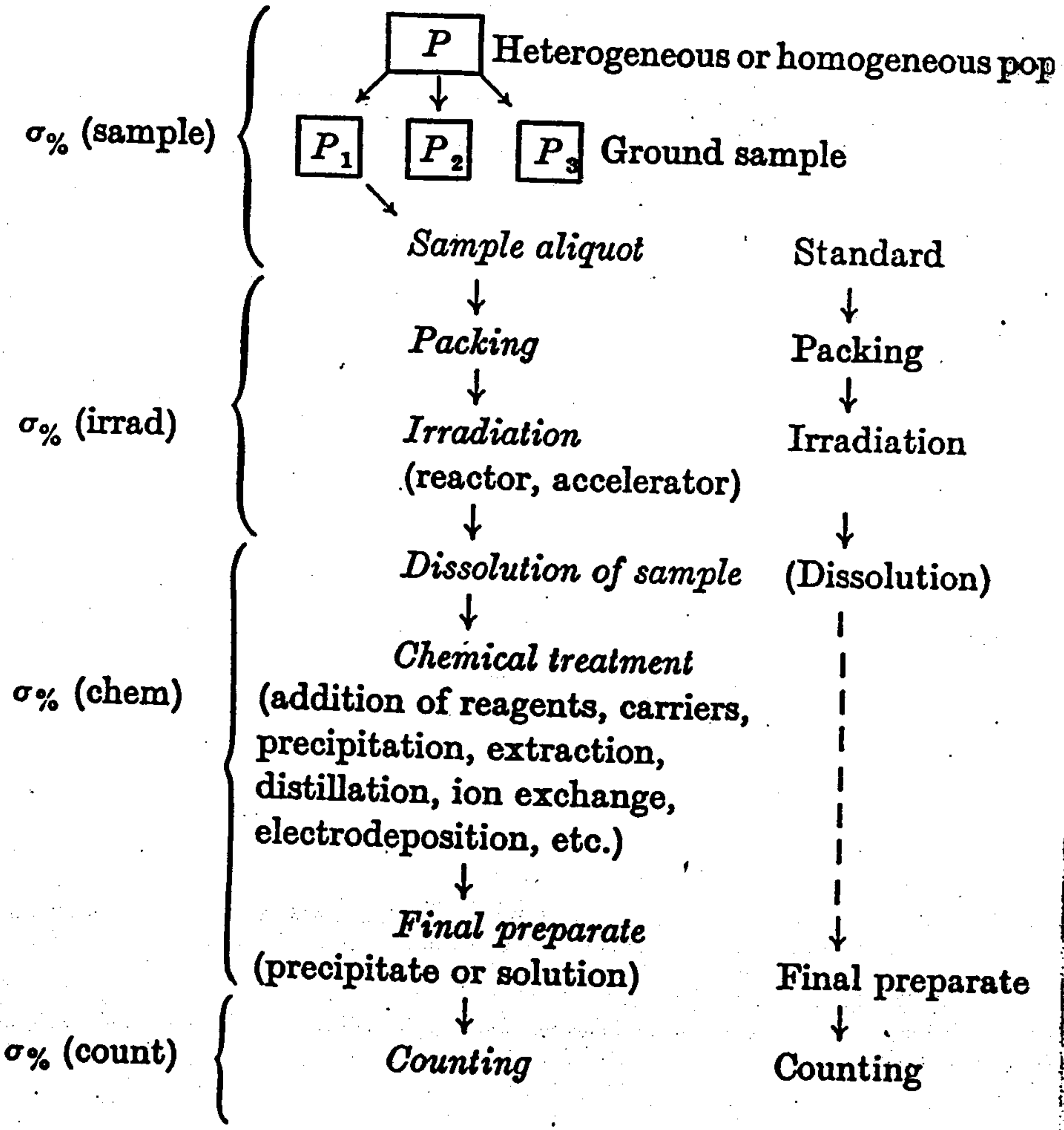
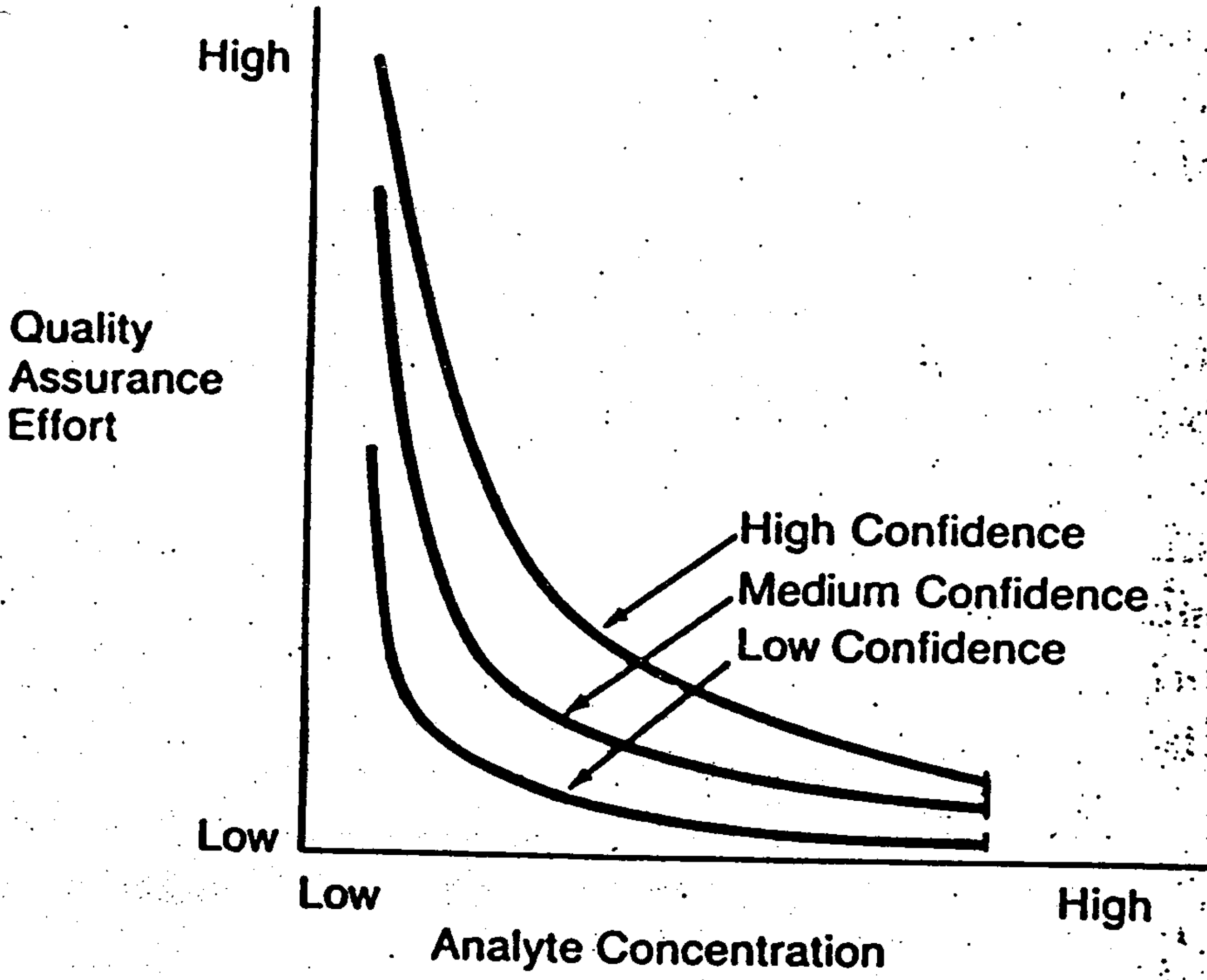
Assume that an activation analysis is carried out as schem[a]
represented below:



10 SOURCES OF ERRORSIN NAA



e 1. Qualitative relationship of confidence, concentration, and y assurance effort. The quality assurance effort increases at a rate as the need for higher confidence increases and the analyte entration decreases. Eventually a point is reached where the y assurance effort increases rapidly as lower analyte concenn is approached and also where further quality assurance effort ices diminishing returns with increasing confidence.

II.1

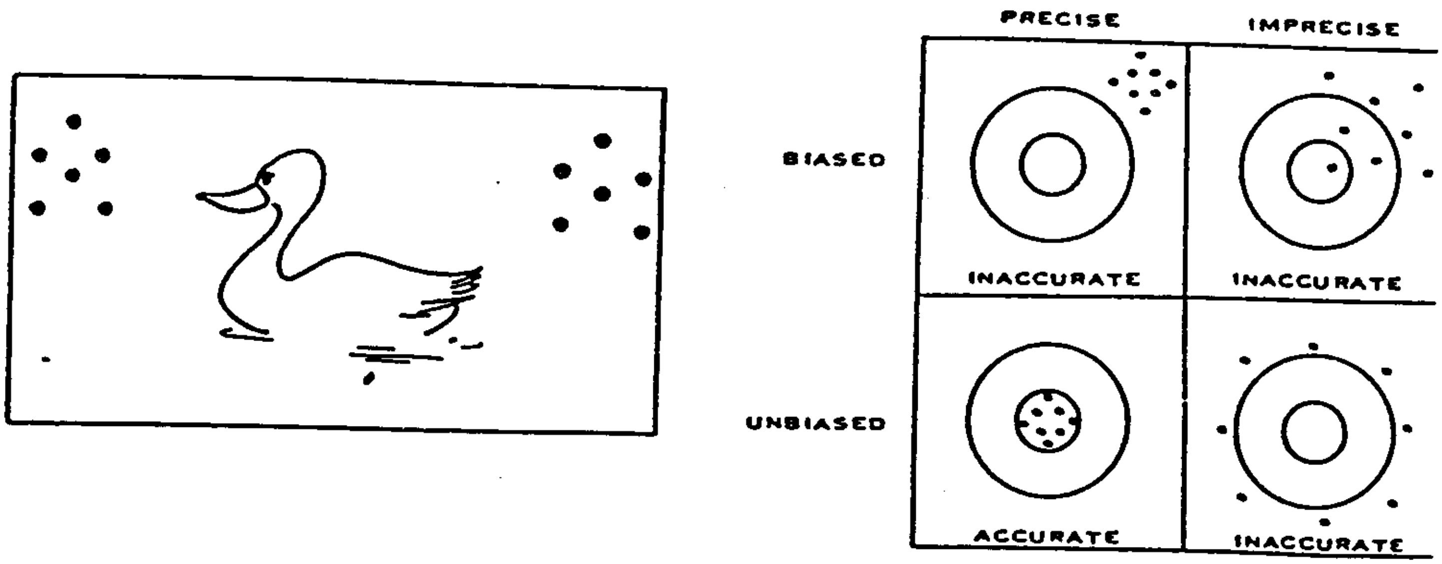


Figure 5.14 (*a*) "On an average the duck was dead." A hunter fired both barrels of a shot-
gun at a duck. The first hit 2 ft in front, the second hit 2 ft behind. On an average the duc
was dead. What the hunter really wanted was meat on the table. In duck hunting one mus
keep trying until a single shot hits the mark, but in estimating the activity of a radioactiv
source the best estimate is usually the average. [Adapted from G. D. Chase and J. L.
Rabinowitz, *Principles of Radioisotope Methodology* (Burgess, Minneapolis, 1962).]

10.1

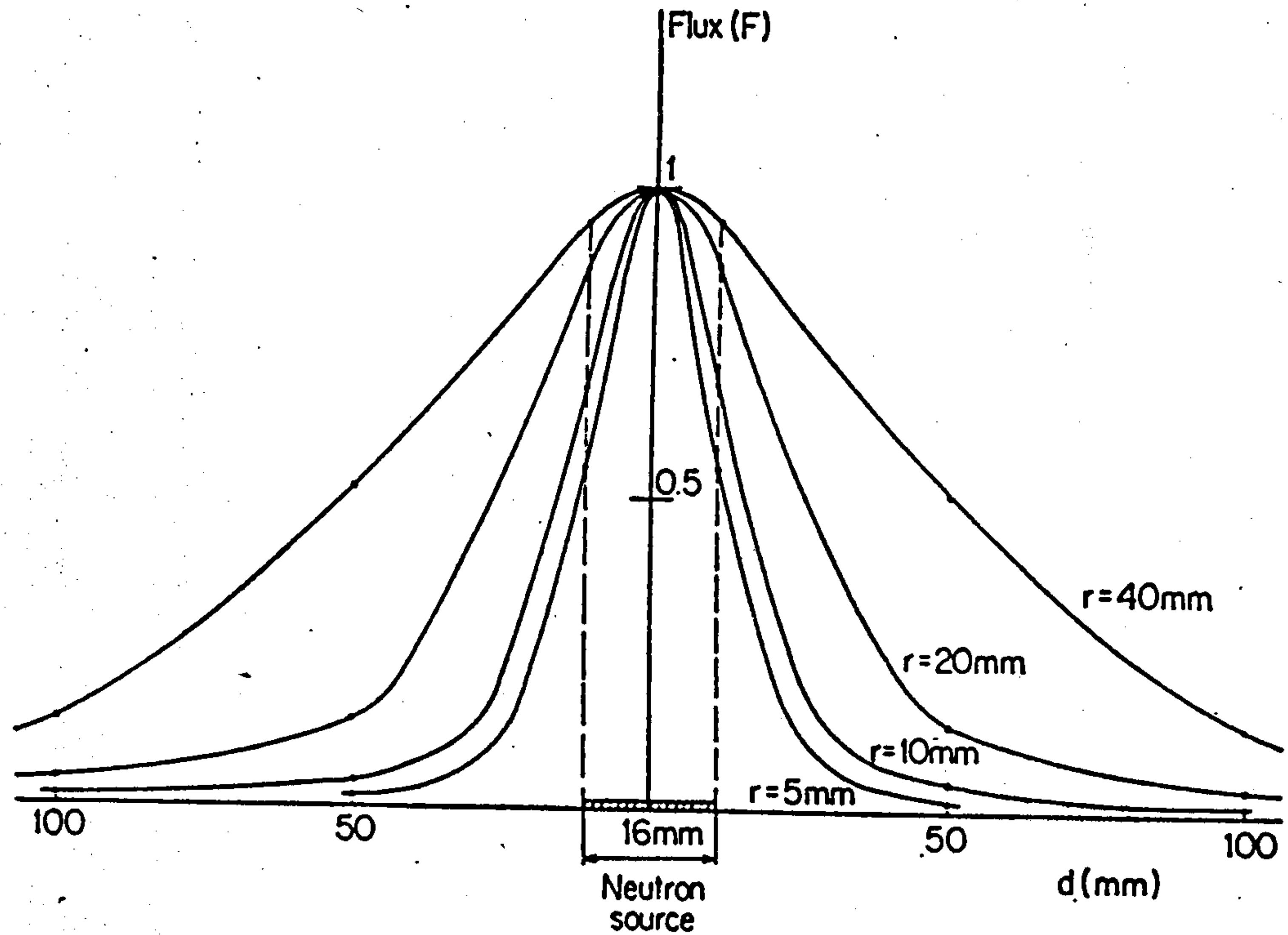


Fig. 10.3. Fast neutron flux pattern for a 14 MeV neutron generator: Transversal flux distribution (20).

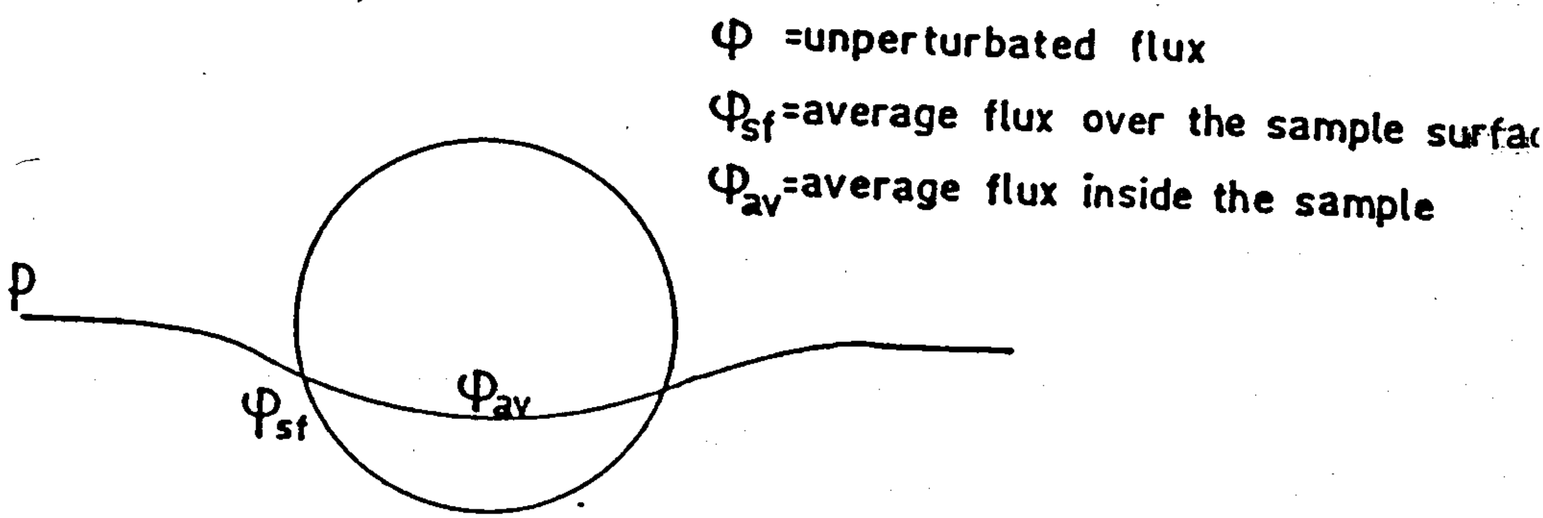


Fig. 10.6. **Flux perturbation, flux depression and self-absorption.**

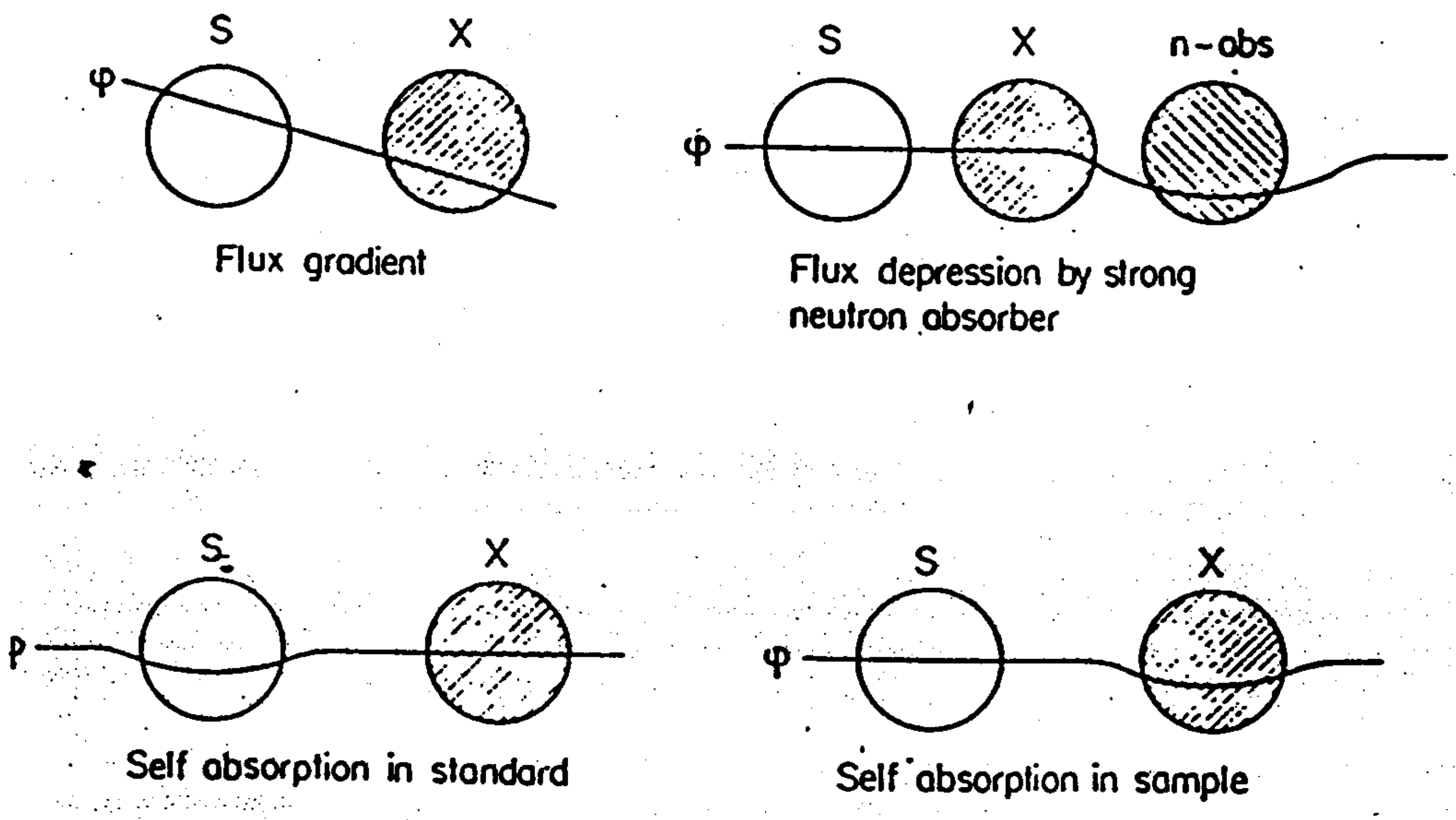


Fig. 10.5. **Neutron flux differences in standards and samples.**

10.26

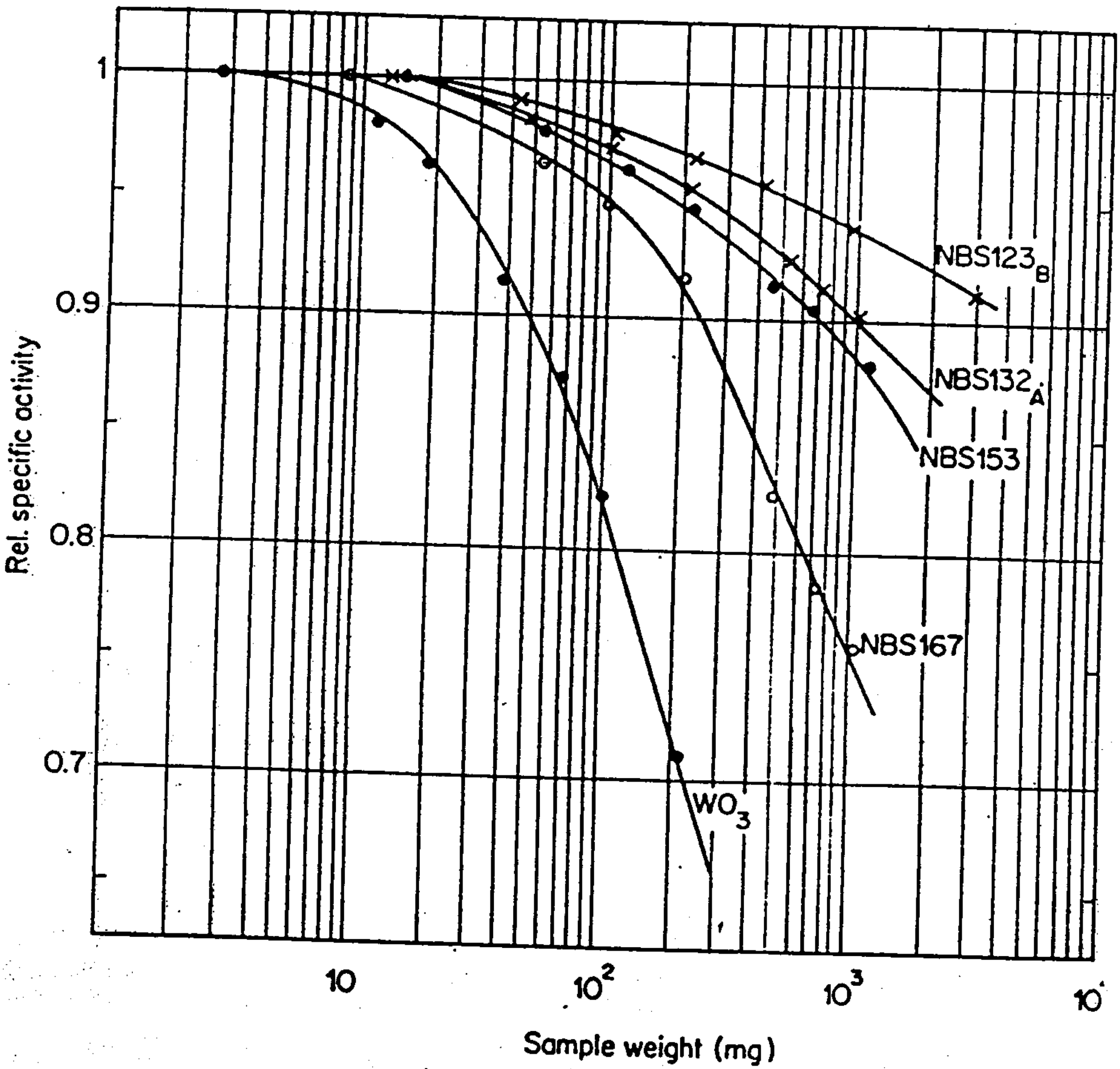


Fig. 10.7. **Influence of sample size on the neutron self-shielding (48).**

Activation Analysis: Limitations

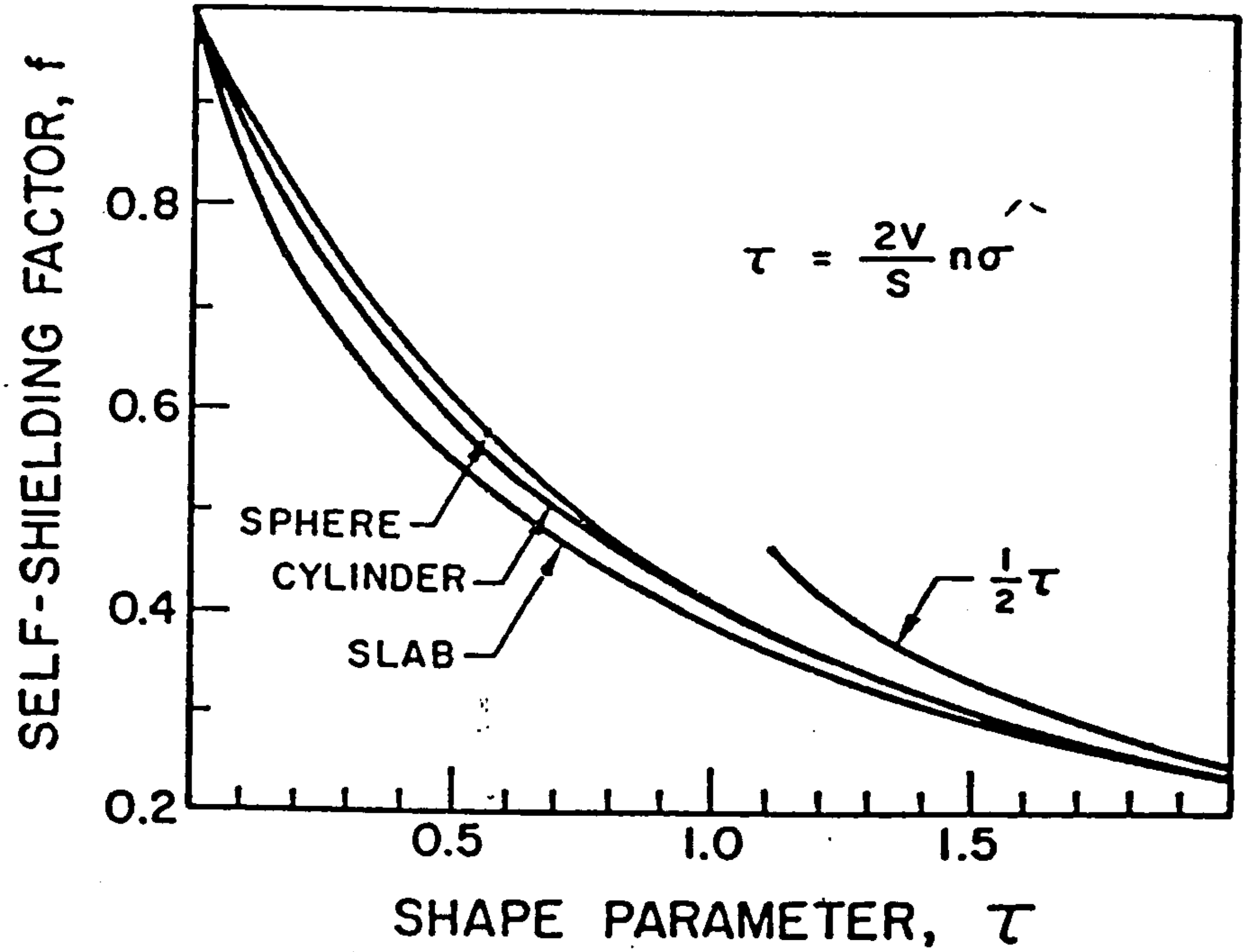


Figure 8.2 Neutron self-shielding factors for infinite slabs, cylinders, and spheres. [From P. F. Zweifel, Neutron Self-Shielding, *Nucleonics* **18**, No. 11, 174–175 (1960).]

10.28

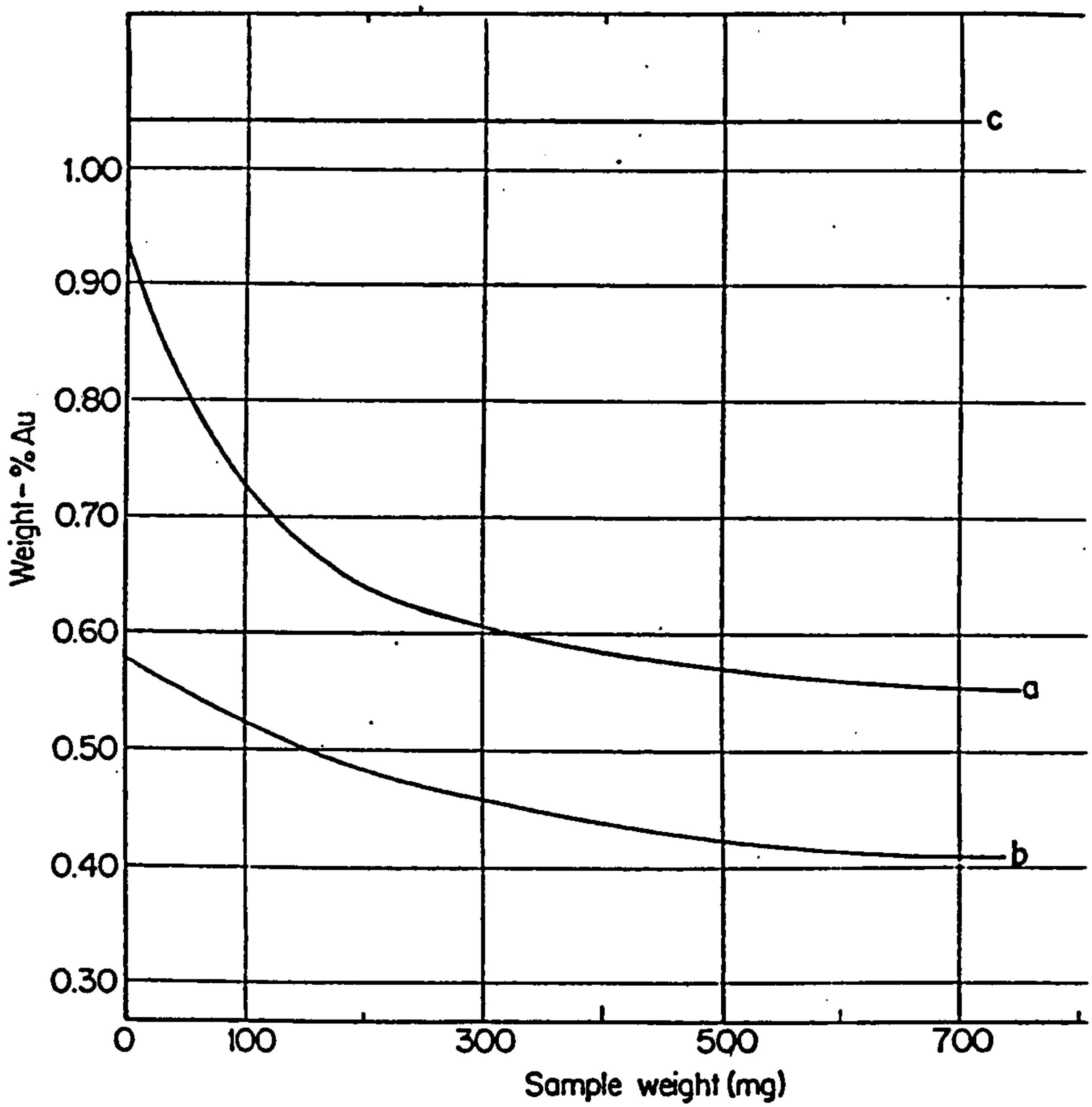


Fig. 10.9. Concentration of Au in Ag-spheres. (a) without correc absorption effects ($CR = 11{,}400$), (b) without correcting for absorptio ($CR = 2.6$), (c) after correction for absorption effects (see Table 10.6) (

10.2b

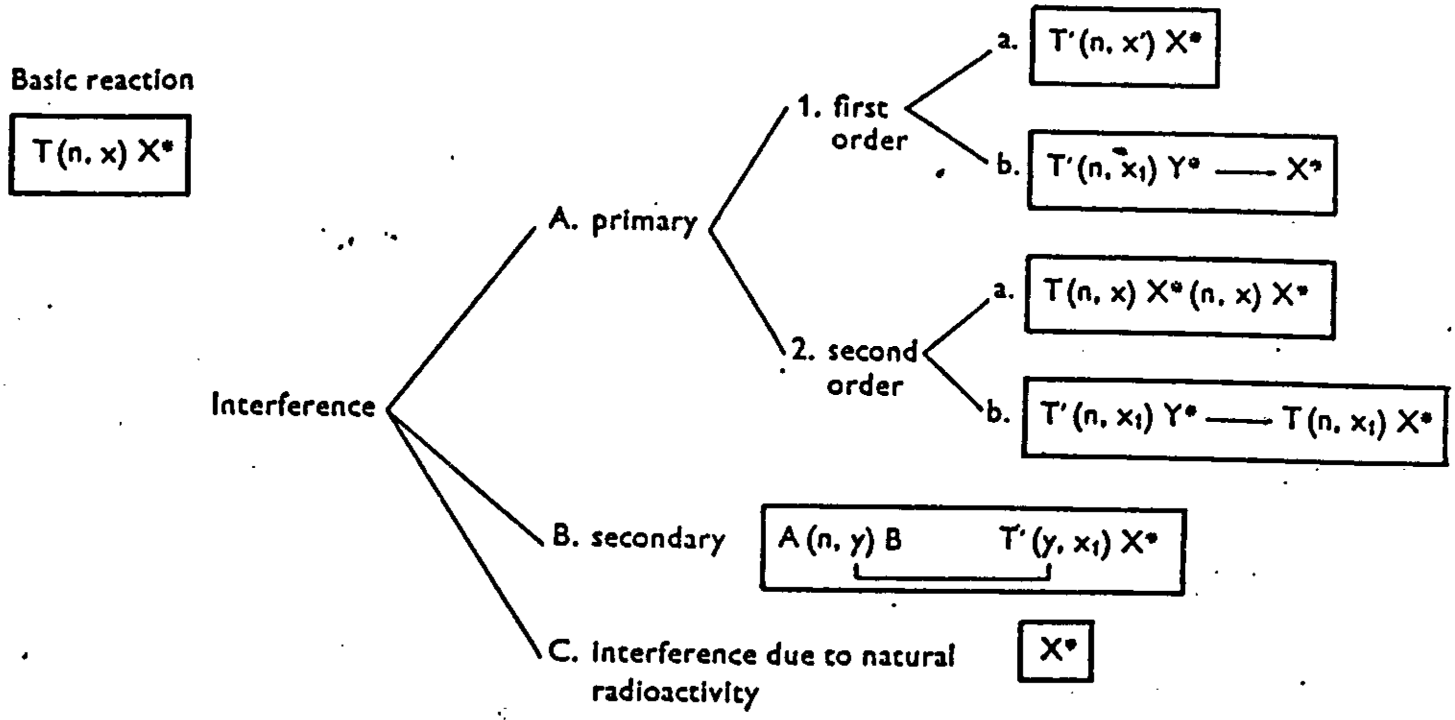


Fig. 30 — Scheme of different interferences in neutron activation analysis. $x = \gamma$, p, α, 2n, f *etc.*, x' — *different from x in basic reaction*, x_1 — *may be the same as or different from x in basic reaction*, y — *usually proton*, r = *radioactive decay* β^-, β^+, EC, X^* = = *arbitrary radionuclide of element X*, T = *target nucleus in basic reaction*, T' = = *target nucleus different from T*, Y^* = *radionuclide of an element different from X*

10.20

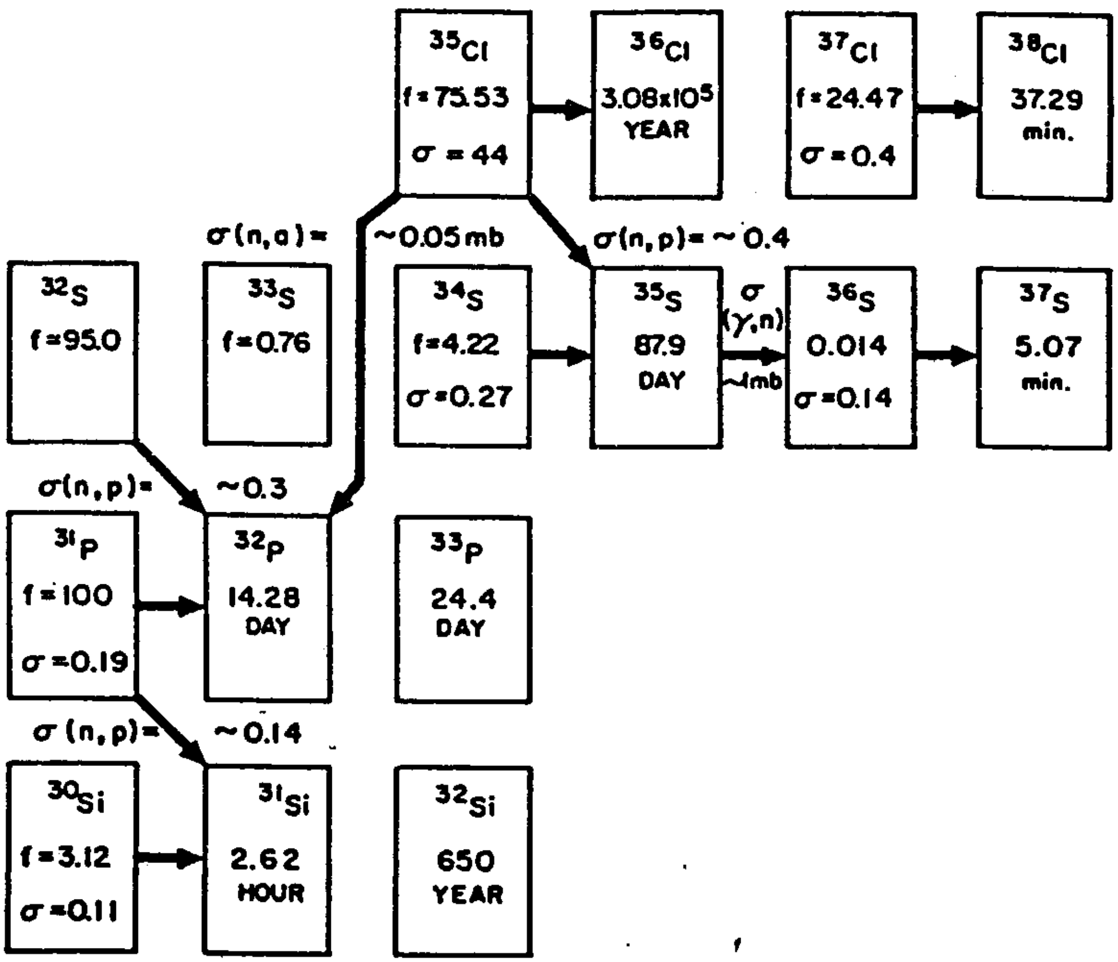


Figure 8.1 Nuclear data for the activation of silicon, phosphorous, sulfur, ar chlorine. The stable isotopes list the isotopic abundance in percent and tl neutron capture cross section in barns. The radioactive isotopes list the half-lif

10.2e

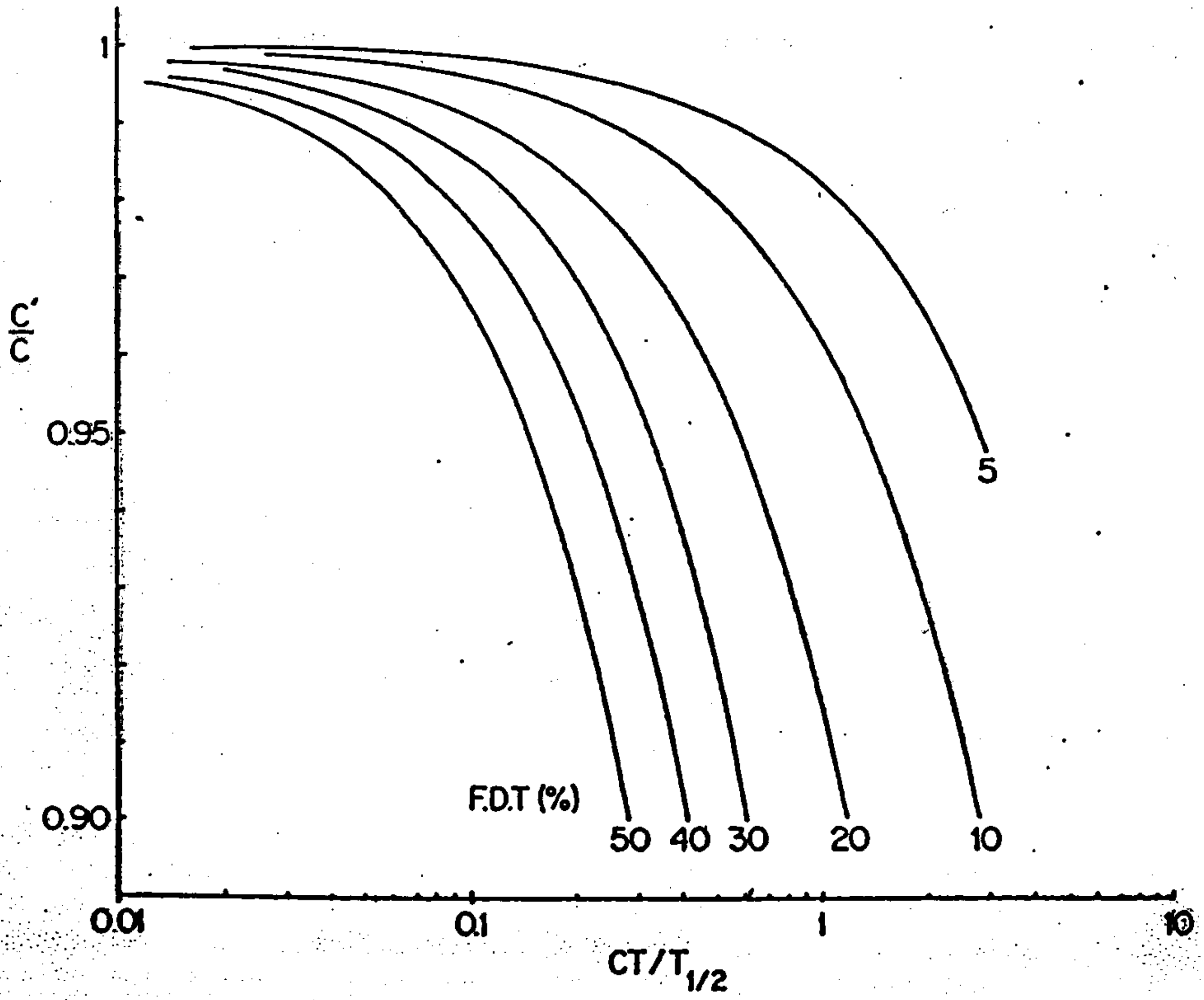


Fig. 10.11. Ratio of the observed number of counts (c') to true number o[f] counts (c) as a function of $CT/T_{1/2}$ when using the life-time mode of countin[g]. FDT = fractional dead-time (88).

10.2e

DIFFUSION OF ACTIVATED M URY IN AN IRRADIATED PETROLEUM SAMPLE

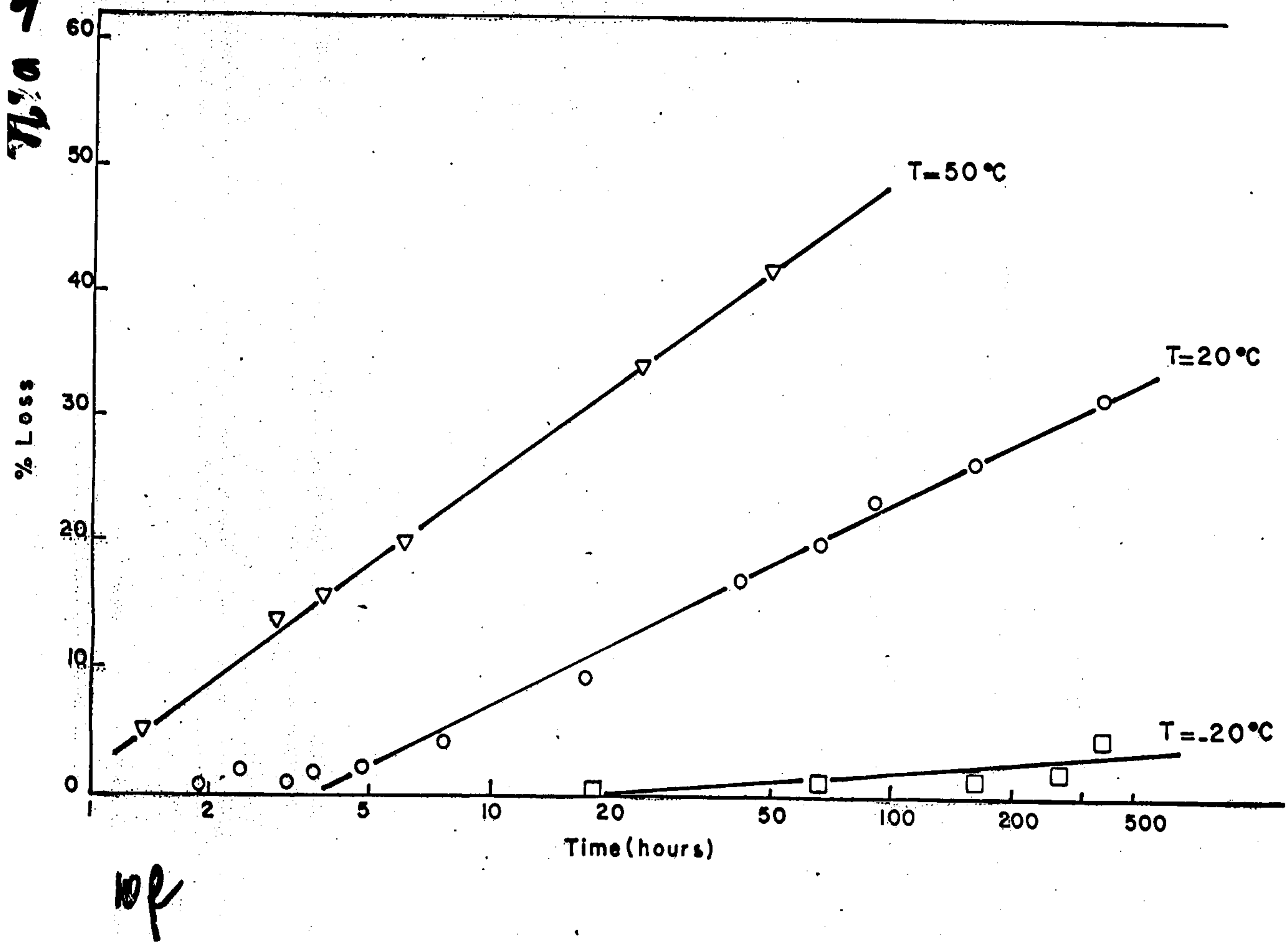


Fig 9