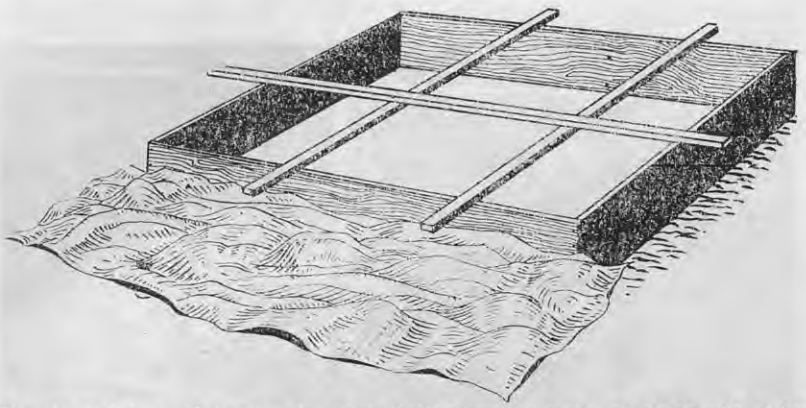


The simplest type of frame. An open, bottomless box made of planks with stakes laid across it to support scrim or sacking, which is drawn back in the daytime. Bricks, turves, or soil could be used in place of timber for the sides.

Late-autumn, winter, and early-spring light conditions, too, are generally better in New Zealand than in many Northern Hemisphere countries where frames, often quite steep ones, are used extensively. In New Zealand an angle of about 10 to 15 degrees is usually considered adequate. The importance of sloping the glass enough to facilitate drainage of moisture which has condensed on the under side of the glass to the extent of forming droplets is often overlooked. Condensed moisture in quantity greatly reduces the light rays passing through the glass and may draw up and weaken small plants such as seedlings.

Light Needs of Plants

Modern conceptions of plant needs differ from those of a few years ago in the stress laid on the admission of as much light to most growing plants as is consistent with reasonable economy in the construction and operation of structures used in propagation. One of the chief developments is the use of larger panes of glass in glasshouses and propagating frames. Sash and glasshouse astragal or sash bars are more widely spaced, resulting in a saving of wood and putty and labour in construction. However, beyond a certain point, the cost of glass rises so that, in New Zealand, the use of the larger panes results in higher initial costs. Whether commercially the higher costs would be offset by subsequent increased returns due to the improved production would depend on the relative value of the crop grown and its light needs.

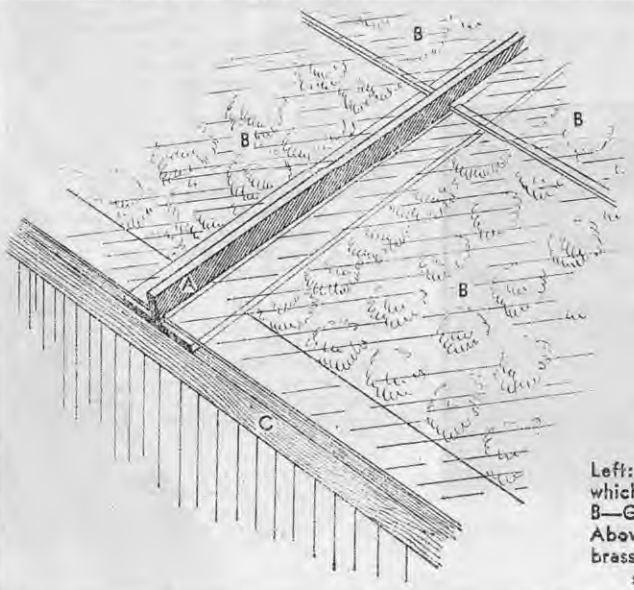
An example of the use of large sheets of glass in a frame or glasshouse is the Dutch light, which is made of a single large sheet of glass (usually about 32in. by 58in.) in a light wooden frame of durable timber, which may be morticed like an ordinary window sash or nailed with galvanised or other non-corroding nails or screws. In Europe Dutch lights are commonly used commercially on garden frames and in the construction of glasshouses.

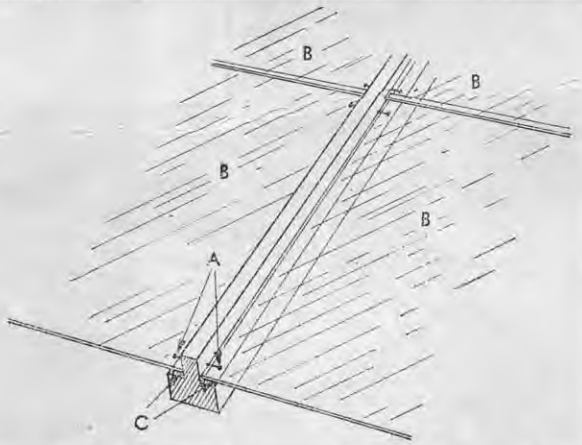
Apart from the initial cost of the large sheets of glass in Dutch lights an important reason for the continued popularity of the older types of sash is that they are less expensive to repair if glass is broken.

In commercial practice the standard sash is about 6ft. by either 3 or 4ft., usually with three or four rows of panes respectively, though occasionally smaller sashes are used for convenience in handling. The middle photograph on page 67 is of a commonly used type. The lower edges of the bottom sheets of glass overlie the bottom rail so that water drains off. Each successive sheet of glass laid overlaps the sheet below by about ⅛ to 3/16in. Wide overlaps should be avoided as dirt accumulates in the overlaps and restricts light. The top edge of the final or top sheet is let into the top rail so that water falling on it or on the top rail runs down the line of panes, over the wooden rail at the bottom, and off.

An ordinary window sash is useful as a garden frame and one is shown in the upper photograph on page 71. Its main disadvantage is that water on the glass does not shed and this dampness will cause rotting of the timber. For a garden sash the bottom rail should be set under the lowest sheet of glass, there should be no wooden cross-bar, and sheets should overlap so that each sheet from the top downward overlaps the one below it.

Sashes can also be made so that the glass is slid into position in grooves which run up the insides of each of the long side stiles. If of durable timber and used at a fairly steep slope, such sashes do not need putty. Other types are glazed like glasshouses; that is, the putty, which should be soft and easily worked, is first run with a putty knife on each side along the projecting shelf of the sash bar, the glass is pressed firmly on the putty and ⅜in. brass brads are driven into the wood, one on each side, about 1in. above the bottom edge of the pane to hold it firmly in position. It is prevented from slipping down by two other tacks, one on each side, previously driven





Left: Simple method of glazing a frame by laying glass on T iron, which rests on front and back walls of the frame. A—T iron. B—Glass; each sheet overlaps that below it. C—Front of frame. Above: Method of glazing used on frames and glasshouses. A—⅜in. brass brads holding glass on astragal or sash bar. B—Glass; each sheet overlaps that below it. C—Putty (under glass only).