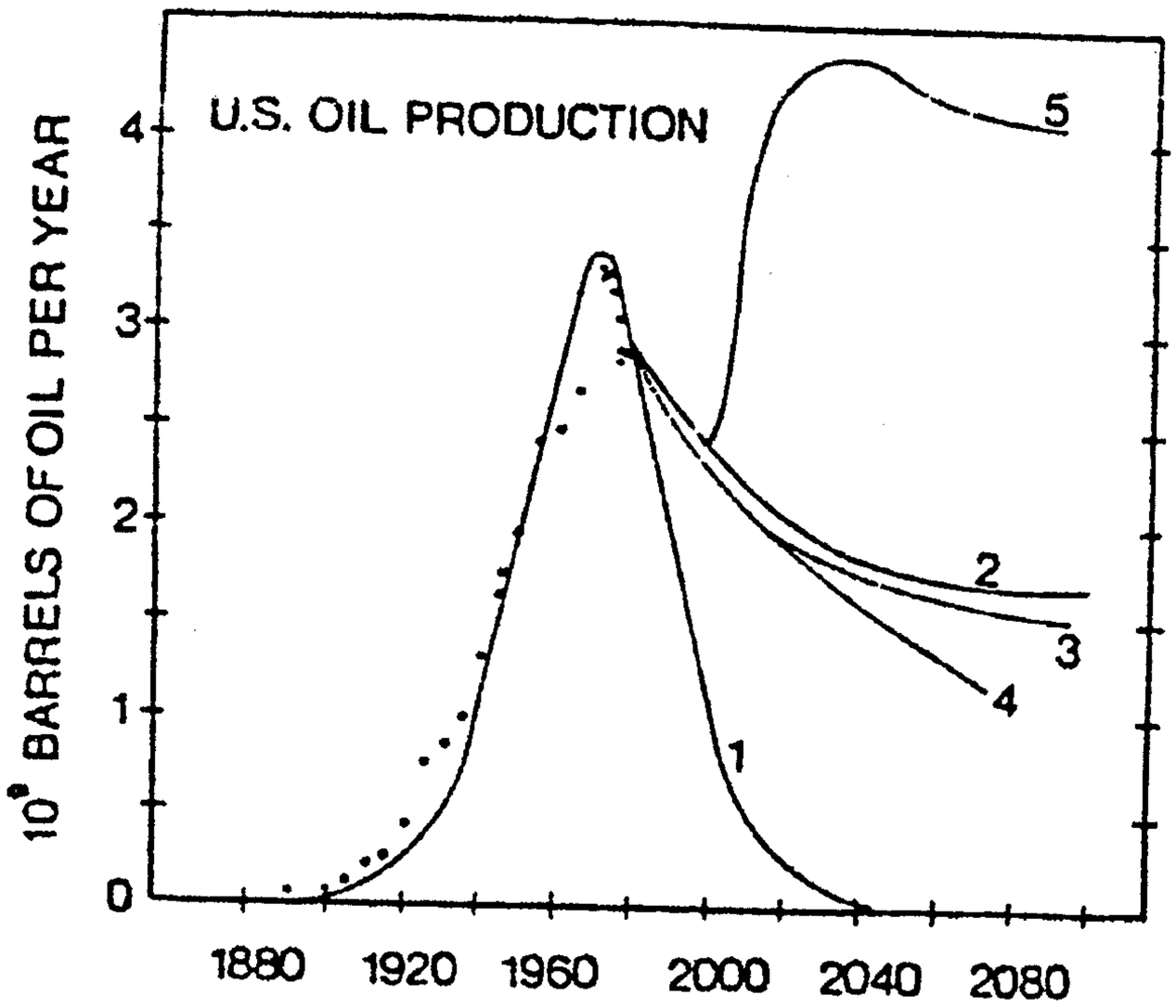

FIGURE 16.5. Modeling US oil production. US domestic production from 1890 to 1980 is compared to the solution of the Verhulst equation without rising prices (curve 1). The Verhulst equation is modified to take into account the effects of increased supply and reduced demand at higher prices in curves 2–5, which assume petroleum prices rise linearly at $\phi = 5\%/\text{year}$ above inflation. (In a time of high rising prices.) (Same answers result from dividing ϕ by n and multiplying e by n.). Curve 2 uses only supply elasticity to increase the resource ($e_s = 0.2$, $e_d = 0$). Curve 3 adds demand elasticity to reduce demand ($e_s = 0.2$, $e_d = -0.1$). Curve 4 raises demand elasticity as drivers accommodate to change ($e_s = 0.2$, $e_d = -0.1$, until 1990 when $e_d = -0.2$ for the long-term). Curve 5 symbolizes a synfuel industry that begins with normal markets with $e_s = 0.2$ until 2000, then the industry is stimulated with tax credits, raising e_s to 0.4, while e_d remains at -0.1.