

obituary

John Ray Dunning, a pioneer in the development during World War II of the method of isolating uranium 235 used in nuclear weapons and power plants, has died at his home in Florida. He was 73.

Dr Dunning started his graduate career at Columbia in 1929 and was appointed assistant professor in physics in 1935. He toured many European nuclear physics research establishments during the following year and was to become associated with Bohr and Fermi on his return to America. He directed the development of Columbia's first cyclotron, built in 1936, which was to be used in the university's history-making experiments. In determining that uranium 235 is the isotope which readily undergoes fission into

two atoms of nearly equal size and that the reaction releases prodigious amounts of energy, Dr Dunning helped to lay the foundations of the atomic age. He was essentially confirming the results of the enemy in Germany, but his experiments were nevertheless of paramount importance in winning the race to production. He was promoted to full professor in 1946 and in that year served as special representative for the Manhattan District at the first postwar detonation of an atomic bomb on Bikini Atoll. During 1941-46, he was an official investigator of the Office of Scientific Research and Development. From 1942-45 he was director of research in the substitute alloy materials laboratories, which was the official name for the secret gaseous

diffusion project to isolate uranium 235 from 238 for the production of atomic bombs (this process is still the major source of such "fuel"). In 1945 he was appointed director of Columbia's division of war research, and the following year was awarded the Medal of Merit, the highest award made by the US President to civilians. In 1950 he saw the completion of the university's 385 million electron volt synchrocyclotron at Nervis, New York after serving as scientific director of the project.

After 19 years as dean of the faculty of engineering, during which time he had raised over \$50 million for the research effort, he resigned to become Thayer Lindsley Professor in applied science in 1969.

announcements

International meetings

December 1-2, **DNA-repair and late effects**, Vienna (International Atomic Energy Agency, 1010 Vienna, Kartner Ring 9, Austria).

December 1-5, **Nuclear techniques in exploration extraction and processing**, Rio de Janeiro, Brazil (International Atomic Energy Agency, 1010 Vienna, Kartner Ring 9, Austria).

December 2-3, **Grass weeds**, Paris (M. R. Faivre-Dupaigre, 8 Avenue du President Wilson, 75116 Paris, France).

December 3-5, **Cardiology**, Houston (The Office of the Director, The University of Texas Health Science Center at Houston, Division of Continuing Education, PO Box 20367, Houston, Texas 77025).

December 11-12, **Recent advances in chemistry and technology of fats and oils**, Liverpool (Head of Chemistry Department, Liverpool Polytechnic, Byrom Street, Liverpool L3 3AF, UK).

December 16-18, **Structure and function of membranes**, London (Dr J. C. Metcalfe, Department of Pharmacology, University of Cambridge, Medical School, Hills Road, Cambridge CB2 2QD).

Reports and publications

Other Countries

Environment Canada—Fisheries and Marine Service. Technical Report No. 563: Underwater Noise at an Offshore Drilling Operation in the Bay of Fundy. By U. Buerkle. Pp. v + 13. (St. Andrews, NB: Research and Development Directorate, Biological Station, 1975.) [138]

Australia: Commonwealth Scientific and Industrial Research Organization. Report of the Division of Environmental Mechanics, 1973/1974. Pp. 36. (Melbourne: CSIRO, 1975.) [148]

New Zealand Department of Scientific and Industrial Research: Geophysics Division. Seismological Report 1969. (Seismological Observatory. Bulletin E-153). Pp. 654. Seismological Report 1972. (Seismological Observatory Bulletin E-152). Pp. 734. (Wellington: Seismological Observatory, 1975.) [148]

Records of the Australian Museum, Vol. 29, No. 17: A Revision of the Gobiid Fish Genus *Kelloggella*. By Douglas F. Hoese. Pp. 473-484 + plates 1-3. (Sydney: Australian Museum, 1975.) 50c. [148]

National Cancer Institute. National Cancer Program 1975 Fact Book. Pp. v + 50. (Bethesda, Md.: Department of Health, Education and Welfare, Public Health Service, National Institutes of Health, 1975.) [148]

Canada: Department of Energy, Mines and Resources. Geological Survey of Canada. Paper 74-17: Ontarotue River (106J), Travaillant Lake, and Canot Lake (106P) Map-Areas, District of Mackenzie, Northwest Territories. By D. G. Cook and J. D. Aitken. Pp. v + 44. \$4.55 Paper 74-34: Lower Paleozoic Franklin Mountain and Mount Kindle Formations—Their Type Sections and Regional Development. By B. S. Norford and R. W. MacQueen. Pp. vi + 37. \$3.60. Paper 74-35: Extraction of Uranium from Aqueous Solutions by Coals of Different Rank and Petrographic Composition. By A. R. Cameron and G. Leclair. Pp. v + 11. \$3.60. Paper 74-39: Biostratigraphic Determinations of Fossils from the Subsurface of the Districts of Franklin and Mackenzie. By W. W. Brideaux, et al. Pp. vi + 19. \$2.40. Paper 74-46: Inventory of Quaternary Geology, Southern Labrador—An Example of Quaternary Geology—Terrain Studies in Underdeveloped Areas. By R. J. Fulton, D. A. Hodgson and G. V. Minning. Pp. iv + 14. \$2.40. Paper 75-21: A Computer Program for Polynomial Trend-Surface Analysis. By F. P. Agterberg and C. F. Chung. Pp. 51. \$3.60. (Ottawa: Information Canada, 1975.) [158]

The Winged Bean: a High-Protein Crop for the Tropics. Pp. vii + 41. (Washington, DC: National Academy of Sciences, 1975.) [158]

Records of the Australian Museum, Vol. 29, No. 12: The Alpheid Shrimp of Australia. Part 2: The Genus *Synalpheus*. By Dora M. and Albert H. Banner. Pp. 267-389. 50c. Vol. 29, No. 18: *Periclimener colemani* SP. NOV., a New Shrimp Associate of a Rare Sea Urchin from Heron Island, Queensland (Decapoda Natantia, Pontoninae). By A. J. Bruce. Pp. 485-502. 50c. Vol. 29, No. 19: Australian Species of *Haliopasma* (Crustacea: Isopoda: Anthuridae). By Garry C. B. Poore. Pp. 503-533. 50c. (Sydney: The Australian Museum, 1975.) [158]

Annals of the South African Museum, Vol. 67, Part 4: Marine Isopoda from the Continental Shelf of South Africa. By Brian Kensley. Pp. 35-89. (Cape Town: The South African Museum, 1975.) R.3.90. [158]

Canada: Department of National Defence. Defence 1974. Pp. vi + 88. (Ottawa: Information Services, Department of National Defence, 1975.) \$1.20. [158]

Canadian Grain Commission. Grain Research Laboratory—1974 Report. Pp. vi + 90. (Ottawa: Information Canada, 1975.) [188]

International Atomic Energy Agency. The agency's Budget for 1976. (Vienna: IAEA, 1975.) [188]

Micro Memo: Memorandum of Microscopy. Pp. 135. (Heerbrugg, Switzerland: Wild Heerbrugg, Ltd., 1975.) [188]

International Institute for Applied Systems Analysis. IIASA '74. Pp. 42. (Laxenburg, Austria: International Institute for Applied Systems Analysis, 1975.) [188]

Osservazioni e Memorie dell'Osservatorio Astrofisico di Arcetri. Fascicolo 104: Skylab Solar Workshop. (Preliminary results from the S-054 X-ray Telescope and the Correlated Ground-Based Observations, Florence, 21-22 March 1974.) Edited by Guglielmo Righini. Pp. 210. (Firenze: Universita Degli Studi di Firenze, Facolta di Scienze Matematiche, Fisiche e Naturali, 1975.) [188]

Basel Institute for Immunology. Annual Report for 1974. Pp. 124. (Basel: Basel Institute for Immunology, 1975.) [188]

Solar Site Testing at Mizpe Ramon and Caesarea. By Lars Staveland. (Publications of the Israel Academy of Sciences and Humanities—Section of Sciences.) Pp. 17. (Jerusalem: The Israel Academy of Sciences and Humanities, 1975.) [198]

Annual Report of the Inter-American Tropical Tuna Commission, 1974. Pp. 169. (La Jolla, California: Inter-American Tropical Tuna Commission, 1975.) [268]

Manual on Radiation Protection in Hospitals and General Practice. Vol. 3: X-ray Diagnosis. By B. E. Keane and K. B. Tikhonov. Pp. 96. (Jointly sponsored by ILO, IAEA and WHO.) (Geneva: World Health Organisation; London: HMSO, 1975.) Sw.fr. 18. [278]

Annual Report of The Experiment Station of the South African Sugar Association, 1974/1975. Pp. 87. (Mount Edgecombe, Natal: South African Sugar Association, 1975.) [288]