beneficial with grapefruit), adequate ventilation is highly important (mainly not so much to keep down CO_2 but rather to avoid damaging build-up of ethylene, hence Grierson's recommendation is to keep ethylene below a detectable level as checked with a Kitagawa analyzer), and there is much variation among varieties, crops and seasons. Present recommendations for storage conditions of citrus are given in Table 16 (Grierson, 1976).

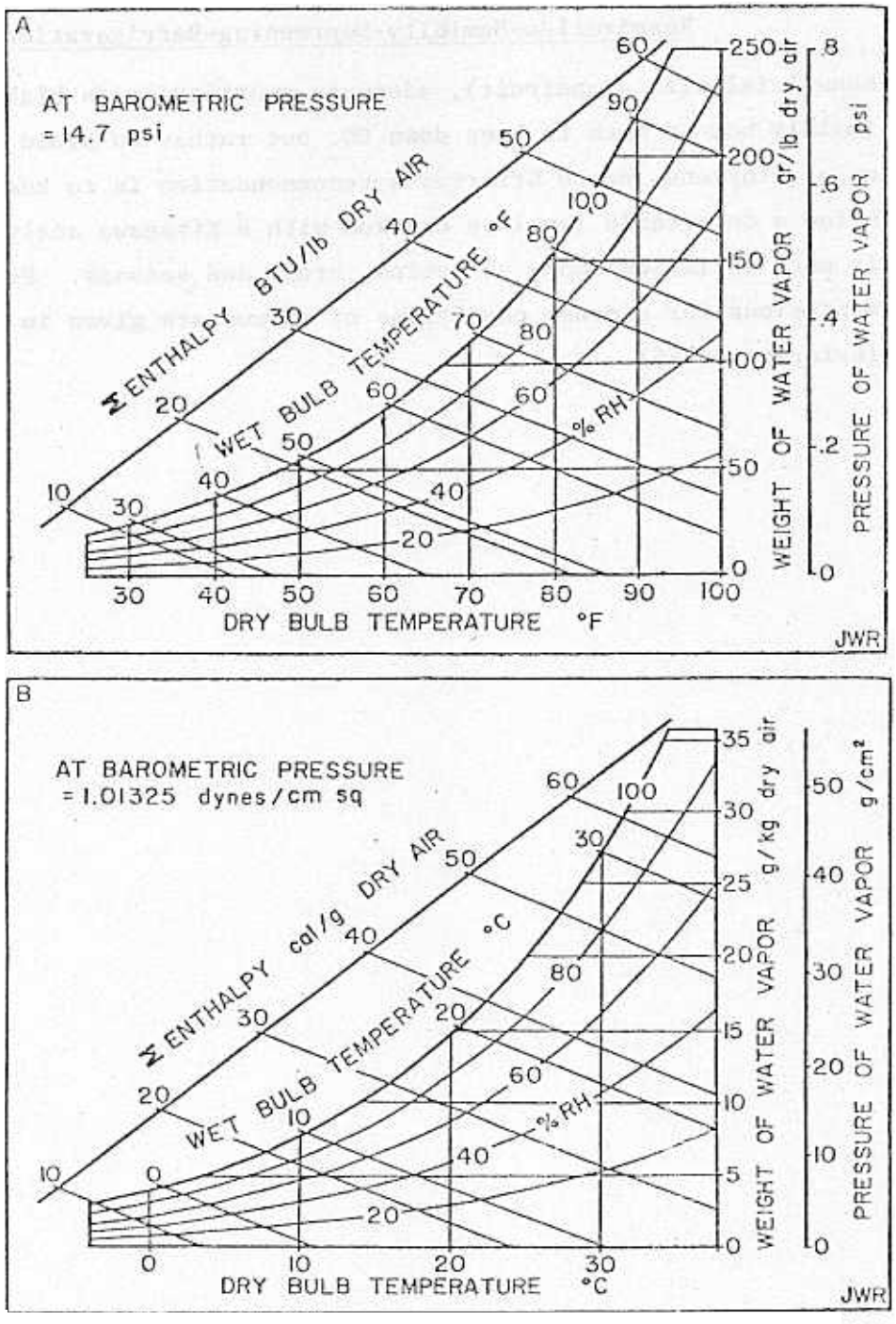

Figure 20. Stylized psychrometric charts relating temperature humidity and enthalpy (total heat) at sea level. (A is in U.S., B is in metric units.) (From Grierson and Wardowski, 1975.)

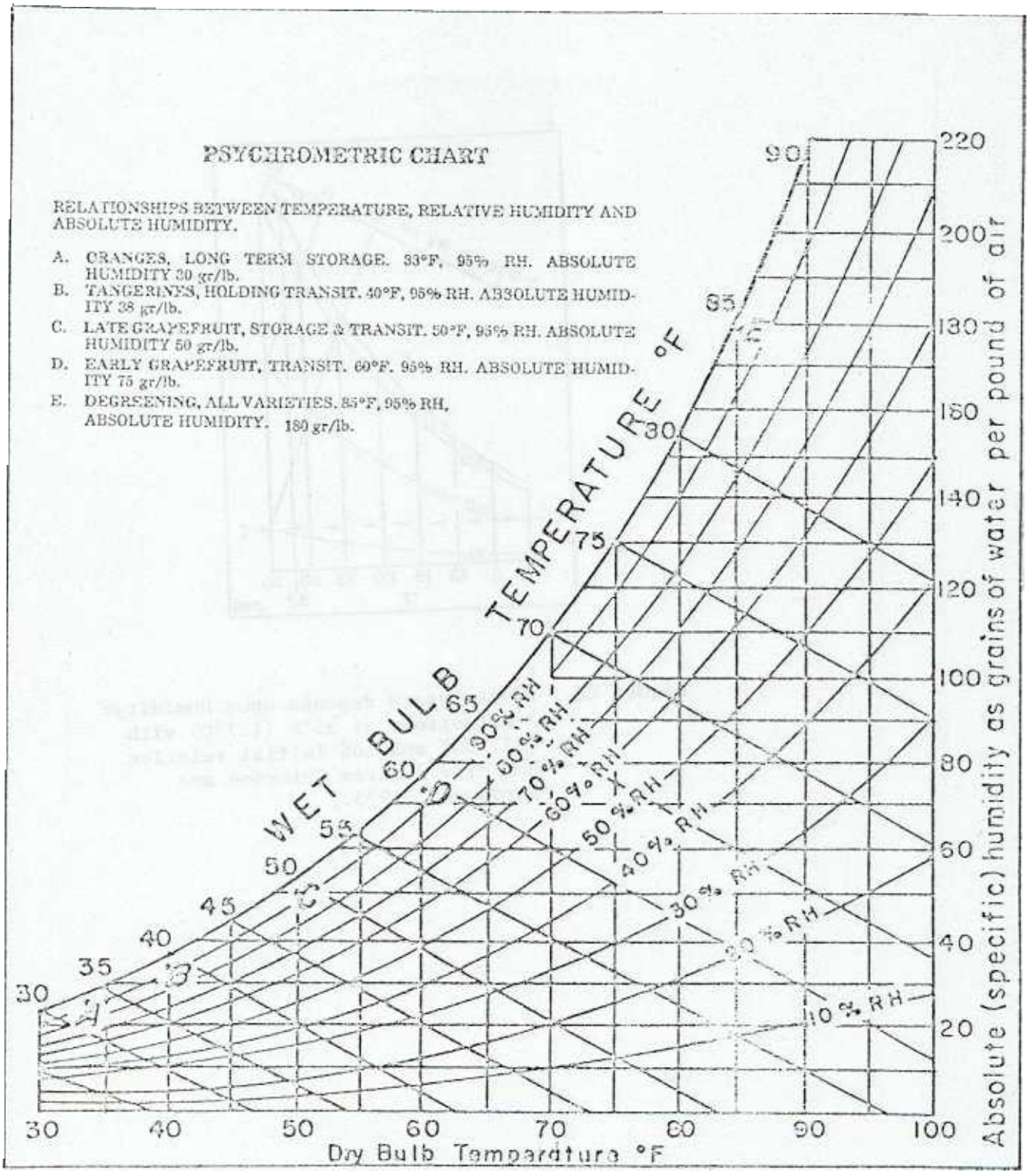

Figure 21. Psychrometric chart showing absolute humidity at 95% relative humidity and 5 different temperatures (From Grierson, 1976).

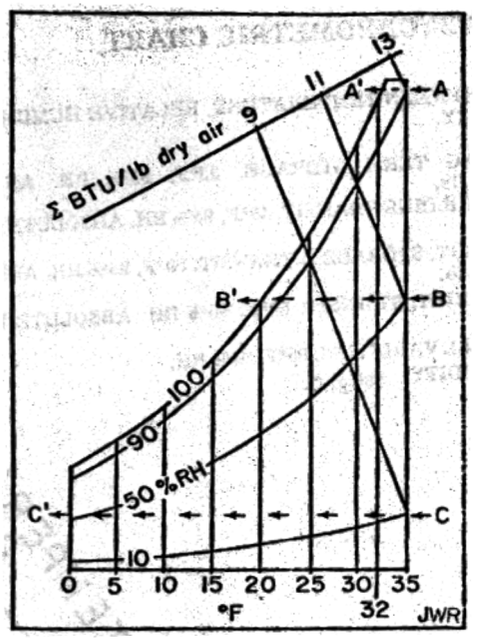

Figure 22. Frost hazard depends upon humidity: 3 situations at 35°F (1.7°C) with 90%, 50% and 10% initial relative humidity. (From Grierson and Wardowski, 1975.)

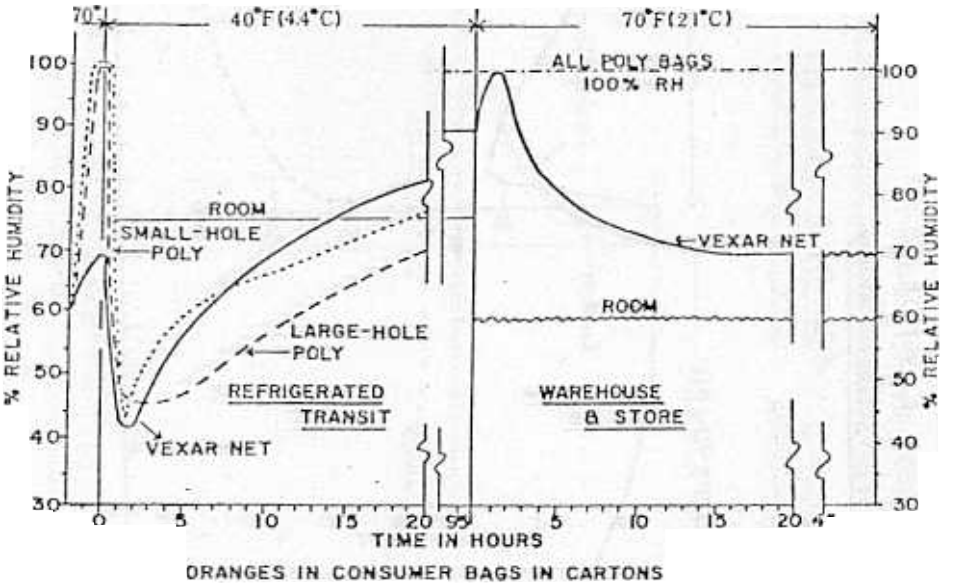

Figure 23. Changes in humidity inside bags of oranges in master cartons during simulated refrigerated transit and warehouse and store conditions. (From Grierson, 1976.)

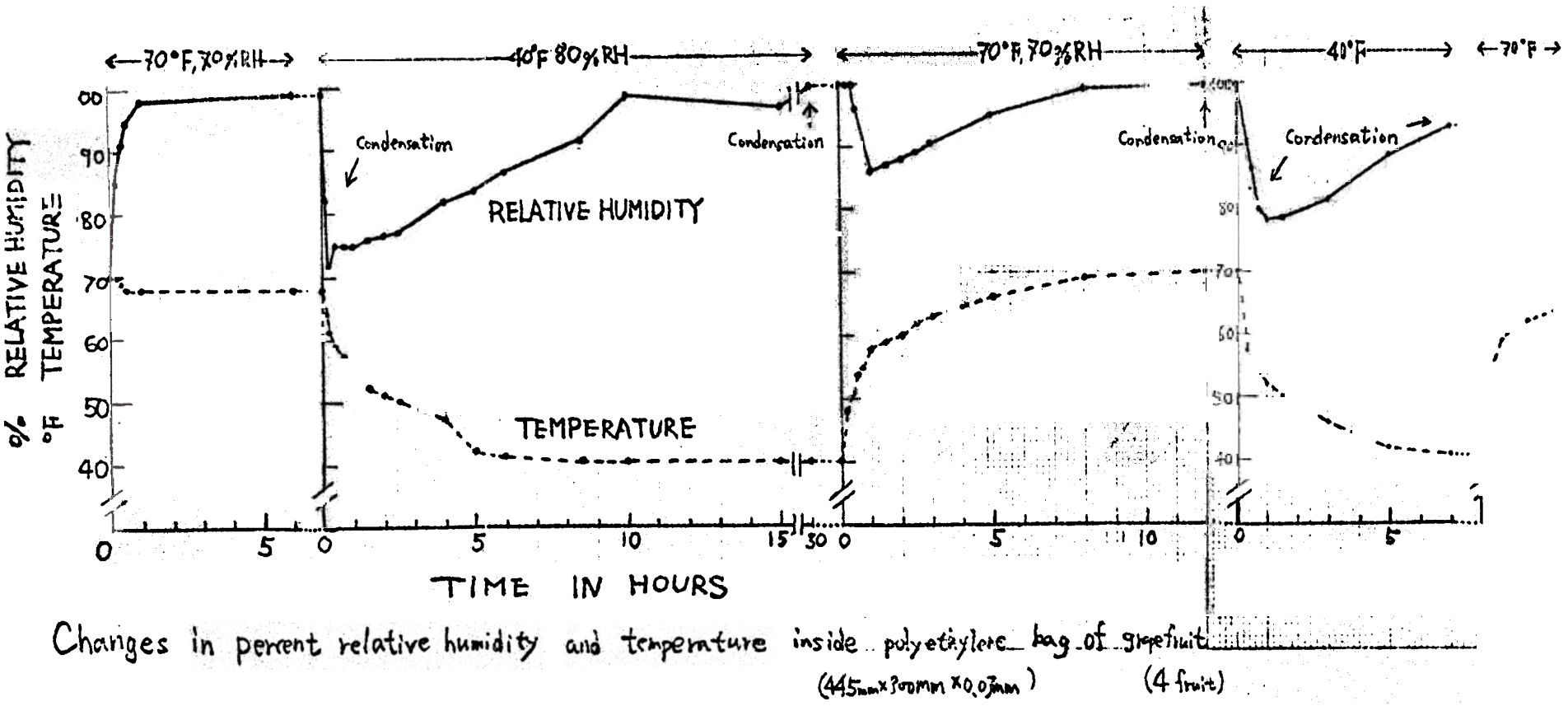

Figure 24. Changes in humidity inside loose polyethylene bags of grapefruit (Compare with Fig. 23). (Kawada, 1977)

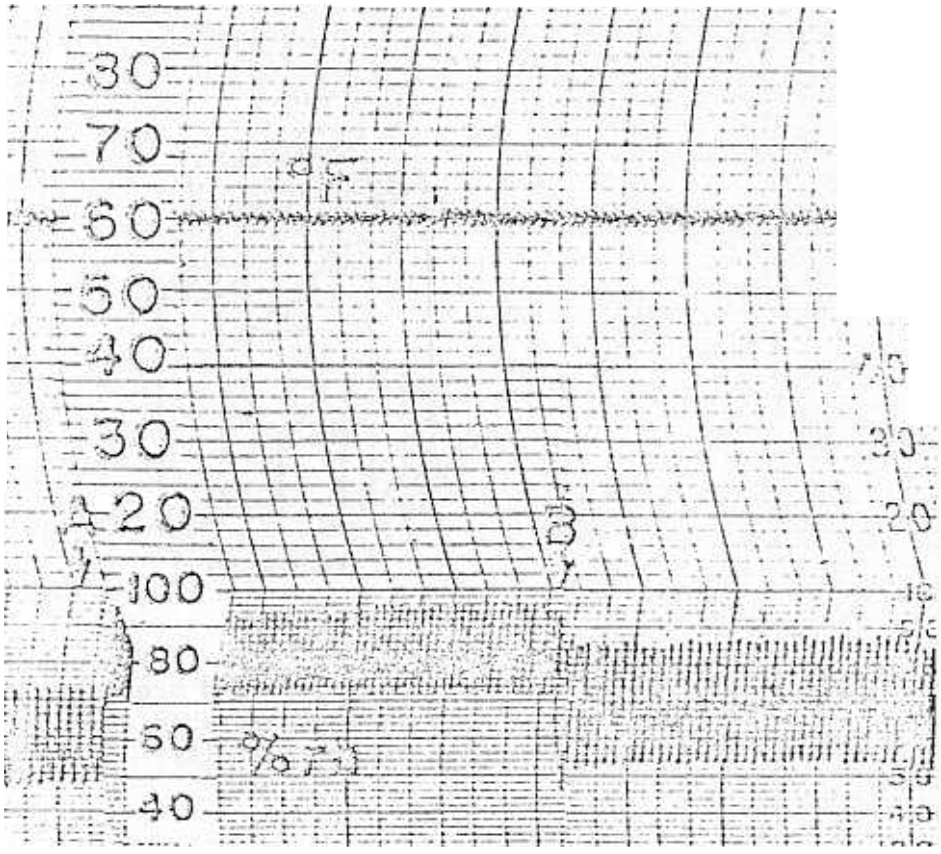

Figure 25. Small changes in temperature cause disproportionately large changes in relative humidity. Humifier (humidistat set at 96%) on between A and B, off beyond B. (From Grierson and Wardowski, 1975.)

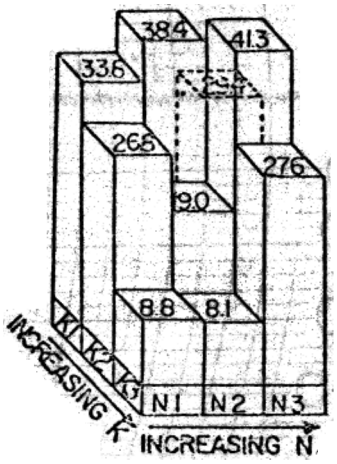

Figure 26. Stem-end rind breakdown increases severalfold when oranges are degreened at low humidity. (From Grierson, 1965.)

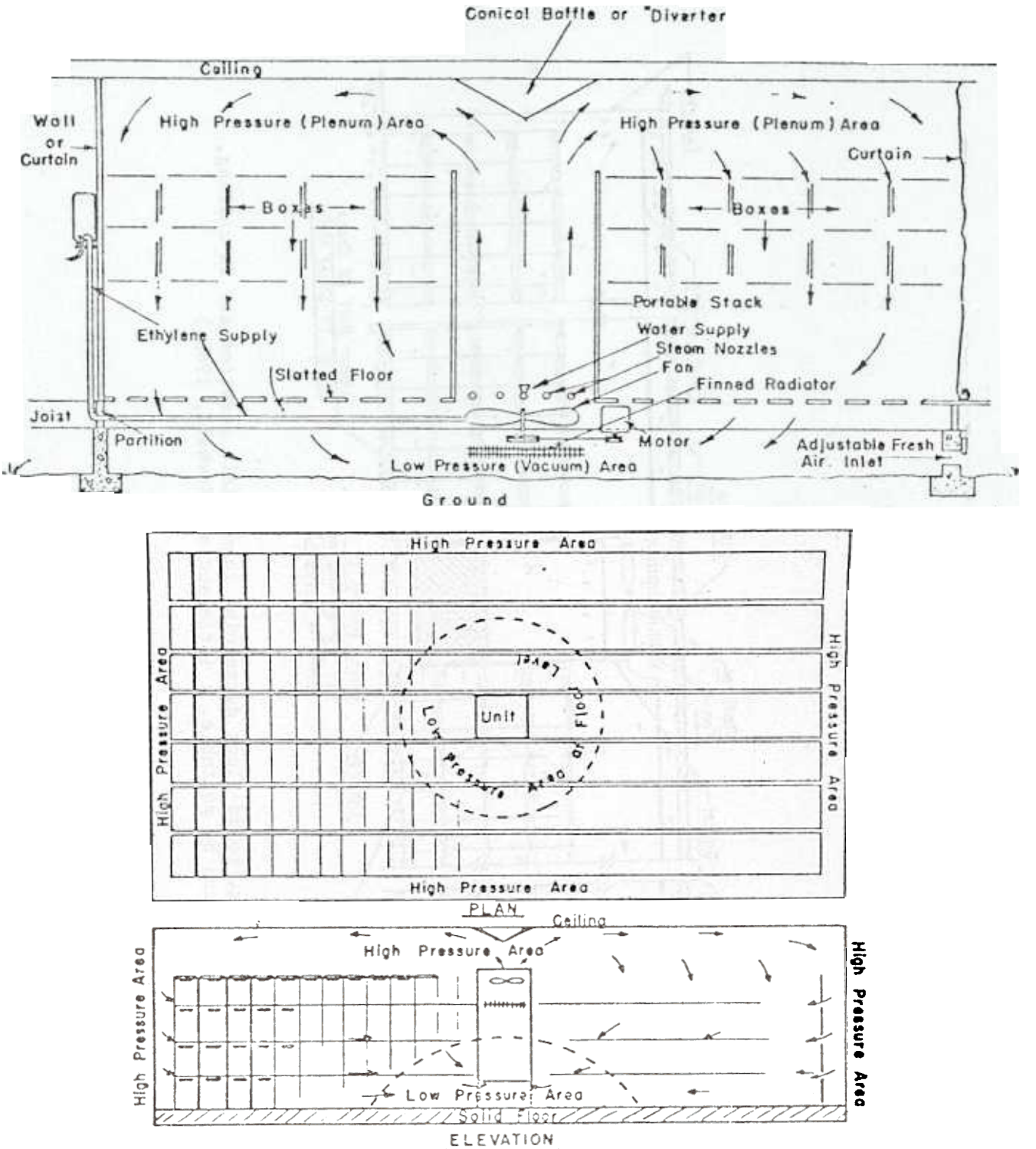

Figure 27. Out-moded, slatted-floor degreening room, above, and solid-floor degreening room with fixed center stack below. (Note, how efficient air distribution is dependent on on leaving an adequate air space at the walls in the solid-floor room.) (Grierson and Newhall, 1960.)

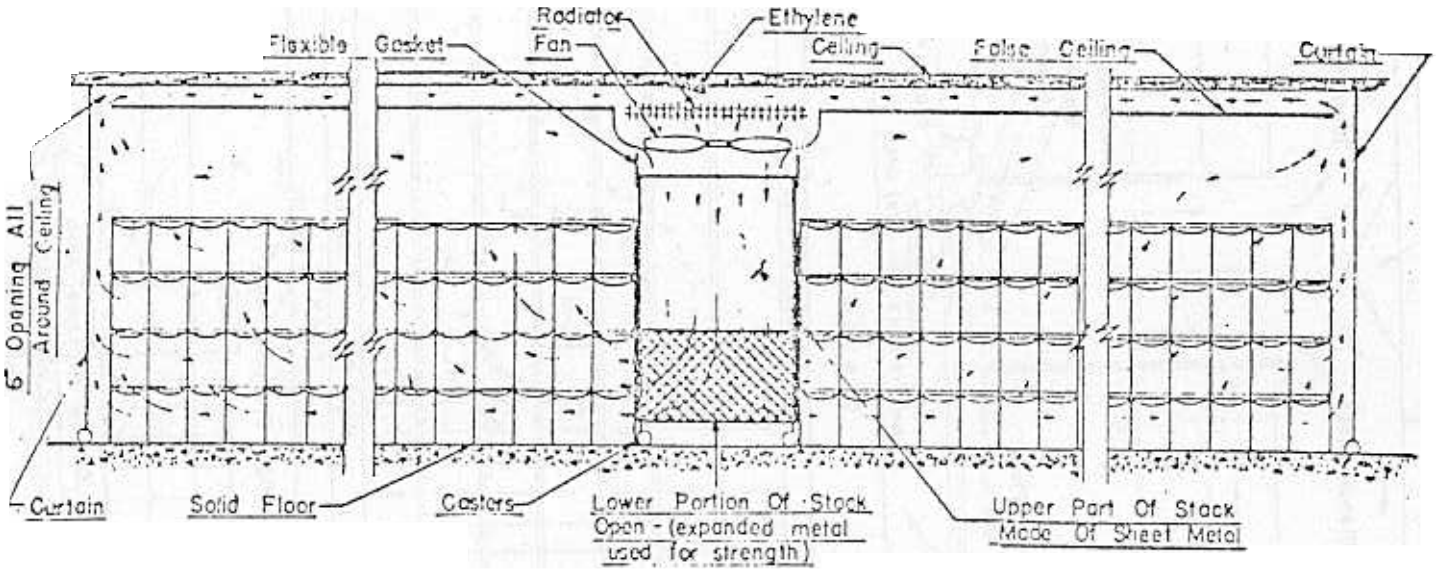

Figure 28. False-ceiling, solid-floor degreening room. (All services are in ceiling, hence stack can be portable.) (Grierson and Newhall, 1960.)

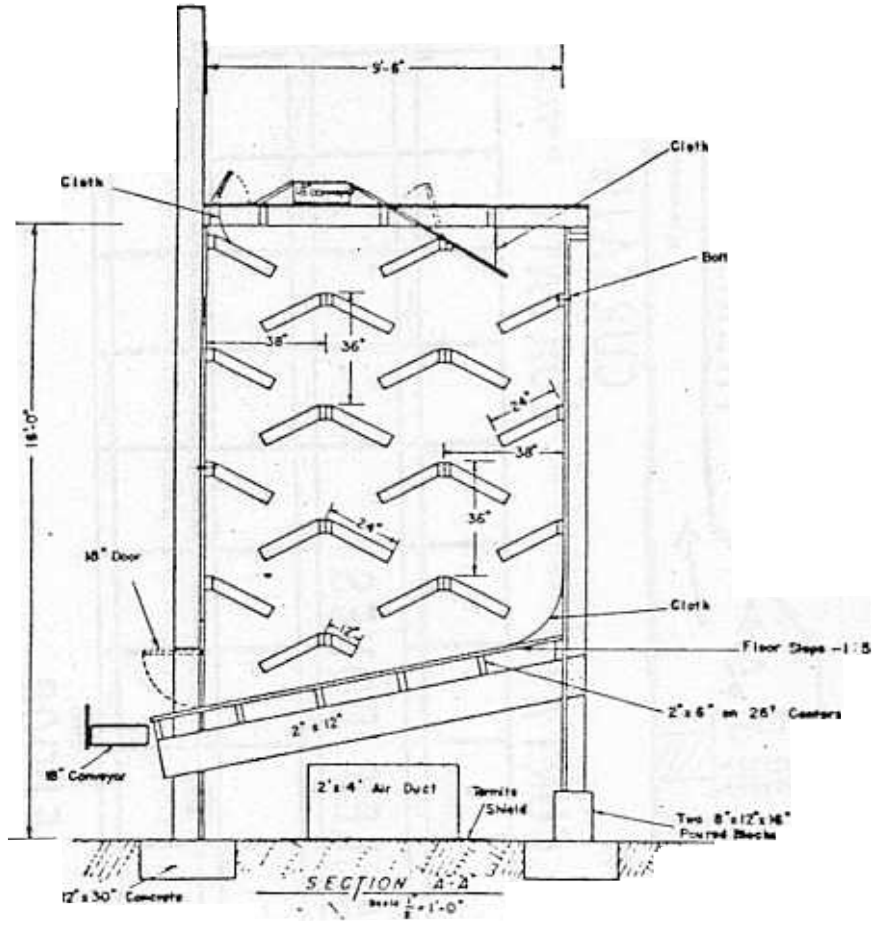

Figure 29. Vertical section through a bulk degreening room. (Ciderpress cloth baffles rest on wood members. Individual bins are square in horizontal section, 3 or 4 in a row being operated together as a unit for degreening.) (Grierson and Newhall, 1960.)

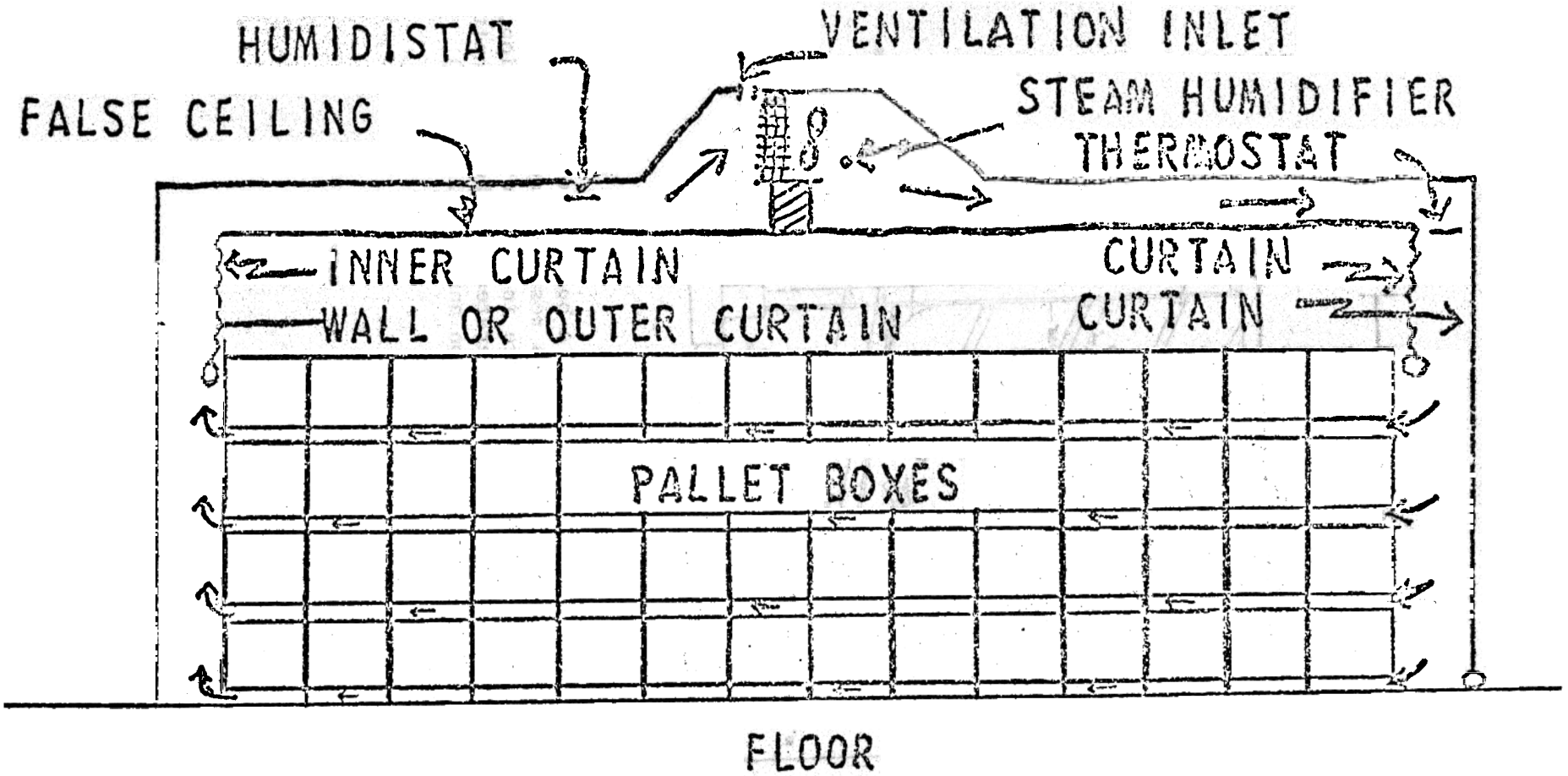

Figure 30. End-to-end flow degreening room for pallet boxes; shown here stacked 4 high but very successful with 6 high. (From Grierson, 1966.)

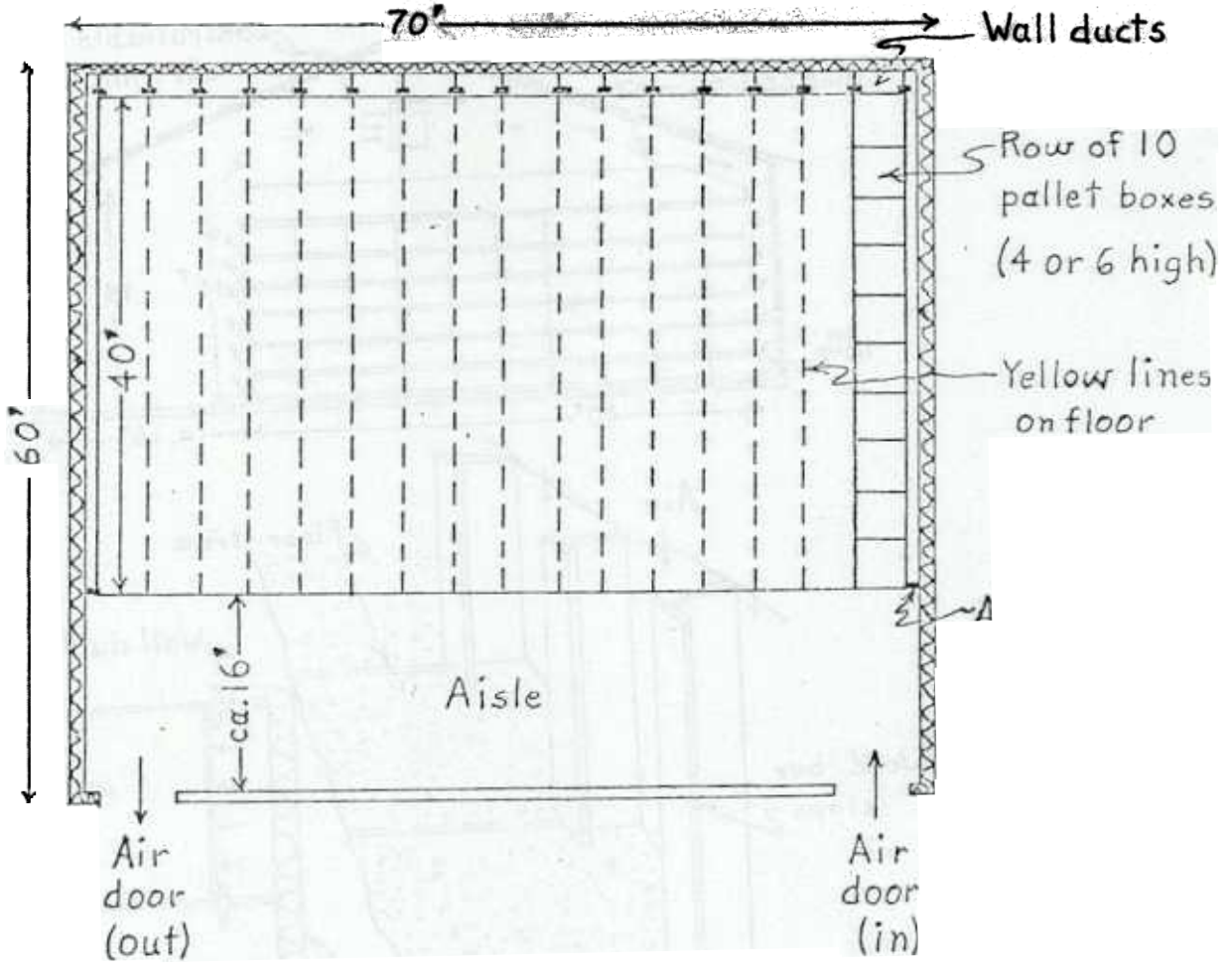

Figure 3la. Pallet-box degreening room: Floor plan showing overall dimensions, capacity 6400 box equivalents (4 high stacks) or 9600 (6 high). (Grierson, 1972.)

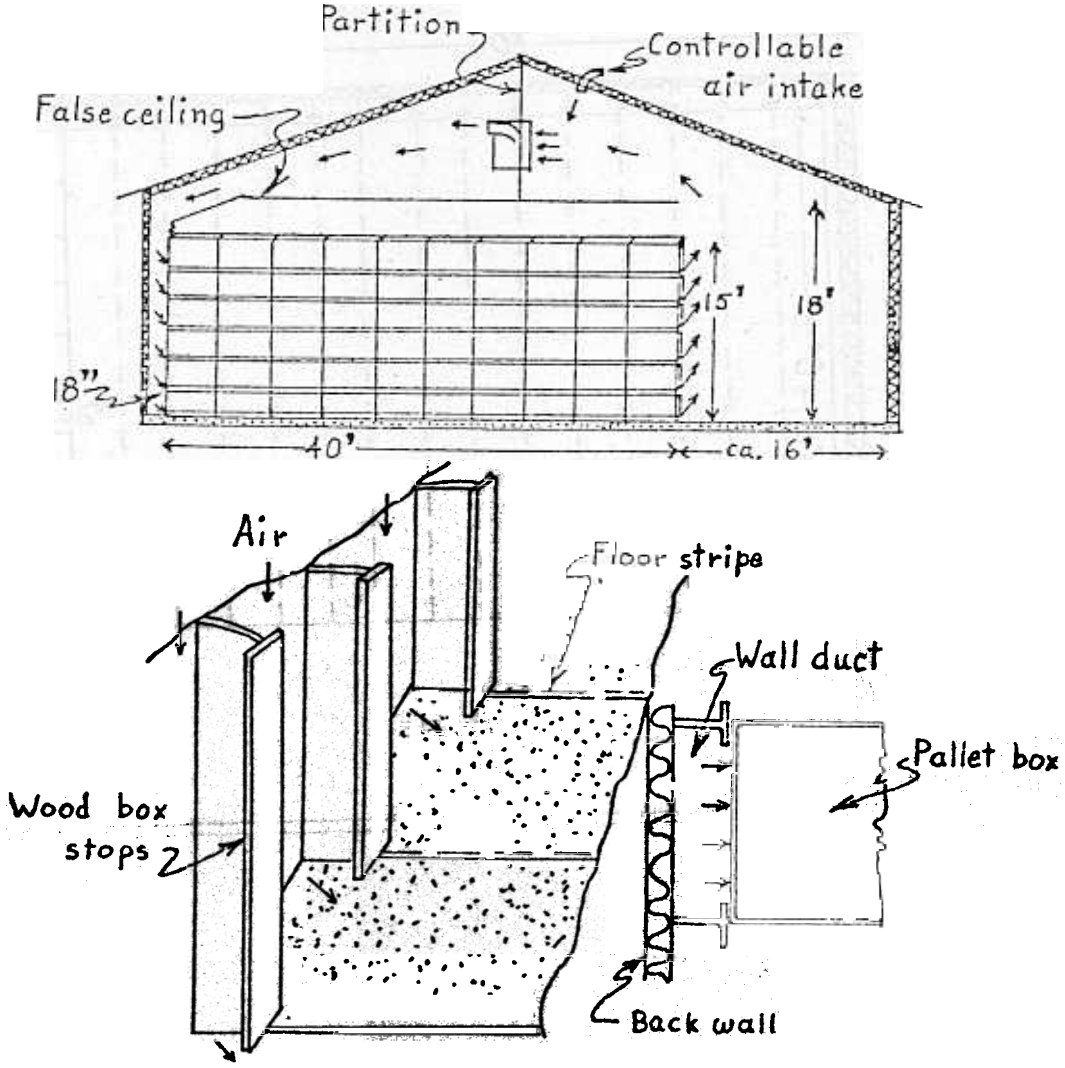

Figure 31b. Pallet-box degreening room: Vertical section of room, above; detail for wall ducts and placement of pallet boxes, below. (Grierson, 1972.)

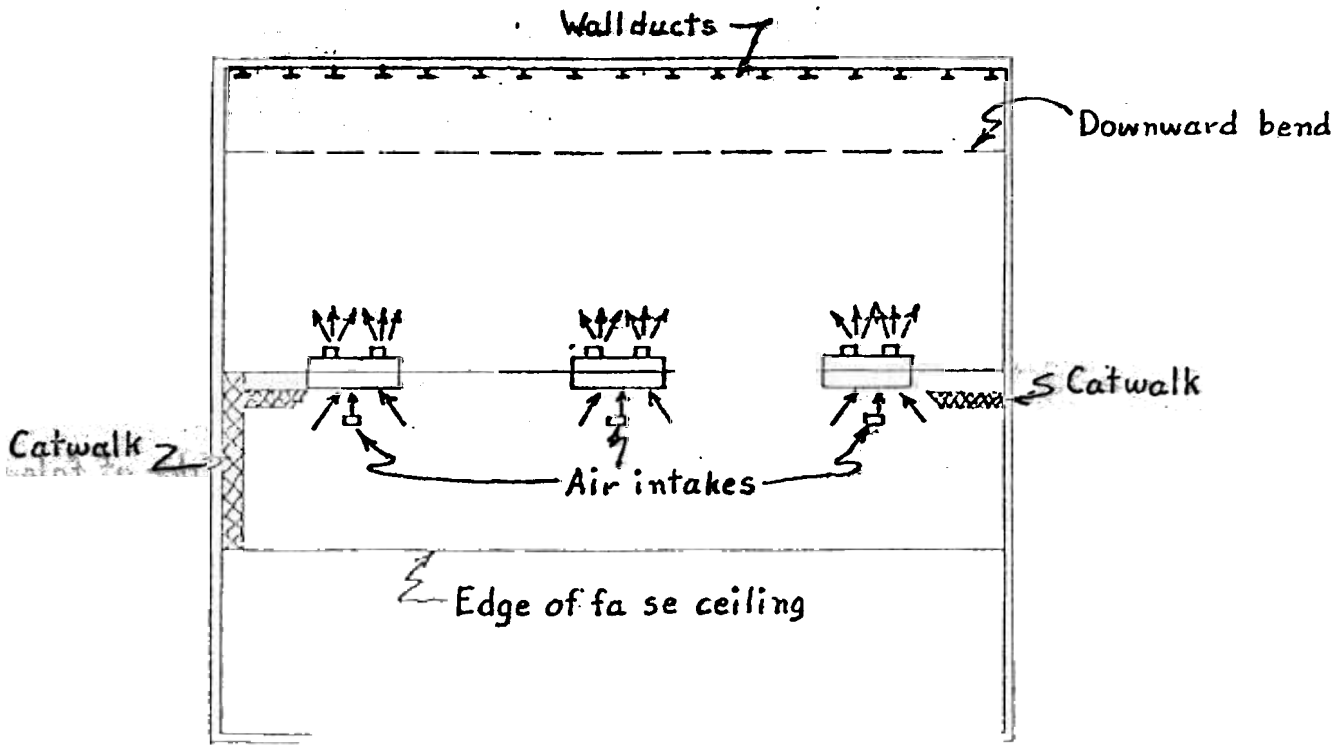

Figure 31c. Pallet-box degreening room: Overhead plan view for operation as a single unit (Adapted from Grierson, 1972).

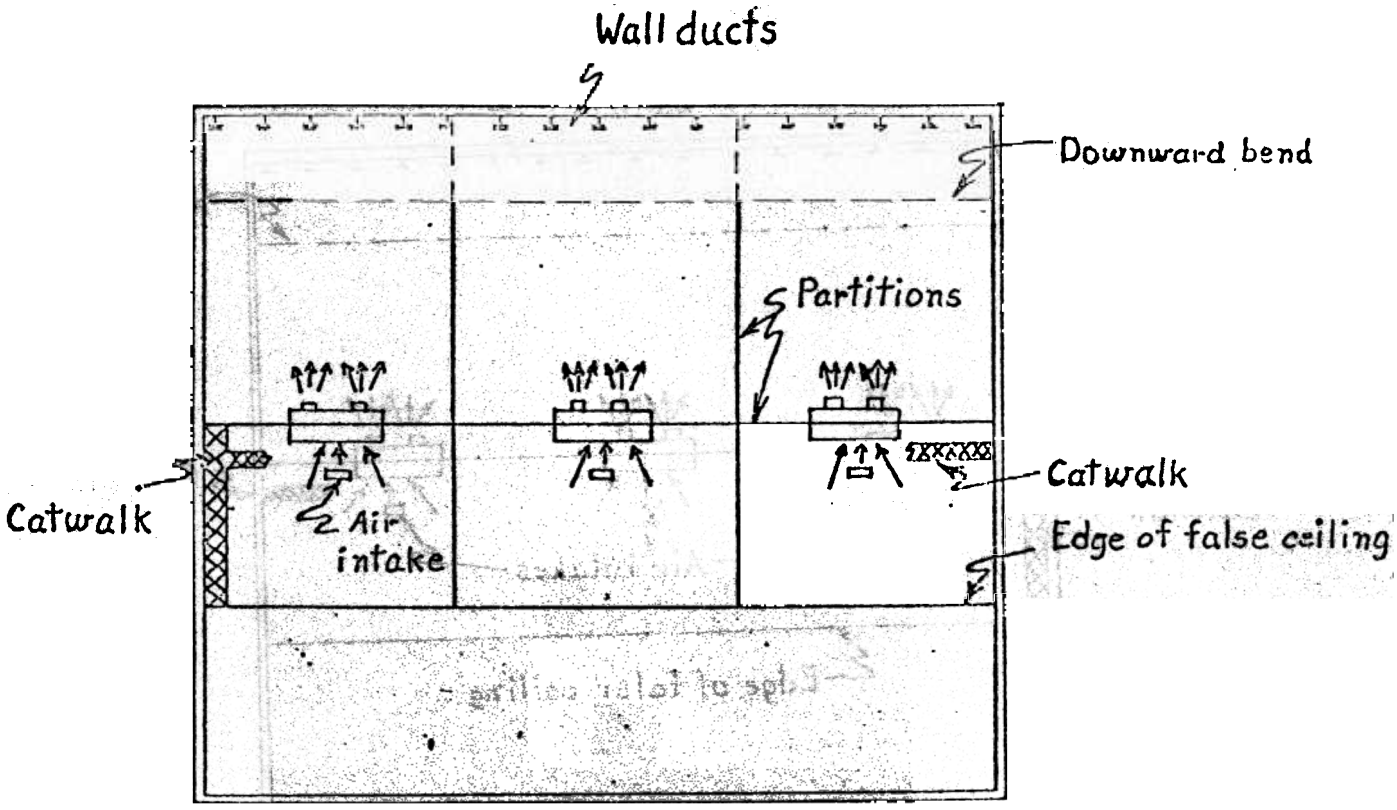

Figure 31d. Pallet-box degreening room: Overhead plan view for continuous operation. (Grierson, 1972.)

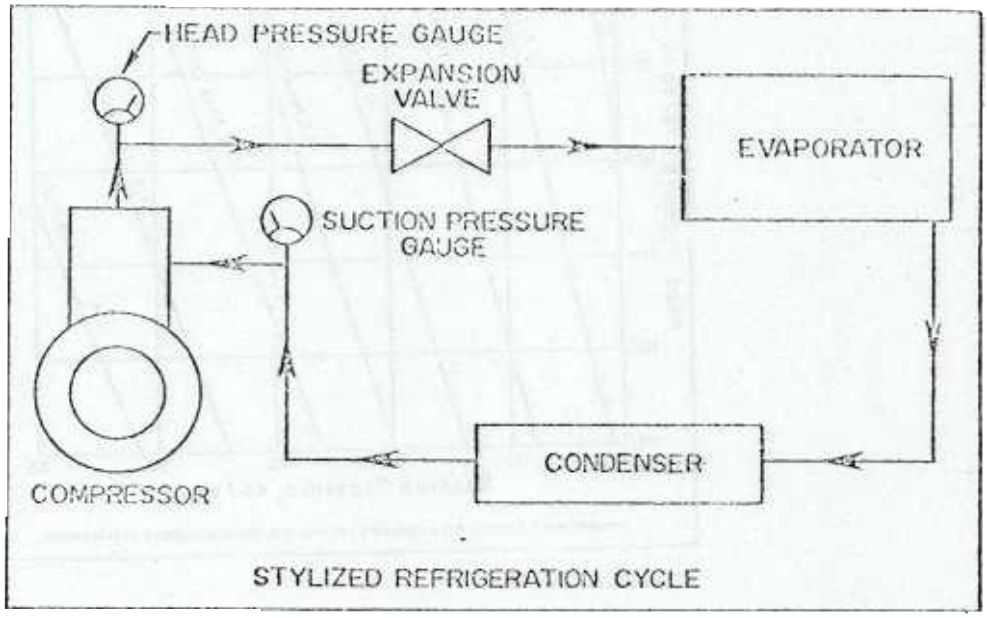

Figure 32. Diagram of refrigeration cycle

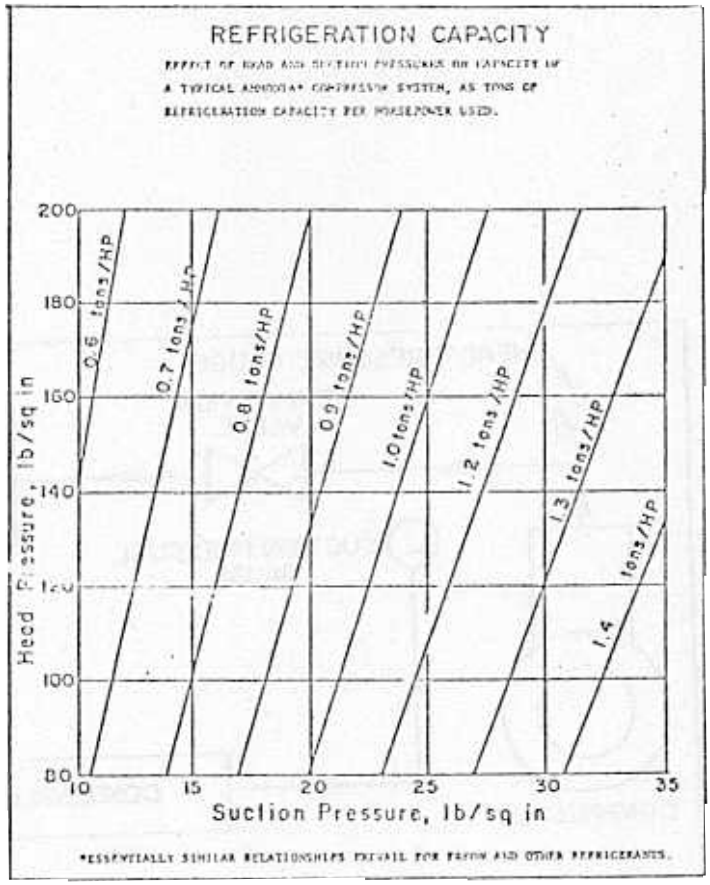

Figure 33. Relation of refrigeration capacity to head and suction pressures. (From Grierson, 1972.)

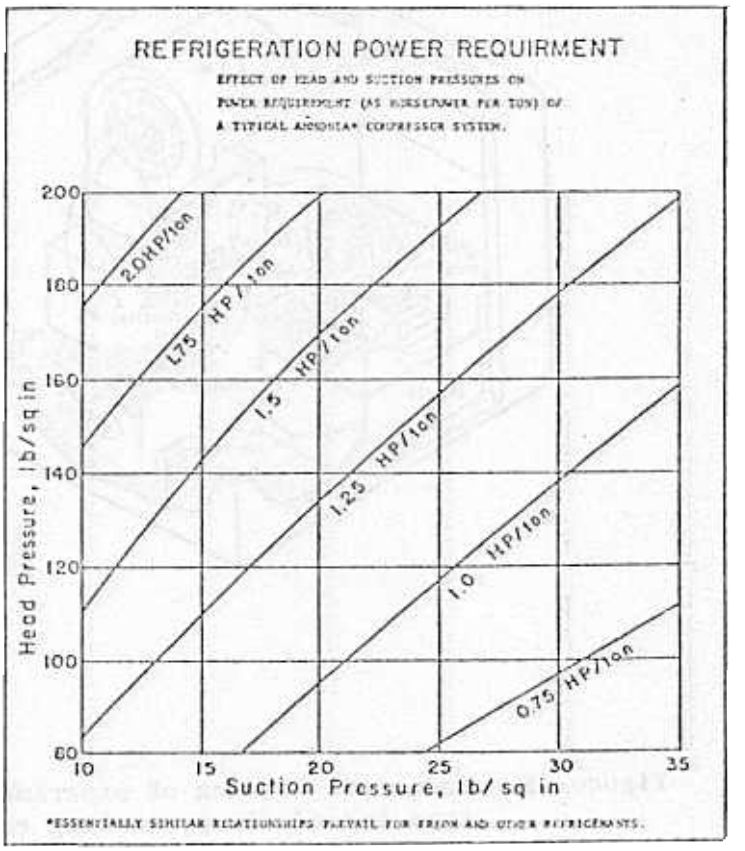

Figure 34. Relation of refrigeration power requirement to head and suction pressures. (From Grierson, 1972

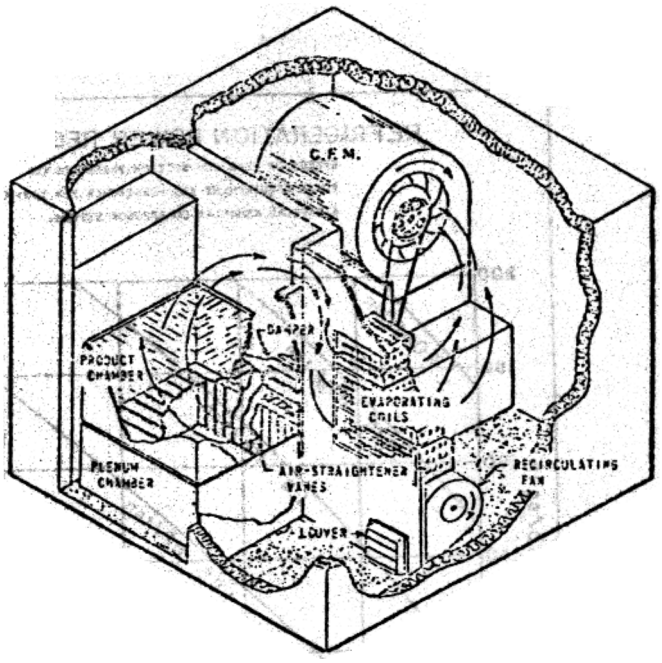

Figure 35. Isometric drawing of experimental batch-type forced-air precooling room. (Soule Yost and Bennett, 1969.)

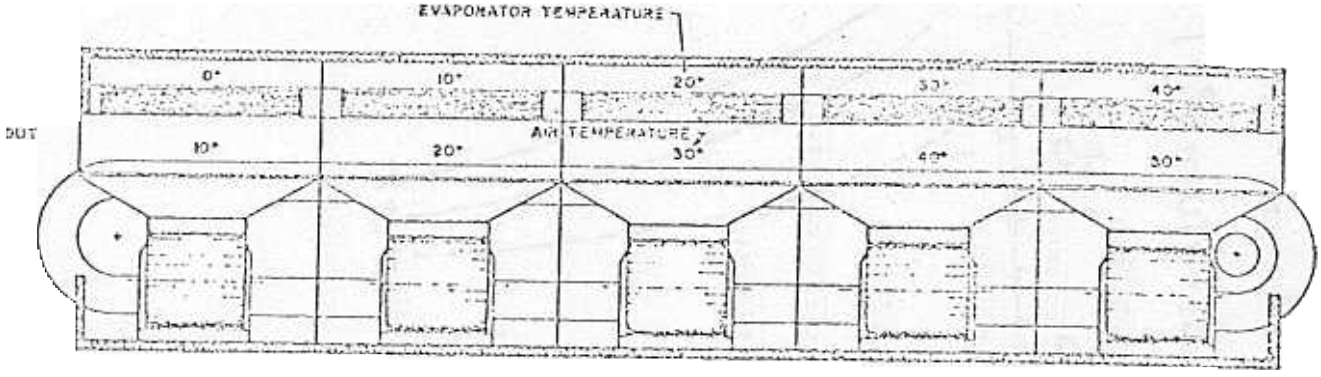

Figure 36. Prototype five-stage, forced-air precooling tunnel (side view). (Grierson, Bennet and Bowman, 1970.)

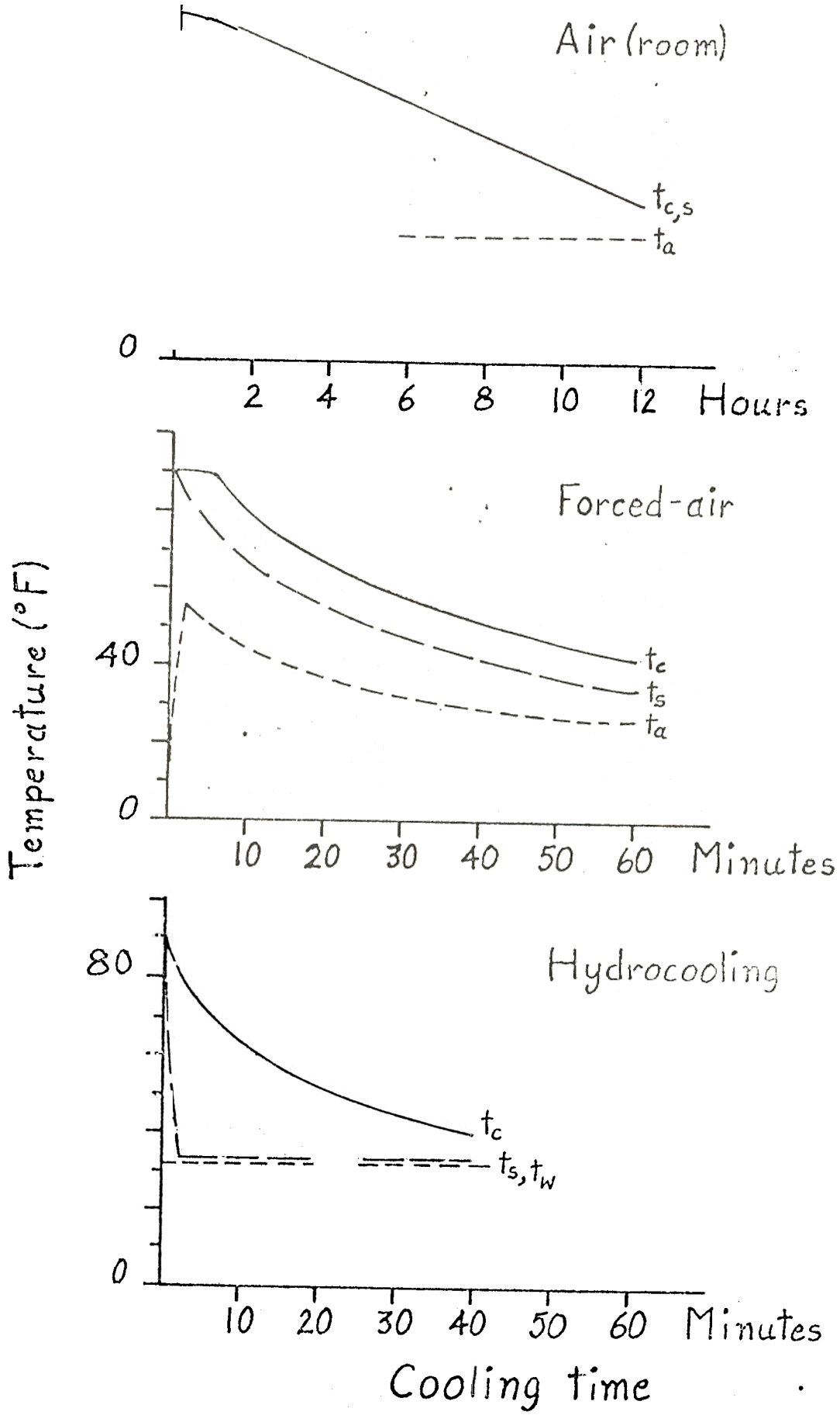

Figure 37. Typical cooling curves for air (room), forced air and hydr cooling precooling systems with oranges. (t_c is center of fruit, t_s is surface of fruit, t_a is air and t_w is water temperature. Note pronounced lag period in t_c with forced air.)