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From the Old to the New World of Nuclear Physics

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Physicists passed from the Old to the New World of Nuclear Physics in the two decades between the first and second world wars. The transition occurred against the background of the Great War, the postwar hyperinflation in Germany and Austria, and the greatest intellection migrations in history after the Nazi Civil Service law of 1933, the *Anschluss* of Austria in March 1938, and the Fascist anti-Semitic laws that fall. It involved Rutherford's discovery of artificial disintegration, Pettersson and Kirsch's challenge of it, and the concomitant rise and fall of Rutherford's satellite model of the nucleus; Gamow's quantum-mechanical theory of alpha decay and his liquid-drop model of the nucleus; the discoveries of deuterium and the deuteron, neutron, and positron, and the inventions of the Cockcroft-Walton accelerator and the cyclotron; the influence of the seventh Solvay Conference; Joliot and Curie's discovery of artificial radioactivity; Pauli's neutrino hypothesis, Fermi's theory of beta decay, and his discovery of the efficacy of slow neutrons in producing nuclear reactions; Bohr's theory of the compound nucleus and Breit and Wigner's theory of neutron-nucleus resonances; and the discovery of nuclear fission, Meitner and Frisch's interpretation of it, and Bohr and Fermi revelation of both in America.