

5. References

- Agricola, G. (1556) *De Re Metallica*, New York, Dover Publications, pp. 214–218
- Alter, H.W. & Fleischer, R.L. (1981) Passive integrating radon monitor for environmental monitoring. *Health Phys.*, 40, 693–702
- Alter, H.W. & Oswald, R.A. (1987) Nationwide distribution of indoor radon measurements: a preliminary data base. *J. Air Pollut. Control Assoc.*, 37, 227–231
- Andreev, S.V. (1966) Accumulation of long-lived daughter products of radon in human body in drinking of radon waters (Russ.). *Gig. Sanit.*, 31, 36–42
- Anthoine, D., Braun, P., Cervoni, P., Schwartz, P. & Lamy, P. (1979) Can we consider bronchial cancer in iron ore miners of Lorraine an occupational cancer? On 270 new cases observed in 1964–1978 (Fr.). *Rev. fr. Mal. respir.*, 7, 63–65
- Aoyama, T., Yonehara, H., Sakanoue, M., Kobayashi, S., Iwasaki, T., Mifune, M., Radford, E.P. & Kato, H. (1987) *Long-term measurements of radon concentrations in the living environments in Japan. A preliminary report*. In: Hopker, P.K., ed., *Radon and Its Decay Products. Occurrence, Properties, and Health Effects (ACS Symposium Series 331)*, Washington DC, American Chemical Society, pp. 124–136
- Archer, V.E., Magnuson, H.J., Holaday, D.A. & Lawrence, P.A. (1962) Hazards to health in uranium mining and milling. *J. occup. Med.*, 4, 55–60
- Archer, V.E., Wagoner, J.K. & Lundin, F.E. (1973a) Lung cancer among uranium miners in the United States. *Health Phys.*, 25, 351–371
- Archer, V.E., Wagoner, J.K. & Lundin, F.E., Jr (1973b) Uranium mining and cigarette smoking effects on man. *J. occup. Med.*, 15, 204–211
- Archer, V.E., Saccomanno, G. & Jones, J.H. (1974) Frequency of different histologic types of bronchogenic carcinoma as related to radiation exposure. *Cancer*, 34, 2056–2060
- Archer, V.E., Gillam, J.D. & James, L.A. (1975) *Respiratory Disease Mortality Among Uranium Miners as Related to Height, Radiation, Smoking and Latent Period (HRP-0006691)*, Springfield, VA, National Technical Information Service

¹For definitions of the italicized terms, see Preamble pp. 28–34.

- Archer, V.E., Gillam, J.D. & Wagoner, J.K. (1976) Respiratory disease mortality among uranium miners. *Ann. N.Y. Acad. Sci.*, 271, 280–293
- Ardashnikov, S.N. & Rait, M.L. (1960) Bioelectric activity changes of the cerebral cortex of rabbits during radon inhalation and application of radioactive bandages (Russ.). *Med. Radiol.*, 5, 18–22
- Arnstein, A. (1913) The so-called ‘Schneeberg lung cancer’ (Ger.). *Verh. dtsch. pathol. Ges.*, 16, 332–342
- Aurand, K. & Schraub, A. (1954) Behaviour of radon and its decay products in the body after oral administration (Ger.). *Strahlentherapie*, 94, 272–286
- Aurand, K., Feine, U., Jacobi, W. & Schraub, A. (1957) Studies on the question of radiation burden of the lung when staying in an atmosphere containing radon (Ger.). *Strahlentherapie*, 104, 345–354
- Axelson, O. & Edling, C. (1980) *Health hazards from radon daughters in dwellings in Sweden*. In: Rom, W.N. & Archer, V.E., eds, *Health Implications of New Energy Technologies*, Ann Arbor, MI, Ann Arbor Science, pp. 79–87
- Axelson, O. & Rehn, M. (1971) Lung cancer in miners. *Lancet*, ii, 706–707
- Axelson, O. & Sundell, L. (1978) Mining, lung cancer and smoking. *Scand. J. Work Environ. Health*, 4, 46–52
- Axelson, O., Edling, C. & Kling, H. (1979) Lung cancer and residency — a case referent study on the possible impact of exposure to radon and its daughters in dwellings. *Scand. J. Work Environ. Health*, 5, 10–15
- Band, P., Feldstein, M., Saccomanno, G., Watson, L. & King, G. (1980) Potentiation of cigarette smoking and radiation. Evidence from a sputum cytology survey among uranium miners and controls. *Cancer*, 45, 1273–1277
- Barcinski, M.A., Abreu, M.D.C.A., de Almeida, J.C.C., Naya, J.M., Fonseca, L.G. & Castro, L.E. (1975) Cytogenetic investigations in a Brazilian population living in an area of high natural radioactivity. *Am. J. hum. Genet.*, 27, 802–806
- Bauman, A. & Horvat, D. (1981) The impact of natural radioactivity from a coal-fired power plant. *Sci. total Environ.*, 17, 75–81
- Bean, J.A., Isacson, P., Hahne, R.M.A. & Kohler, J. (1982) Drinking water and cancer incidence in Iowa. II. Radioactivity in drinking water. *Am. J. Epidemiol.*, 116, 924–932
- Bell, R.F. & Gilliland, J.C. (1964) *Urinary lead-210 as index of mine radon exposure*. In: *Radiological Health and Safety in Mining and Milling of Nuclear Materials. Proceedings of a Symposium*, Vol. II, Vienna, International Atomic Energy Agency, pp. 411–423
- Bergman, H., Edling, C. & Axelson, O. (1986) Indoor radon daughter concentrations and passive smoking. *Environ. int.*, 12, 17–19
- Bianco, A., Gibb, F.R. & Morrow, P.E. (1974) *Inhalation study of a submicron size lead-212 aerosol*. In: Enycer, X., ed., *Proceedings of the 3rd International Congress of the International Radiation Protection Association, Washington 1973 (CONF-730907-P2)*, Oak Ridge, TN, US Atomic Energy Commission, pp. 1214–1219

- Bignon, J., Monchaux, G., Chameaud, J., Jaurand, M.C., Lafuma, J. & Masse, R. (1983) Incidence of various types of thoracic malignancy induced in rats by intrapleural injection of 2 mg of various mineral dusts after inhalation of ^{222}Ra . *Carcinogenesis*, 4, 621–628
- Black, S.C., Archer, V.E., Dixon, W.C. & Saccomanno, G. (1968) Correlation of radiation exposure and lead-210 in uranium miners. *Health Phys.*, 14, 81–93
- Blanchard, R.L., Archer, V.E. & Saccomanno, G. (1969) Blood and skeletal levels of ^{210}Pb – ^{210}Po as a measure of exposure to inhaled radon daughter products. *Health Phys.*, 16, 585–596
- Bonnaud, F. (1976) *Experimental Tumours. Anatomopathological Modifications of the Lung and Lymph Node Produced in Rats by Inhalation of Radon-222 and Its Decay Products* (Fr.), Thesis No. 26, Limoges, University of Limoges
- Bonneville Power Administration (1987) *Radon Monitoring Results from BPA's Residential Weatherization Program (Report No. 5)*, Portland, OR, US Department of Energy
- Booker, D.V., Chamberlain, A.C., Newton, D. & Stott, A.N.B. (1969) Uptake of radioactive lead following inhalation and injection. *Br. J. Radiol.*, 42, 457–466
- Boudene, C., Malet, D. & Masse, R. (1977) Fate of ^{210}Pb inhaled by rats. *Toxicol. appl. Pharmacol.*, 41, 271–276
- Boyd, J.T., Doll, R., Faulds, J.S. & Leiper, J. (1970) Cancer of the lung in iron ore (haematite) miners. *Br. J. ind. Med.*, 27, 97–105
- Brandom, W.F., Saccomanno, G., Archer, V.E., Archer, P.G. & Bloom, A.D. (1978) Chromosome aberrations as a biological dose-response indicator of radiation exposure in uranium miners. *Radiat. Res.*, 76, 159–171
- Bruno, R.C. (1983) Sources of indoor radon in houses: a review. *J. Air Pollut. Control Assoc.*, 33, 105–109
- Budnitz, R.J. (1974) Radon-222 and its daughters — a review of instrumentation for occupational and environmental monitoring. *Health Phys.*, 26, 145–163
- Butler, C., Samet, J.M., Kuvirt, D.M., Key, C.R. & Black, W.C. (1985) Cigarette smoking and lung cancer cell types in uranium miners (Abstract). *Am. Rev. respir. Dis.*, 131, A176
- Butler, C., Samet, J.M., Black, W.C., Key, C.R. & Kuvirt, D.M. (1986) Histopathologic findings of lung cancer in Navajo men: relationship to uranium mining. *Health Phys.*, 51, 365–368
- Bykhovskii, A.V., Khachirov, G., Shishkanov, N.G., Dubrovin, S.A. & Klyuch, V.E. (1972) Dose to the epithelium of the upper respiratory tract from radon and its daughter products (Russ.). *Health Phys.*, 23, 13–22
- Castrén, O., Voutilainen, A., Winqvist, K. & Mäkeläinen, I. (1985) Studies of high indoor radon areas in Finland. *Sci. total Environ.*, 45, 311–318
- Castrén, O., Mäkeläinen, I., Winqvist, K. & Voutilainen, A. (1987) *Indoor radon measurements in Finland: a status report*. In: Hopke, R.K., ed., *Radon and Its Decay Products. Occurrence, Properties, and Health Effects (ACS Symposium Series 331)*, Washington DC, American Chemical Society, pp. 97–103

- Chamberlain, A.C. & Dyson, E.D. (1956) The dose to the trachea and bronchi from the decay products of radon and thoron. *Br. J. Radiol.*, 29, 317–325
- Chameaud, J., Perraud, R., Lafuma, J., Collet, A., Daniel-Moussard, H. (1968) Experimental study in rats of the action of radon on normal and dusty lung (Fr.). *Arch. Mal. prof. Méd. Trav. Séc. soc.*, 29, 29–40
- Chameaud, J., Perraud, R., Lafuma, J., Masse, R. & Pradel, J. (1974) *Lesions and lung cancers induced in rats by inhaled radon 222 at various equilibria with radon daughters*. In: Karbe, E. & Park, J.F., eds, *Experimental Lung Cancer. Carcinogenesis and Bioassays*, New York, Springer, pp. 411–421
- Chameaud, J., Perraud, R., Masse, R., Nenot, J.C. & Lafuma, J. (1976) *Lung cancer induced in rats by radon and its decay products at different concentrations* (Fr.). In: *Biological and Environmental Effects of Low-level Radiation*, Vol. II, Vienna, International Atomic Energy Agency, pp. 223–228
- Chameaud, J., Perraud, R., Chrétien, J., Masse, R. & Lafuma, J. (1978) *Experimental study of the combined action of cigarette smoke and an active burden of radon* (Fr.). In: *Late Biological Effects of Ionizing Radiation*, Vol. II, Vienna, International Atomic Energy Agency, pp. 429–436
- Chameaud, J., Perraud, R., Chrétien, J., Masse, R. & Lafuma, J. (1982) Lung carcinogenesis during in vivo cigarette smoking and radon daughter exposure in rats. *Recent Results Cancer Res.*, 82, 11–20
- Chameaud, J., Masse, R. & Lafuma, J. (1984) Influence of radon daughter exposure at low doses on occurrence of lung cancer in rats. *Radiat. Protect. Dosimetry*, 7, 385–388
- Chameaud, J., Masse, R., Morin, M. & Lafuma, J. (1985) *Lung cancer induction by radon daughters in rats. Present state of the data on low-dose exposures*. In: Stocker, H., ed., *Proceedings of the International Conference on Occupational Radiation Safety in Mining*, Vol. 1, Toronto, Ontario, Canadian Nuclear Association, pp. 350–353
- Chittaporn, P., Eisenbud, M. & Harley, N.H. (1981) A continuous monitor for the measurement of environmental radon. *Health Phys.*, 41, 405–410
- Chovil, A. (1981) The epidemiology of primary lung cancer in uranium miners in Ontario. *J. occup. Med.*, 23, 417–421
- Cliff, K.D., Wrixon, A.D., Green, B.M.R. & Miles, J.C.H. (1987) *Concentrations in dwellings in the United Kingdom*. In: Hopke, R.K., ed., *Radon and Its Decay Products. Occurrence, Properties, and Health Effects* (ACS Symposium Series 331), Washington DC, American Chemical Society, pp. 104–112
- Cohen, B.L. & Cohen, E.S. (1983) Theory and practice of radon monitoring with charcoal adsorption. *Health Phys.*, 45, 501–508
- Cohn, S.H., Skow, R.K. & Gong, J.K. (1953) Radon inhalation studies in rats. *Arch. ind. Hyg. occup. Med.*, 7, 508–515
- Commission of the European Communities (1984) Council Directive of 3 September 1984 amending Directive 80/836/Euratom as regards the basic safety standards to the health protection of the general public and workers against the danger of ionizing radiation. *Off. J. Eur. Communities*, L265, 150

- Committee on the Biological Effects of Ionizing Radiations (1980) *The Effects on Populations of Exposure to Low Levels of Ionizing Radiation: 1980*, Washington DC, National Academy Press
- Costa-Ribeiro, C., Barcinski, M.A., Figueiredo, N., Penna Franca, E., Lobao, N. & Krieger, H. (1975) Radiobiological aspects and radiation levels associated with the milling of monazite sand. *Health Phys.*, 28, 225–231
- Cross, F.T., Palmer, R.F., Busch, R.H., Filipy, R.E. & Stuart, B.O. (1981) Development of lesions in Syrian golden hamsters following exposure to radon daughters and uranium ore dust. *Health Phys.*, 41, 135–153
- Cross, F.T., Palmer, R.F., Filipy, R.E., Dagle, G.E. & Stuart, B.O. (1982a) Carcinogenic effects of radon daughters, uranium ore dust and cigarette smoke in beagle dogs. *Health Phys.*, 42, 33–52
- Cross, F.T., Palmer, R.F., Busch, R.H. & Buschbom, R.L. (1982b) *Influence of radon daughter exposure rate and uranium ore dust concentration on occurrence of lung tumors*. In: Clemente, G.F., Cohen, N., Steinhäusler, F. & Wrenn, M.E., eds, *Proceedings of the Specialist Meeting on the Assessment of Radon and Daughter Exposure and Related Biological Effects, Rome, 1980*, Salt Lake City, UT, Radiobiology Division Press, University of Utah, pp. 189–197
- Dahlgren, E. (1979) Lung cancer, cardiovascular disease and smoking in a group of mine workers (Swed.). *Läkartidningen*, 76, 4811–4813
- Damber, L. & Larsson, L.-G. (1982) Combined effects of mining and smoking in the causation of lung carcinoma. A case-control study in northern Sweden. *Acta radiol. oncol.*, 21, 305–313
- Damber, L. & Larsson, L.-G. (1985) Underground mining, smoking, and lung cancer: a case-control study in the iron ore municipalities in northern Sweden. *J. natl Cancer Inst.*, 74, 1207–1213
- Damber, L. & Larsson, L.-G. (1986) Lung cancer in males and type of dwelling. An epidemiological pilot study. *Umeå Univ. med. Diss.*, 167, 113–125
- Deqing, C. (1986) Cytogenetic investigation on population residing in high-background radiation area of Yangjiang, China (Abstract No. 4). *Mutat. Res.*, 164, 264
- Doke, T., Oshima, T., Takahashi, H. & Tajima, E. (1973) A radon exposure experiment of rats and mice. *J. Radiat. Res.*, 14, 153–168
- Dousset, M. & Jammet, H. (1985) Comparison of cancer mortality in the Limousin and Poitou-Charentes regions (Fr.). *Radioprotection*, 20, 61–67
- Drew, R.T. & Eisenbud, M. (1970) The pulmonary dose from ^{220}Rn received by indigenous rodents of the Morro do Ferro, Brazil. *Radiat. Res.*, 42, 270–281
- Duggan, M.J., Soilleux, P.J., Strong, J.C. & Howell, D.M. (1970) The exposure of United Kingdom miners to radon. *Br. J. ind. Med.*, 27, 106–109
- Duport, P., Madelaine, G., Zettwoog, P. & Renoux, A. (1977) Experimental study of the penetration of radioactive aerosols into the respiratory tract (Fr.). *Chemosphere*, 1, 35–40

- Edling, C. (1982) Lung cancer and smoking in a group of iron ore miners. *Am. J. ind. Med.*, 3, 191–199
- Edling, C., Comba, P., Axelson, O. & Flodin, U. (1982) Effects of low-dose radiation — a correlation study. *Scand. J. Work Environ. Health*, 8 (Suppl. 1), 59–64
- Edling, C., Kling, H. & Axelson, O. (1984) Radon in homes — a possible cause of lung cancer. *Scand. J. Work Environ. Health*, 10, 25–34
- Edling, C., Wingren, G. & Axelson, O. (1986) Quantification of the lung cancer risk from radon daughter exposure in dwellings — an epidemiological approach. *Environ. int.*, 12, 55–60
- Eisenbud, M., Laurer, G.R., Rosen, J.C., Cohen, N., Thomas, J. & Hazle, A.J. (1969) In vivo measurement of lead-210 as an indicator of cumulative radon daughter exposure in uranium miners. *Health Phys.*, 16, 637–646
- Falk, R. (1984) Respiratory tract deposition of radon daughters in humans. *Radiat. Protect. Dosimetry*, 7, 377–380
- Faulds, J.S. & Stewart, M.J. (1956) Carcinoma of the lung in haematite miners. *J. Pathol. Bacteriol.*, 72, 353–366
- Fleischer, R.L. (1981) A possible association between lung cancer and phosphate mining and processing. *Health Phys.*, 41, 171–175
- Forastiere, F., Valesini, S., Arca, M., Magliola, M.E., Michelozzi, P. & Tasco, C. (1985) Lung cancer and natural radiation in an Italian province. *Sci. total Environ.*, 45, 519–526
- Fox, A.J., Goldblatt, P. & Kinlen, L.J. (1981) A study of the mortality of Cornish tin miners. *Br. J. ind. Med.*, 38, 378–380
- Fry, F.A., Smith-Briggs, J.L. & O'Riordan, M.C. (1983) Skeletal lead-210 as an index of exposure to radon decay products in mining. *Br. J. ind. Med.*, 40, 58–60
- George, A.C. (1984) Passive, integrated measurement of indoor radon using activated carbon. *Health Phys.*, 46, 867–872
- George, A.C. (1986) *Instruments and methods for measuring indoor radon and radon progeny concentrations*. In: *Proceedings of an Air Pollution Control Association International Specialty Conference*, Philadelphia, PA, Air Pollution Control Association, pp. 87–97
- George, A.C. & Breslin, A.J. (1967) Deposition of natural radon daughters in human subjects. *Health Phys.*, 13, 375–378
- George, A.C. & Breslin, A.J. (1969) Deposition of radon daughters in humans exposed to uranium mine atmospheres. *Health Phys.*, 17, 115–124
- George, J.L. (1986) *Procedure Manual for the Estimation of Average Indoor Radon-daughter Concentrations Using the Radon Grab-sampling Method (GJ/TMC-11 UC-70A)*, Grand Junction, CO, Bendix Field Engineering Corp.
- Gesell, T.F. (1983) Background atmospheric ^{222}Rn concentrations outdoors and indoors: a review. *Health Phys.*, 45, 289–302
- Glenwood Laboratories (1986) *Radtrak Radon Monitor Instructions*, Glenwood, IL

- Gornak, K.A. & Ryumshina, T.A. (1971) The activity of redox enzymes in the liver in internal use of radon water (Russ.). *Byull. eksp. Biol. Med.*, 71, 115–119
- Gotchy, R.L. & Schiager, K.J. (1969) Bioassay methods for estimating current exposures to short-lived radon progeny. *Health Phys.*, 17, 199–218
- Gottlieb, L.S. & Husen, L.A. (1982) Lung cancer among Navajo uranium miners. *Chest*, 81, 449–452
- Greenhalgh, J.R., James, A.C. & Smith, H. (1977) *Clearance of radon daughters from the lung*. In: *Annual Research and Development Report, 1976 (NRPB/R&D)*, Harwell, UK, National Radiological Protection Board, pp. 49–51
- Grüneberg, H. (1964) Genetical research in an area of high natural radioactivity in South India. *Nature*, 204, 222–224
- Grüneberg, H., Bains, G.S., Berry, R.J., Riles, L., Smith, C.A.B. & Weiss, R.A. (1966) *A Search for Genetic Effects of High Natural Radioactivity in South India (Medical Research Council, Special Report Series No. 307)*, London, Her Majesty's Stationery Office
- Guggenheim, S.F., George, A.C., Graveson, R.T. & Breslin, A.J. (1979) A time-integrating environmental radon daughter monitor. *Health Phys.*, 36, 452–455
- Guimond, R.J., Ellett, W.H., Fitzgerald, J.E., Jr, Windham, S.T. & Cuny, P.A. (1979) *Indoor Radiation Exposure Due to Radium-226 in Florida Phosphate Lands (EPA-520/4-78-013)*, Washington DC, US Environmental Protection Agency, Office of Radiation Programs
- Gunderson, L.C.S., Reimer, M.G. & Agard, S.F. (1987) *The correlation between geology, radon in soil gas, and indoor radon in the Reading Prong, Pennsylvania* (Abstract). In: *Proceedings of the GEORAD Conference on Geological Causes of Radionuclide Anomalies, St Louis, MI, April 1987*, Denver, CO, US Geological Survey, p. 5
- Gurevich, M.A. (1967) Primary cancer of the lung in iron ore miners (Russ.). *Sovetsk. Med.*, 30, 71–76
- Ham, J.M. (1976) *Report of the Royal Commission on the Health and Safety of Workers in Mines*, Toronto, Ministry of the Attorney General
- Harley, J.H. (1976) *Environmental radon*. In: Stanley, R.E. & Moghissi, A.A., eds, *Noble Gases (NTIS Publ. No. PB 259 085/A5; EPA-600/9-76-02)*, Washington DC, US Environmental Protection Agency, pp. 109–114
- Harley, J.H., Jetter, E. & Nelson, N. (1958) *Elimination of Radon from the Body (Health and Safety Laboratory Report No. 32)*, New York, US Atomic Energy Commission
- Härtung, F.H. & Hesse, W. (1879) Lung cancer, mountain disease in Schneeberg mines (Ger.). *Vjschr. Gerichtl. Med.*, 31, 102–132, 313–337
- Hess, C.T., Casparius, R.E., Norton, S.A. & Brutsaert, W.F. (1980) *Investigation of natural levels of radon-222 in groundwater in Maine for assessment of related health effects*. In: Gesell, T.F. & Lowder, W.M., eds, *Natural Radiation Environment III (US Department of Energy CONF-780422)*, Springfield, VA, National Technical Information Service, pp. 529–546

- Hess, C.T., Weiffenbach, C.V. & Norton, S.A. (1983) Environmental radon and cancer correlations in Maine. *Health Phys.*, 45, 339–348
- Hess, C.T., Michel, J., Horton, T.R., Prichard, H.M. & Coniglio, W.A. (1985a) The occurrence of radioactivity in public water supplies in the United States. *Health Phys.*, 48, 553–586
- Hess, C.T., Fleischer, R.L. & Turner, L.G. (1985b) Field and laboratory tests of etched track detectors for ^{222}Rn : summer-vs-winter variations and tightness effects in Maine houses. *Health Phys.*, 49, 65–79
- Hess, C.T., Korsah, J.K. & Einloth, C.J. (1987) *Radon in houses due to radon in potable water*. In: Hopke, P.K., ed., *Radon and Its Decay Products. Occurrence, Properties, and Health Effects (ACS Symposium Series 331)*, Washington DC, American Chemical Society, pp. 30–41
- Hewitt, D. (1976) *Radiogenic lung cancer in Ontario uranium miners, 1955–74*. In: Ham, J.M., ed., *Report of the Royal Commission on the Health and Safety of Workers in Mines*, Appendix C, Toronto, Ontario, Ministry of the Attorney General, pp. 319–329
- High Background Radiation Research Group, China (1980) Health survey in high background radiation areas in China. *Science*, 209, 877–880
- Hofmann, W., Katz, R. & Zhang, C. (1985) Lung cancer incidence in a Chinese high background area — epidemiological results and theoretical interpretation. *Sci. total Environ.*, 45, 527–534
- Hollcroft, J.W. & Lorenz, E. (1949) Retention of radon by the mouse. I. Experimental determination of biodecay and energy absorbed. *Nucleonics*, September, 63–71
- Hollcroft, J.W. & Lorenz, E. (1951) The 30-day LD-50 of two radiations of different ion density. *J. natl Cancer Inst.*, 12, 533–544
- Holleman, D.F., Martz, D.E. & Schiager, K.J. (1969) Total respiratory deposition of radon daughters from inhalation of uranium mine atmospheres. *Health Phys.*, 17, 187–192
- Horáček, J., Plaček, V. & Ševc, J. (1977) Histologic types of bronchogenic cancer in relation to different conditions of radiation exposure. *Cancer*, 40, 832–835
- Hornung, R.W. & Meinhardt, T.J. (1987) Quantitative risk assessment of lung cancer in US uranium miners. *Health Phys.*, 52, 417–430
- Hornung, R.W. & Samuels, S. (1981) *Survivorship models for lung cancer mortality in uranium miners. Is cumulative dose an appropriate measure of exposure?* In: Gomez, M., ed., *Radiation Hazards in Mining: Control, Measurement, and Medical Aspects*, New York, Society of Mining Engineers of American Institute of Mining, Metallurgical, and Petroleum Engineers, pp. 363–368
- Horton, T.R. (1985) *Nationwide Occurrence of Radon and Other Natural Radioactivity in Public Water Supplies (EPA-520-5/85-008)*, Mongtmomery, AL, US Environmental Protection Agency, Office of Radiation Programs
- Horvat, D., Bauman, A. & Račić, J. (1980) Genetic effect of low doses of radiation in occupationally exposed workers in coal mines and in coal fired plants. *Radiat. environ. Biophys.*, 18, 91–97

- Howe, G.R., Nair, R.C., Newcombe, H.B., Miller, A.B. & Abbatt, J.D. (1986) Lung cancer mortality (1950–80) in relation to radon daughter exposure in a cohort of workers at the Eldorado Beaverlodge uranium mine. *J. natl Cancer Inst.*, 77, 357–362
- Hueper, W.C. (1966) *Occupational and Environmental Cancers of the Respiratory System*, New York, Springer, p. 127
- Hultqvist, B. (1956) Studies on naturally-occurring ionizing radiations with special reference to radiation doses in Swedish houses of various types. *Kungl. Svenska-vetenskapsakademiens handlingar, fjärde serien*, 6(3), Stockholm
- Hunter, D. (1969) *The Diseases of Occupations*, London, English Universities Press, pp. 24–31, 814–818
- Hursh, J.B. & Mercer, T.T. (1970) Measurement of ^{212}Pb loss rate from human lungs. *J. appl. Physiol.*, 28, 268–274
- Hursh, J.B., Schraub, A., Sattler, E.L. & Hofmann, H.P. (1969) Fate of ^{212}Pb inhaled by human subjects. *Health Phys.*, 16, 257–267
- IARC (1972) *IARC Monographs on the Evaluation of Carcinogenic Risk of Chemicals to Man*, Vol. 1, *Some Inorganic Substances, Chlorinated Hydrocarbons, Aromatic Amines, N-Nitroso Compounds, and Natural Products*, Lyon, pp. 29–39
- IARC (1987) *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans*, Suppl. 7, *Overall Evaluations of Carcinogenicity: An Updating of IARC Monographs Volumes 1–42*, Lyon, pp. 216–219
- International Commission on Radiological Protection (1981) *Limits for Inhalation of Radon Daughters by Workers* (ICRP Publ. 32), Oxford Pergamon Press
- International Commission on Radiological Protection (1987) *Lung Cancer Risk from Indoor Exposures to Radon Daughters* (ICRP Publ. 50), Oxford, Pergamon Press
- James, A.C. (1977) Bronchial deposition of free ions and submicron particles studied in excised lung. In: Walton, W.H. & McGovern, B., eds, *Inhaled Particles IV*, Part 1, New York, Pergamon Press, pp. 203–219
- Jonassen, N. (1984) Removal of radon daughters by filtration and electric fields. *Radiat. Protect. Dosimetry.*, 7, 407–411
- Jorgensen, H.S. (1973) A study of mortality from lung cancer among miners in Kiruna 1950–1970. *Work Environ. Health*, 10, 126–133
- Jorgensen, H.S. (1984) Lung cancer among underground workers in the iron ore mines of Kiruna based on thirty years of observation. *Ann. Acad. Med.*, 13 (Suppl.), 371–377
- Khan, A. & Phillips, C.R. (1985a) The application of electrets to passive Rn progeny dosimeters. *Health Phys.*, 49, 853–858
- Khan, A. & Phillips, C.R. (1985b) Dependence of electrostatic diffusion of Rn progeny on environmental parameters. *Health Phys.*, 49, 443–454
- Kinlen, L. (1984) *Follow-up studies of professional and rural occupational groups*. In: *Expected Numbers in Cohort Studies. Proceedings of a Meeting Held on 21st May 1984 at the MRC Environmental Epidemiology Unit* (Scientific Report No. 6), Southampton, Southampton General Hospital, Medical Research Council, pp. 14–20

- Kirichenko, V.N., Khachirov, G., Dubrovin, S.A., Klyuch, V.E. & Bykhovskii, A.V. (1970) Experimental study of the distribution of short-lived radon daughter products in the respiratory tract. *Hyg. Sanit.*, 35, 222–227
- Kleff, S.K. (1987) *Summary Data for 1974–1985 — Underground Uranium Miner Exposure to Radon in the USA*, Arlington, VA, US Mine Safety and Health Administration
- Kunz, E., Ševc, J. & Plaček, V. (1978) Lung cancer mortality in uranium miners (methodological aspects). *Health Phys.*, 35, 579–580
- Kunz, E., Ševc, J., Plaček, V. & Horáček, J. (1979) Lung cancer in man in relation to different time distribution of radiation exposure. *Health Phys.*, 36, 699–706
- Kushneva, V.S. (1964) *Peculiarities of the course of experimental silicosis with inhalation of radon* (Russ.). In: *Radiological Health and Safety in Mining and Milling of Nuclear Materials*, Vol. 1, Vienna, International Atomic Energy Agency, pp. 317–331
- Kusnetz, H.L. (1956) Radon daughters in mine atmospheres — a field method for determining concentrations. *Ind. Hyg. Q.*, 17, 85–88
- Lafuma, J. (1978) *Lung cancers induced by various inhaled α emitters. Evaluation of the effect of various parameters and comparison with the data obtained from uranium miners* (Fr.). In: *Late Biological Effects of Ionizing Radiation, Proceedings of a Symposium*, Vol. II, Vienna, International Atomic Energy Agency, pp. 531–541
- Lafuma, J., Chameaud, J., Perraud, R., Masse R., Nenot, J.C. & Morin, M. (1976) *Experimental study on the comparison between toxic effects on lungs of radon-222 and its decay products and those induced by α emitters of the actinium series* (Fr.). In: *Proceedings of a Symposium on Radiation Protection and Mining and Milling of Uranium and Thorium, Bordeaux, France, 1974*, Geneva, International Labour Office, pp. 43–53
- Lawler, A.B., Mandel, J.S., Schuman, L.M. & Lubin, J.H. (1985) A retrospective cohort mortality study of iron ore (hematite) miners in Minnesota. *J. occup. Med.*, 27, 507–517
- Lees, R.E.M., Steele, R. & Roberts, J.H. (1987) A case-control study of lung cancer relative to domestic radon exposure. *Int. J. Epidemiol.*, 16, 7–12
- Leira, H.L., Lund, E. & Refseth, T. (1986) Mortality and cancer incidence in a small cohort of miners exposed to low levels of α radiation. *Health Phys.*, 50, 189–194
- Léonard, A., Delpoux, M., Decat, G. & Léonard, E.D. (1979) Natural radioactivity in southwest France and its possible genetic consequences for mammals. *Radiat. Res.*, 77, 170–181
- Léonard, A., Delpoux, M., Chameaud, T., Decat, G. & Léonard, E.D. (1981) Biological effects observed in mammals maintained in an area of very high natural radioactivity. *Can. J. genet. Cytol.*, 23, 321–326
- Léonard, A., Delpoux, M., Meyer, R., Decat, G. & Léonard, E.D. (1985) Effect of an enhanced natural radioactivity on mammal fertility. *Sci. total Environ.*, 45, 535–542
- Löwy, J. (1929) Joachimstal mountain disease (Ger.). *Med. Klin.*, 25, 141–142

- Loysen, P. (1969) Errors in measurement of working level. *Health Phys.*, 16, 629–635
- Lundin, F.E., Jr, Lloyd, J.W., Smith, E.M., Archer, V.E. & Holaday, D.A. (1969) Mortality of uranium miners in relation to radiation exposure, hard-rock mining and cigarette smoking — 1950 through September 1967. *Health Phys.*, 16, 571–578
- Lundin, F.E., Jr, Wagoner, J.K. & Archer, V.E. (1971) *Radon Daughter Exposure and Respiratory Cancer: Quantitative and Temporal Aspects (Joint Monograph No. 1)*, Springfield, VA, National Technical Information Service
- Martz, D.E., Holleman, D.F., McCurdy, D.E. & Schiager, K.J. (1969) Analysis of atmospheric concentrations of RaA, RaB and RaC by alpha spectroscopy. *Health Phys.*, 17, 131–138
- Mathé, G., Santelli, G., Gouveia, J., Lemaigre, G., Misset, J.L., Gros, F., Homasson, J.P., Kim, B., Sudre, M.C. & Gaget, H. (1986) Correlation of bronchial epidermoid metaplasia with level of tobacco consumption in heavy smokers. *Cancer Detect. Prev.*, 9, 79–81
- McAulay, I.R. & McLaughlin, J.P. (1985) Indoor natural radiation levels in Ireland. *Sci. total Environ.*, 45, 319–325
- McLaughlin, J.P. (1986) *Exposure to Natural Radiation in Dwellings of the European Communities (EURATOM Treaty)*, Brussels, Commission of the European Communities
- McLaughlin, J.P. (1987) Population doses in Ireland. In: Hopke, R.K., ed., *Radon and Its Decay Products. Occurrence, Properties, and Health Effects (ACS Symposium Series 331)*, Washington DC, American Chemical Society, pp. 113–123
- Minta, A., Minta, P. & Kochański, W. (1975) The effect of radon 222 on the oral mucosa of rabbits (Czech.). *Czas. Stomat.*, 28, 615–621
- Miyake, Y., Sugimura, Y. & Saruhashi, K. (1980) *The distribution of radon and radium in the ocean and its bearing on some oceanographic problems*. In: Gesell, T.F. & Lowder, W.M., eds, *Natural Radiation Environment III*, Vol. 1 (US Department of Energy Rep. CONF-780422), Springfield, VA, National Technical Information Service, pp. 458–472
- Monlibert, L. & Roubille, R. (1960) Bronchial cancer in iron ore miners (Fr.). *J. fr. Méd. Chir. thor.*, 14, 435–439
- Morin, M., Quéval, P. & Lafuma, J. (1978) *Experimental study of the cocarcinogenic effect of radon-222 and benzo-5,6-flavone* (Fr.). In: *Late Biological Effects of Ionizing Radiation*, Vol. II, Vienna, International Atomic Energy Agency, pp. 423–427
- Morken, D.A. (1955a) *A Survey of the Literature on the Biological Effects of Radon and a Determination of its Acute Toxicity (UR-379)*, Rochester, NY, University of Rochester, Atomic Energy Project
- Morken, D.A. (1955b) Acute toxicity of radon. *Arch. ind. Health*, 12, 435–438
- Morken, D.A. (1973) *The biological effects of radon on the lung*. In: Stanley, R.E. & Moghissi, A.A., eds, *The Noble Gases Symposium (National Environmental Center Report CONF-730915-13)*, Las Vegas, NV, University of Nevada, pp. 501–521

- Morken, D.A. & Scott, J.K. (1966) *The Effects on Mice of Continual Exposure to Radon and its Decay Products on Dust (UR-669)*, Rochester, NY, University of Rochester, Atomic Energy Project
- Morrison, H.I., Wigle, D.T., Stocker, H. & de Villiers, A.J. (1981) *Lung cancer mortality and radiation exposure among Newfoundland fluorspar miners*. In: Gomez, M., ed., *Radiation Hazards in Mining: Control, Measurement, and Medical Aspects*, New York, Society of Mining Engineers of American Institute of Mining, Metallurgical, and Petroleum Engineers, pp. 372–376
- Morrison, H.I., Semenciw, R.M., Mao, Y., Corkill, D.A., Dory, A.B., deVilliers, A.J., Stocker, H. & Wigle, D.T. (1985) *Lung cancer mortality and radiation exposure among the Newfoundland fluorspar miners*. In: Stocker, H., ed., *Occupational Radiation Safety in Mining*, Vol. 1, Toronto, Ontario, Canadian Nuclear Association, pp. 365–368
- Müller, Č., Ružička, L. & Bakstein, J. (1967) The sex ratio in the offsprings of uranium miners. *Acta univ. caroliniae med.*, 13, 599–603
- Muller, J., Wheeler, W.C., Gentleman, J.F., Suranyi, G., Kusiak, R. & Smith, M. (1981) *The Ontario miners mortality study, general outline and progress report*. In: Gomez, M., ed., *Radiation Hazards in Mining: Control, Measurement, and Medical Aspects*, New York, Society of Mining Engineers of American Institute of Mining, Metallurgical, and Petroleum Engineers, pp. 359–362
- Muller, J., Wheeler, W.C., Gentleman, J.F., Suranyi, G. & Kusiak, R.A. (1983) *Study of Mortality of Ontario Miners, 1955–1977*. Part I, Toronto, Ontario, Ministry of Labour
- Muller, J., Wheeler, W.C., Gentleman, J.F., Suranyi, G. & Kusiak, R. (1985) *Study of mortality of Ontario miners*. In: Stocker, E., ed., *Occupational Radiation Safety in Mining*, Vol. 1, Toronto, Ontario, Canadian Nuclear Association, pp. 335–343
- Nair, R.C., Abbatt, J.D., Howe, G.R., Newcombe, H.B. & Frost, S.E. (1985) *Mortality experience among workers in the uranium industry*. In: Stocker, H., ed., *Occupational Radiation Safety in Mining*, Vol. 1, Toronto, Ontario, Canadian Nuclear Association, pp. 354–364
- National Council on Radiation Protection and Measurements (1984) *Evaluation of Occupational and Environmental Exposures to Radon and Radon Daughters in the United States (NCRP Report No. 78)*, Bethesda, MD
- National Radiological Protection Board (1987) *Exposure to Radon Daughters in Dwellings (NRPB-GS6)*, Didcot, UK
- Nazaroff, W.W., Offermann, F.J. & Robb, A.W. (1983) Automated system for measuring air-exchange rate and radon concentration in houses. *Health Phys.*, 45, 525–537
- Nero, A.V. (1983) Airborne radionuclides and radiation in buildings: a review. *Health Phys.*, 45, 303–322
- Nero, A.V., Schwehr, M.B., Nazaroff, W.W. & Revzan, K.L. (1986) Distribution of airborne radon-222 concentrations in US homes. *Science*, 234, 992–997

- Nyberg, P.C. & Bernhardt, D.E. (1983) Measurement of time-integrated radon concentrations in residences. *Health Phys.*, 45, 539–543
- Organisation for Economic Cooperation and Development (1985) *Metrology and Monitoring of Radon, Thoron and Their Daughter Products*, Paris
- Paletta, B., Truppe, W., Mlekusch, W., Pohl, E., Hoffmann, W. & Steinhäusler, F. (1976) Time function of corticosteroid levels in the blood plasma of rats under the influence of ^{222}Rn inhalation. *Experientia*, 32, 652–653
- Palmer, H.E., Perkins, R.W. & Stuart, B.O. (1964) The distribution and deposition of radon daughters attached to dust particles in the respiratory system of humans exposed to uranium mine atmospheres. *Health Phys.*, 10, 1129–1135
- Palmer, H.E., Corss, F.I., Heid, K.R. & Moore, R.H. (1984) Pb-210 in rats, dogs, and humans exposed to radon daughters and uranium ore (Abstract No. P/115). *Health Phys.*, 47, 146
- Partridge, J.E., Horton, T.R. & Sensintaffar, E.L. (1979) *A Study of Radon-222 Released from Water During Typical Household Activity (ORP/EERF-79-1)*, Montgomery, AL, US Environmental Protection Agency, Office of Radiation Programs
- Peake, R.T. & Rush, S.M. (1987) *An initial identification of areas with a potential for high indoor radon levels* (Abstract). In: *Proceedings of the GEORAD Conference on the Geological Causes of Radionuclide Anomalies, St Louis, MI, April 1987*, Denver, CO, US Geological Society, p. 10
- Perraud, R., Chameaud, J., Lafuma, J., Masse, R. & Chrétien, J. (1972) Experimental broncho-pulmonary cancer in rats through inhalation of radon. Comparison with histological aspects of human cancers (Fr.). *J. fr. Méd. Chir. thor.*, 26, 25–41
- Pershagen, G., Damber, L. & Falk, R. (1984) *Exposure to radon in dwellings and lung cancer: a pilot study*. In: Berglund, B., Lindvall, T. & Sundell, J., eds, *Indoor Air, Vol. 2, Radon, Passive Smoking, Particulates and Housing Epidemiology*, Stockholm, Swedish Council for Building Research, pp. 73–78
- Pham, Q.T., Gaertner, M., Mur, J.M., Braun, P., Gabiano, M. & Sadoul, P. (1983) Incidence of lung cancer among iron miners. *Eur. J. respir. Dis.*, 64, 534–540
- Pirchan, A. & Šikl, H. (1932) Cancer of the lung in the miners of Jáchymov (Joachimsthal). *Am. J. Cancer*, 16, 681–722
- Pohl, E. & Pohl-Rüling, J. (1968) Radiation burden after inhalation of radon, thoron and their decay products (Ger.). *Strahlentherapie*, 136, 738–749
- Pohl-Rüling, J. & Fischer, P. (1979) The dose-effect relationship of chromosome aberrations to α and γ irradiation in a population subjected to an increased burden of natural radioactivity. *Radiat. Res.*, 80, 61–81
- Pohl-Rüling, J. & Fischer, P. (1983) *Chromosome aberrations in inhabitants of areas with elevated natural radioactivity*. In: Ishihara, T. & Sasaki, M.S., eds, *Radiation-induced Chromosome Damage in Man*, New York, Alan R. Liss, pp. 527–560

- Pohl-Rüling, J., Fischer, P. & Pohl, E. (1987) *Effect on peripheral blood chromosomes*. In: Hopke, R.K., ed., *Radon and Its Decay Products. Occurrence, Properties, and Health Effects* (ACS Symposium Series 331), Washington DC, Americal Chemical Society, pp. 487–501
- Poncy, J.L., Walter, C., Fritsch, P., Masse, R. & Lafuma, J. (1980) *Delayed SCE frequency in rat bone marrow cells after radon inhalation*. In: Sanders, C.L. et al., eds, *Pulmonary Toxicology of Respirable Particles (USERDA CONF-791002; DOE Symposium Series, 53)*, Springfield, VA, US Economic Research and Development Administration, pp. 479–485
- Prichard, H.M. & Mariën, K. (1985) A passive diffusion ^{222}Rn sampler based on activated carbon adsorption. *Health Phys.*, 48, 797–803
- Put, L.W., de Meijer, R.J. & Hogeweg, B. (1985) Survey of radon concentrations in Dutch dwellings. *Sci. total Environ.*, 45, 441–448
- Quéval, P., Beaumatin, J., Morin, M., Courtois, D. & Lafuma, J. (1979) Inducibility of microsomal enzymes in normal and pre-cancerous lung tissue. Synergistic action of 5,6-benzoflavon or methyl-cholanthrene in radiation induced carcinogenesis. *Bio-medicine*, 31, 182–186
- Radford, E.P. & St Clair Renard, K.G. (1984) Lung cancer in Swedish iron miners exposed to low doses of radon daughters. *New Engl. J. Med.*, 310, 1485–1494
- Rajewsky, B., Schraub, B. & Schraub, E. (1942) On the question of the tolerance-dose effect after inhalation of radon emanation (Ger.). *Naturwissenschaften*, 30, 733–734
- Rajewsky, B., Schraub, A. & Kahlau, G. (1943) Experimental induction of tumours by inhalation of radium emanations (Ger.). *Naturwissenschaften*, 31, 170–171
- Rolle, R. (1972) Rapid working level monitoring. *Health Phys.*, 22, 233–238
- Rostoski, O., Saupe, E. & Schmorl, G. (1926) The mountain disease of people from the Erz mountain in Schneeberg, Saxony ('Schneeberg lung cancer') (Ger.). *Z. Krebsforsch.*, 23, 360–384
- Roussel, J., Pernot, C., Schoumacher, P., Pernot, M. & Kessler, Y. (1964) Statistical considerations on bronchial cancer in iron ore miners of Lorraine (Fr.). *J. Radiol. Electrol.*, 45, 541–546
- Saccomanno, G. (1982) The contribution of uranium miners to lung cancer histogenesis. *Recent Results Cancer Res.*, 82, 43–52
- Saccomanno, G., Archer, V.E., Saunders, R.P., James, L.A. & Beckler, P.A. (1964) Lung cancer of uranium miners on the Colorado plateau. *Health Phys.*, 10, 1195–1201
- Saccomanno, G., Archer, V.E., Auerbach, O., Kuschner, M., Saunders, R.P. & Klein, M.G. (1971) Histological types of lung cancer among uranium miners. *Cancer*, 27, 515–523
- Saccomanno, G., Yale, C., Dixon, W., Auerbach, O. & Huth, G.C. (1986) An epidemiological analysis of the relationship between exposure to Rn progeny, smoking and bronchogenic carcinoma in the U-mining population of the Colorado plateau — 1960–1980. *Health Phys.*, 50, 605–618

- Samet, J.M., Young, R.A., Morgan, M.V., Humble, C.G., Epler, G.R. & McLoud, T.C. (1984a) Prevalence survey of respiratory abnormalities in New Mexico uranium miners. *Health Phys.*, **46**, 361–370
- Samet, J.M., Kutzvirt, D.M., Waxweiler, R.J. & Key, C.R. (1984b) Uranium mining and lung cancer in Navajo men. *New Engl. J. Med.*, **310**, 1481–1484
- Schiager, K.J. (1974) Integrating radon progeny air sampler. *Am. Ind. Hyg. Assoc. J.*, **35**, 165–174
- Schmier, H. & Wicke, A. (1985) Results from a survey of indoor radon exposures in the Federal Republic of Germany. *Sci. total Environ.*, **45**, 307–310
- Sciocchetti, G., Scacco, F., Baldassini, P.G., Battella, C., Bevi, M. & Monte, L. (1985) The Italian national survey of indoor radon exposure. *Sci. total Environ.*, **45**, 327–333
- Ševc, J., Pláček, V. & Jeřábek, J. (1971) *Lung cancer risk in relation to long-term radiation exposure in uranium miners*. In: *Proceedings of the 4th Conference on Radiation Hygiene, CSSR — 1971*, Jasná pod Chopkom, pp. 315–325
- Ševc, J., Kunz, E. & Pláček, V. (1976) Lung cancer in uranium miners and long-term exposure to radon daughter products. *Health Phys.*, **30**, 433–437
- Sextro, R.G., Moed, B.A., Nazaroff, W.W., Revzan, K.L. & Nero, A.V. (1987) *Investigations of soil as a source of indoor radon*. In: Hopke, P.K., ed., *Radon and Its Decay Products. Occurrence, Properties, and Health Effects (ACS Symposium Series 331)*, Washington DC, American Chemical Society, pp. 10–29
- Shapiro, J. (1956) Radiation dosage from breathing radon and its daughter products. *Arch. ind. Health*, **14**, 169–177
- Shiquan, S., Xiaouo, Y., Lan, Y., Xianyu, M., Shengen, L. & Zhanyun, Y. (1984) Latent period and temporal aspects of lung cancer among miners (Chin.). *Radiat. Protect.*, **4**, 331–339
- Shu-Yuan, C., Zhicheng, D., Zhen-Ying, S., Yun-Hua, L. & Cui-Fang, Y. (1981) Lymphocyte chromosome aberrations in personnel occupationally exposed to low levels of radiation (Abstract). *Health Phys., People's Repub. China*, **41**, 586–587
- Simpson, S.G. & Comstock, G.W. (1983) Lung cancer and housing characteristics. *Arch. environ. Health*, **38**, 248–251
- Singh, N.P., Bennett, D., Saccomanno, G. & Wrenn, M.E. (1985) *Concentrations of ²¹⁰Pb in uranium miners' lungs and its states of equilibria with ²³⁸U, ²³⁴U, and ²³⁰Th*. In: Stocker, H., ed., *Occupational Radiation Safety in Mining*, Vol. 2, Toronto, Ontario, Canadian Nuclear Association, pp. 503–506
- Šmid, A., Ševc, J., Pláček, V. & Kunz, E. (1983) *Lung cancer in exposed human populations and dose/effect relationship*. In: *Proceedings of the 7th International Congress on Radiation Research, Amsterdam, July 1983*, pp. 105–112
- Snihs, J.O. (1973) *The approach to radon problems in non-uranium mines in Sweden*. In: *Proceedings of the 3rd International Congress of the International Radiation Protection Association (CONF-730907-P2)*, Springfield VA, National Technical Information Services, pp. 900–910

- Solli, H.M., Andersen, A., Stranden, E. & Langård, S. (1985) Cancer incidence among workers exposed to radon and thoron daughters at a niobium mine. *Scand. J. Work Environ. Health*, 11, 7–13
- Sørensen, A., Bøtter-Jensen, L., Majborn, B. & Nielsen, S.P. (1985) A pilot study of natural radiation in Danish houses. *Sci. total Environ.*, 45, 351–356
- Sperlich, D., Karlik, A. & Pohl, E. (1967) Study on the mutagenic effect of radon-222 in *Drosophila melanogaster* (Ger.). *Strahlentherapie*, 132, 105–112
- St Clair Renard, K.G. (1974) Respiratory cancer mortality in an iron ore mine in northern Sweden. *Ambio*, 3, 67–69
- Stenstrand, K., Annanmäki, M. & Rytömaa, T. (1979) Cytogenetic investigation of people in Finland using household water with high natural radioactivity. *Health Phys.*, 36, 441–444
- Stranden, E. (1987) Radon-222 in Norwegian dwellings. In: Hopke, P.K., ed., *Radon and Its Decay Products. Occurrence, Properties, and Health Effects (ACS Symposium Series 331)*, Washington DC, American Chemical Society, pp. 70–83
- Stuart, B.O., Willard, D.H. & Howard, E.B. (1970) Uranium mine air contaminants in dogs and hamsters. In: Hanna, M.G., Jr, Nettlesheim, P. & Gilbert, J.R., eds, *Inhalation Carcinogenesis (AEC Symposium Series 18)*, Oak Ridge, TN, US Atomic Energy Commission, pp. 413–427
- Suomela, M. & Kahlos, H. (1972) Studies on the elimination rate and the radiation exposure following ingestion of ²²²Rn rich water. *Health Phys.*, 23, 641–652
- Svensson, C., Eklund, G. & Pershagen, G. (1987) Indoor exposure to radon from the ground and bronchial cancer in women. *Int. Arch. occup. environ. Health*, 59, 123–131
- Swedjemark, G.A., Burén, A. & Mjönes, L. (1987) Radon levels in Swedish homes: a comparison of the 1980s with the 1950s. In: Hopke, P.K., ed., *Radon and Its Decay Products. Occurrence, Properties, and Health Effects (ACS Symposium Series 331)*, Washington DC, American Chemical Society, pp. 84–96
- Takahashi, C.T. (1976) Cytogenetical studies on the effects of high natural radiation levels in *Tityus bahiensis* (Scorpiones, Buthidae) from Morro do Ferro, Brazil. *Radiat. Res.*, 67, 371–381
- Tanner, A.B. (1980) Radon migration in the ground: a supplementary review. In: Gesell, T.F. & Lowder, W.M., eds, *Natural Radiation Environment III*, Vol. 1 (US Department of Energy Rep. CONF-780422), Springfield, VA, National Technical Information Service, pp. 5–56
- Tanner, A.B. (1986) Geological factors that influence radon availability. In: *Proceedings of an APC International Specialty Conference on Radon*, Pittsburg, PA, Air Pollution Control Association, pp. 1–12
- Thomas, D.C., McNeill, K.G. & Dougherty, C. (1985) Estimates of lifetime lung cancer risks resulting from Rn progeny exposure. *Health Phys.*, 49, 825–846

- Thomas, J.W. (1972) Measurement of radon daughters in air. *Health Phys.*, 23, 783–789
- Thomas, J.W. & Countess, R.J. (1979) Continuous radon monitor. *Health Phys.*, 35, 734–738
- Tirmarche, M., Brenot, J., Piechowski, J., Chameaud, J. & Pradel, J. (1984) *The present state of an epidemiological study of uranium miners in France*. In: Stocker, H., ed., *Occupational Radiation Safety in Mining*, Vol. 1, Toronto, Ontario, Canadian Nuclear Association, pp. 344–349
- Trapp, E., Renzetti, A.D., Jr, Kobayashi, T., Mitchell, M.M. & Bigler, A. (1970) Cardiopulmonary function in uranium miners. *Am. Rev. respir. Dis.*, 101, 27–43
- Tremblay, R.J., Leclerc, A., Mathieu, C., Pepin, R. & Townsend, M.G. (1979) Measurement of radon progeny concentration in air by α -particle spectrometric counting during and after air sampling. *Health Phys.*, 36, 401–411
- Trocherie, S., Court, L., Gourmelon, P., Mestries, J.-C., Fatome, M., Pasquier, C., Jammet, H., Gongora, H. & Doloy, M.T. (1984) *The value of EEG signal processing in the assessment of the dose of gamma or neutron-gamma radiation absorbed dose*. In: Court, L., Trocherie, S. & Doucet, J., eds, *Le Traitement du Signal en Electrophysiologie Expérimentale et Clinique du Système Nerveux Central* [Signal Processing in Experimental and Clinical Electrophysiology of the Central Nervous System], Vol. I, Fontenay-aux-Roses, Atomic Energy Commission, pp. 633–644
- Tsuchihashi, I.S., Murayama, H., Yamashita, M., Negishi, K. & Sakamoto, K. (1982) Effects of radon inhalation in mammals (Abstract No. 2-C-14). *J. Radiat. Res.*, 23, 50
- Tuschl, H., Altmann, R., Kovac, R., Topaloglou, A., Egg, D. & Günther, R. (1980) Effects of low-dose radiation on repair processes in human lymphocytes. *Radiat. Res.*, 81, 1–9
- United Nations Scientific Committee on the Effects of Atomic Radiation (1977) *Sources and Effects of Ionizing Radiation*, New York, United Nations, p. 398
- United Nations Scientific Committee on the Effects of Atomic Radiation (1982) *Ionizing Radiation: Sources and Biological Effects. Report to the General Assembly, with Annexes*, New York, United Nations
- US Environmental Protection Agency (1982) *Final Environmental Impact Statement for Remedial Action Standards for Inactive Uranium Processing Sites (40 CFR 192)*, Vol. 1 (EPA 520/4-82-013-1), Washington DC, Office of Radiation Programs
- US Environmental Protection Agency (1983) *Final Environmental Impact Statement for Standards for the Control of Byproduct Materials from Uranium Ore Processing (40 CFR 192)* (EPA 520/1-83-008-1), Washington DC, Office of Radiation Programs
- US Environmental Protection Agency (1985) *Radionuclides. Background Information Document — Standard for Radon-222 Emissions from Underground Uranium Mines (EPA 520/1-85-010)*, Washington DC, Office of Radiation Programs
- US Environmental Protection Agency (1986a) *Final Rule for Radon-222 Emissions from Licensed Uranium Mill Tailings. Background Information Document (EPA 520/1-86-009)*, Washington DC, Office of Radiation Programs

- US Environmental Protection Agency (1986b) *A Citizen's Guide to Radon. What It Is and What To Do About It (OPA-86-004)*, Washington DC, Office of Air and Radiation
- US Radiation Policy Council (1980) *Report of the Task Force on Radon in Structures (RPC-80-002)*, Washington DC
- US Surgeon General (1984) *The Health Consequences of Smoking. Chronic Obstructive Lung Disease*, Rockville, MD, US Department of Health and Human Services
- US Surgeon General (1985) *The Health Consequences of Smoking. Cancer and Chronic Lung Disease in the Workplace*, Rockville, MD, US Department of Health and Human Services
- de Villiers, A.J. & Windish, J.P. (1964) Lung cancer in a fluorspar mining community. I. Radiation, dust, and mortality experience. *Br. J. Ind. Med.*, 21, 94–109
- Višnjić, V., Panov, D. & Novak, L. (1976) Effects of uranium ore dust, radon and products of its decay in the lung of rats (Abstract). *Health Phys.*, 31, 277–278
- Wagner, W.L., Archer, V.E. & Blanchard, R.L. (1972) A correction in the comparison of ^{210}Pb skeletal levels with radon daughter exposures. *Health Phys.*, 23, 871–872
- Wagoner, J.K., Miller, R.W., Lundin, F.E., Jr, Fraumeni, J.F., Jr & Haij, M.E. (1963) Unusual cancer mortality among a group of underground metal miners. *New Engl. J. Med.*, 269, 284–289
- Wagoner, J.K., Archer, V.E., Carroll, B.E., Holaday, D.A. & Lawrence, P.A. (1964) Cancer mortality patterns among US uranium miners and millers, 1950 through 1962. *J. natl Cancer Inst.*, 32, 787–801
- Wagoner, J.K., Archer, V.E., Lundin, F.E., Jr, Holaday, D.A. & Lloyd, J.W. (1965) Radiation as the cause of lung cancer among uranium miners. *New Engl. J. Med.*, 273, 181–188
- Wang, X., Huang, X. et al. (1984) Radon and miners' lung cancer (Chin.). *Chin. Rad. med. Protect. J.*, 4, 10–14
- Waxweiler, R.J., Roscoe, R.J. & Archer, V.E. (1981a) *Secondary sex ratio of first-born offspring of US uranium miners*. In: Wiese, W.H., ed., *Birth Effects in the Four Corners Area*, Albuquerque, NM, University of New Mexico School of Medicine, pp. 37–50
- Waxweiler, R.J., Roscoe, R.J., Archer, V.E., Thun, M.J., Wagoner, J.K. & Lundin, F.E., Jr (1981b) *Mortality follow-up through 1977 of the white underground uranium miners cohort examined by the United States Public Health Service*. In: Gomez, M., ed., *Radiation Hazards in Mining: Control, Measurement and Medical Aspects*, New York, Society of Mining Engineers of American Institute of Mining, Metallurgical, and Petroleum Engineers, pp. 823–830
- Weast, R.C., ed. (1985) *CRC Handbook of Chemistry and Physics*, 66th ed., Boca Raton, FL, CRC Press, p. B-133
- Wehner, A.P., Stuart, B.O. & Sanders, C.L. (1979) Inhalation studies with Syrian golden hamsters. *Progr. exp. Tumor Res.*, 24, 177–198

- Whittemore, A.S. & McMillan, A. (1983) Lung cancer mortality among US uranium miners: a reappraisal. *J. natl Cancer Inst.*, 71, 489-499
- Wiese, W.H. & Skipper, B.J. (1986) Survey of reproductive outcomes in uranium and potash mine workers: results of first analysis. *Ann. Am. Conf. Gov. ind. Hyg.*, 14, 187-192
- Wilkinson, G.S. (1985) Gastric cancer in New Mexico counties with significant deposits of uranium. *Arch. environ. Health*, 40, 307-312
- Wilson, C. (1984) *Mapping the radon risk of our environment*. In: Berglund, B., Lindvall, T. & Sundell, J., eds, *Indoor Air*, Vol. 2, *Radon, Passive Smoking, Particulates and Housing Epidemiology*, Stockholm, Swedish Council for Building Research, pp. 85-92
- Wright, E.S. & Couves, C.M. (1977) Radiation-induced carcinoma of the lung — the St Lawrence tragedy. *J. thor. cardiovasc. Surg.*, 74, 495-498
- Zaporozhchenko, I.G. (1973) Proliferative activity of gastric mucosa in rats after oral administration of radon water at various postresection periods (Russ.). *Byull. eksp. Biol. Med.*, 75, 89-93