a look into industry's electrical future

plants——Power engineer's job will grow as mechanization continues in air-conditioned sound-conditioned plants. Lighting engineers see fewer windows—"black areas by night and bright spots by day . . . a stumbling block to uniform controlled lighting." Reduced window space will cut initial costs, heating and air-conditioning losses. Narrow seeing strips will give workers *psychological comfort.*

machines——Shift toward automation will throw spotlight on electrical control with simpler components. Voltages will continue their upward climb, paced by better insulations and mechanical designs. Equipment size will shrink as temperatures rise. Higher frequencies, smaller components (example: transistors), better insulations will also contribute.

March of packaged equipment will go on—in spite of some who feel optimum has been reached. More dollar savings will come from cutting field labor.

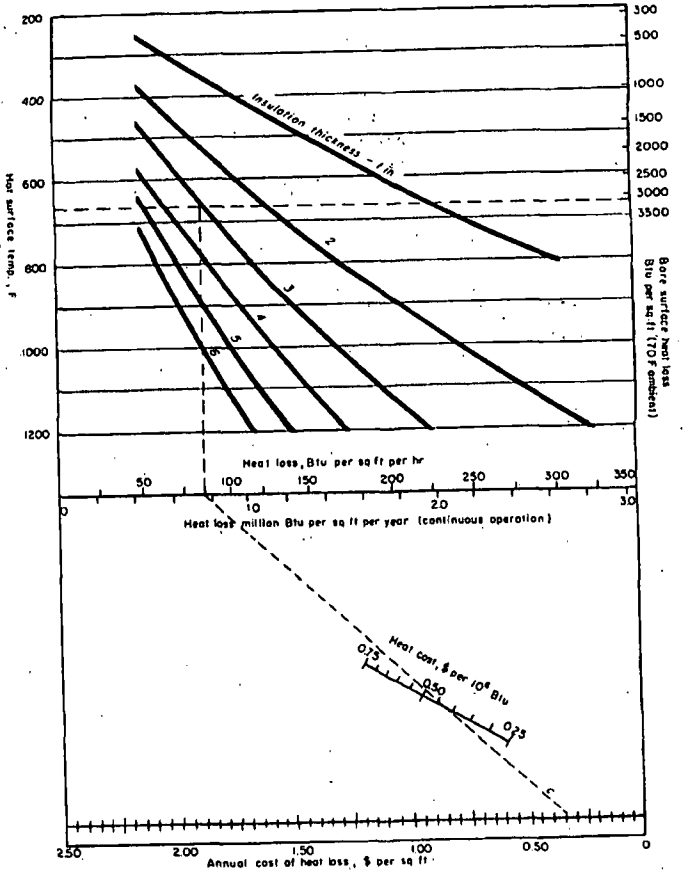
Plastic electrical conduit will make its debut, promising no bending and threading, plus light weight. Aluminum installations will grow as engineers learn to design and install the light metal as a system, rather than spotlily as a copper substitute.

Motor designers will pinpoint frame sizes for a smaller hp range rather than extend multi-frame practice. With wider adoption of 277 v, power engineers are wondering about pressing for 277-v single-phase motors for small applications—water coolers, fans.

operation——Electrical maintenance men will need better savvy. Smart power engineers will seek out technical men rather than "conduit benders." In-plant training courses for electricians will grow. Keen manufacturers will aid with better manuals and streamlined drawings for quick trouble-shooting.

Power's DATA SHEET

No. 236



Cost of Heat Loss—Insulated Vessels

► THIS HEAT-LOSS GRAPH helps determine economic thickness of mineral-wool blanket insulation by giving the approximate *annual cost of heat loss* (dollars per sq ft) for selected *insulation thicknesses* (in.) at specified *hot-surface temperatures* (deg F) and at specific *fuel costs per million Btu* (dollars).

Example: To compare heat-loss cost for 1-, 2½- and 3-in. thicknesses of mineral-wool blanket insulation on a steam-heated tank operating continuously at 660 F, the three values of heat loss per year (million Btu per sq ft) are first found (dotted lines) on vertical center scale. With an assumed fuel cost per million Btu of $0.40, annual heat-loss costs per sq ft are $0.80 (1 in.), $0.38 (2½ in.), and $0.33 (3 in.). Selection of either 2½ or 3 in. (1 in. is clearly too little here) is governed by relative installation cost (materials and labor) of the two thicknesses and the anticipated useful life of the tank.

Industrial Mineral Fiber Institute, Inc, New York, N. Y.