.).
319. NAUMAN, C. H., SPARROW, A. H., SCHAIER, L. A. AND SAUTKULIS, R. C. (1975). Influence of temperature, ionizing radiation and chemical mutagens on somatic mutation rate in *Tradescantia*. *Mutat. Res.* 31, 318-319, (Abstr.).
320. SPARROW, A. H. AND NAUMAN, A. F. (1976). Evolution of genome size by DNA doublings. *Science* 192, 524-529.
321. SPARROW, A. H., SCHWEMMER, S. S. AND THOMPSON, K. H. (1976). Radiosensitivity studies with woody plants. III. Predictions of limits of probable acute and chronic  $LD_{50}$  values from lognormal distributions of interphase chromosome volumes in gymnosperms. *Radiat. Res.* 65, 315-326.
322. UNDERBRINK, A. G., KELLERER, A. M., MILLS, R. E. AND SPARROW, A. H. (1976). Comparison of x-ray and gamma-ray dose-response curves for pink somatic mutations in *Tradescantia* clone 02. *Radiat. Environ. Biophys.* 13, 295-303.
323. SPARROW, A. H. AND SPARROW, R. C. (1976). Variability in spontaneous somatic mutation frequencies of a flower color locus in *Tradescantia*. *Mutat. Res.* 38, 404-405, (Abstr.).
324. SPARROW, A. H., SCHWEMMER, S. S. AND KLUG, E. E. (1976). Unexpected radiosensitivity trends in the higher polyploid species in the 1X - 22X range (not published).
325. SPARROW, A. H. AND SCHAIER, L. S. (1976). Response of somatic mutation frequency in *Tradescantia* to exposure time and concentration of gaseous mutagens. *Mutat. Res.* 38, 405-406, (Abstr.).
326. NAUMAN, C. H., KLOTZ, P. J. AND SPARROW, A. H. (1976). Dosimetry of tritiated 1,2-dibromoethane in floral tissues of *Tradescantia*. *Mutat. Res.* 38, 306, (Abstr.).

327. NAUMAN, C. H., SCHAIRER, L. A. AND SPARROW, A. H. (1978). Influence of temperature on spontaneous and radiation-induced somatic mutations in *Tradescantia*. *Mutat. Res.* 50, 207-218.
328. NAUMAN, C. H., SPARROW, A. H. AND McNULTY, P. J. (1976). Effect of the fractionation of x-ray dose on somatic mutations induced in *Tradescantia* stamen hairs. *Radiat. Res.* 67, 599, (Abstr.).
329. NAUMAN, C. H. AND SPARROW, A. H. (1978). Problems of extrapolation from high dose to low dose in *Tradescantia* mutation studies. *Environ. Health Perspectives* 22, 161-162.
330. NAUMAN, C. H., SPARROW, A. H., UNDERBRINK, A. G. AND SCHAIRER, L. A. (1977). Low-dose mutation-response relationships in *Tradescantia*; principles and comparison to mutagenesis following low-dose gaseous chemical mutagen exposure. In: *Radiological Protection*, First European Symposium on Rad-Equivalence, R. Chanet (Ed.), pp. 13-23 EUR 5725e, Commission of the European Communities, Kirchberg, Luxembourg.
331. MA, T. H., SPARROW, A. H., SCHAIRER, L. A. AND NAUMAN, A. F. (1978). Effect of 1,2-dibromoethane (DBE) on meiotic chromosomes of *Tradescantia*. *Mutat. Res.* 58, 251-258.
332. MA, T. H., SPARROW, A. H., SCHAIRER, L. A. AND NAUMAN, A. F. (1978). Effect of 1,2-dibromoethane (DBE) on meiotic chromosomes of *Tradescantia*. *Mutat. Res.* 53, 112-113, (Abstr.).
333. SCHAIRER, L. A., SPARROW, A. H. AND TEMPEL, N. R. (1978). Mobile monitoring vehicle designed to assess the mutagenicity of ambient air in high pollution areas. *Mutat. Res.* 53, 111-112, (Abstr.).
334. McNULTY, P. J., NAUMAN, C. H., SPARROW, A. H., SCHWEMMER, S. S. AND SCHAIRER, L. A. (1977). Influence of x-ray dose fractionation on the frequency of somatic mutations induced in *Tradescantia* stamen hairs. *Mutat. Res.* 44, 235-246.
335. SCOTT, B. R., SPARROW, A. H., SCHWEMMER, S. S. AND SCHAIRER, L. A. (1978). Plant metabolic activation of 1,2-dibromoethane (EDB) to a mutagen of greater potency. *Mutat. Res.* 49, 203-213.
336. CONGER, A. D., SPARROW, A. H., SCHWEMMER, S. S. AND KLUG, E. E. Relation of nuclear volume and radiosensitivity to ploidy level (haploid to 22-ploid) in higher plants and yeast. *Radiat. Res.* (submitted).
337. ICHIKAWA, S., NAUMAN, C. H., SPARROW, A. H. AND TAKAHASHI, C. S. Influence of radiation exposure rate on somatic mutation frequency and loss of reproductive integrity in *Tradescantia* stamen hairs. *Mutat. Res.* (submitted).