

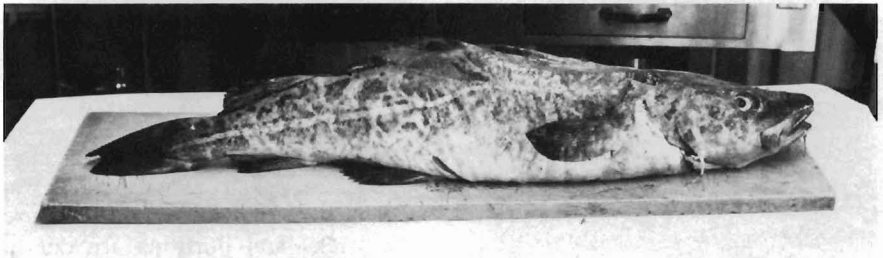
Preparation of Fish Fillet Blocks

JOHN J. RYAN

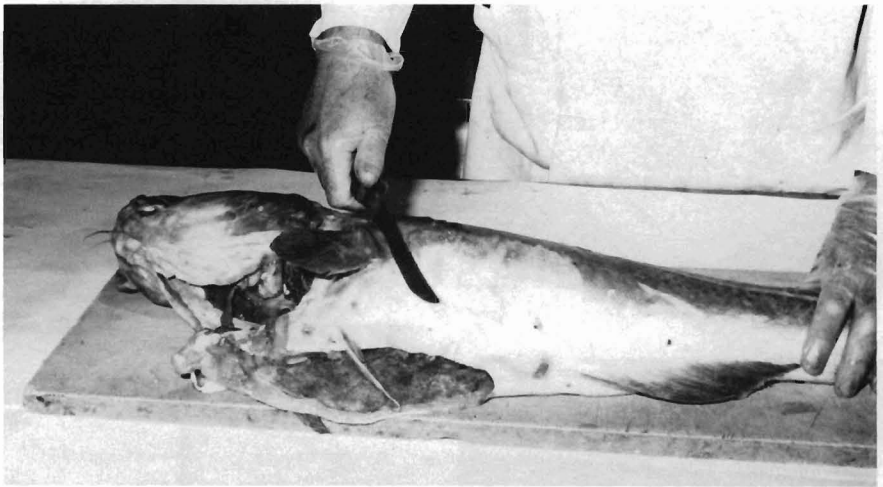
BACKGROUND

Frozen fish fillet blocks are used as the raw material in the manufacture of fish sticks and portions and other specialty items.

In 1976, nearly 400 million pounds of blocks were used for this purpose in the United States. Imports accounted for 379 million pounds with domestic production adding less than 0.6 percent to the total. Cod and pollock are the principal species used for making blocks. Iceland was the principal supplier followed by the Republic of Korea, Canada, Denmark, Norway, and Japan. Cod accounted for 48 percent of the total followed by pollock which accounted for 25 percent. Cod blocks were supplied by Denmark, Iceland, Canada, and Norway. Pollock blocks were supplied by the Republic of Korea with 61 percent of the total followed by Japan's 11 percent.

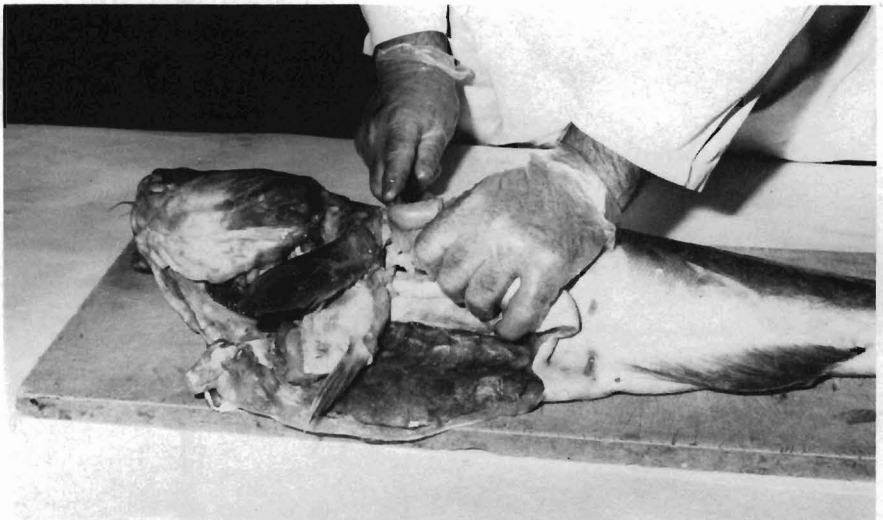


Medium-sized eviscerated cod.



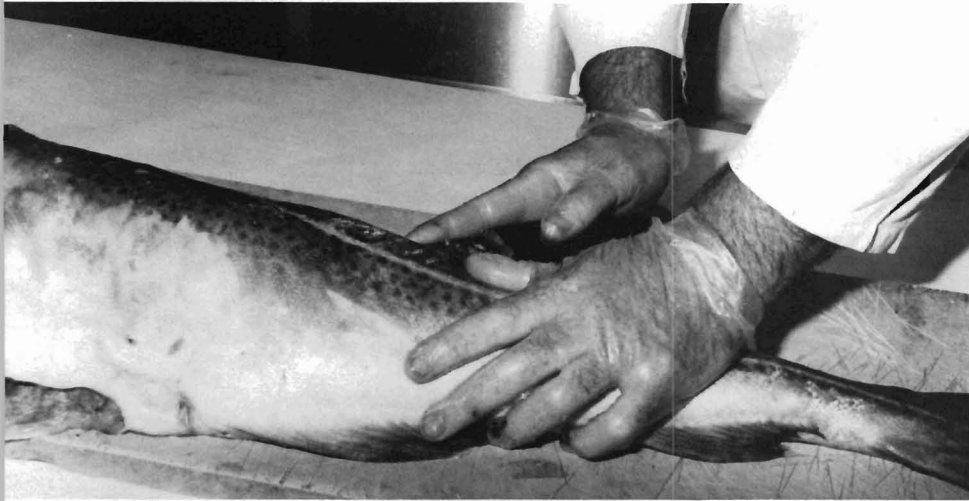
First cut behind fin.

Remove nape area of fillet from collar bone.



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Cut along dorsal fin (close to the backbone) toward tail.

| Weight (pounds) | Dimensions (inches) |
|-----------------|---------------------|
| 13½ | 21 x 11½ x 1½ |
| 16½ | 19 x 10 x 2½ |
| 18½ | 19 x 11¾ x 2½ |
| 49½ | 24 x 19½ x 3 |

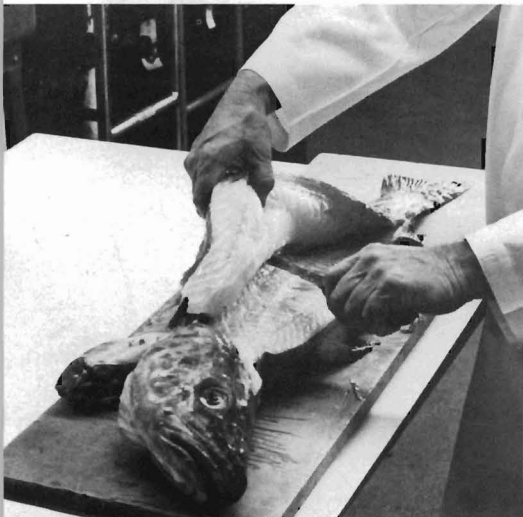
Additional sizes and shapes having limited use are as follows:

| Weight (pounds) | Dimensions (inches) |
|-----------------|--|
| 10 | 13 x 11½ x 1⅞ |
| 11 | 17¼ x 11¼ x 1⅝ |
| 12½ | 21 x 10½ x 1½ |
| 13¼ | 17 x 11½ x 1⅞ |
| 13½ | 20 x 11¾ x 1⅞ |
| 13½ | 20 x 11¾ x 1½ |
| 15 | 16 x 11 ¹ / ₁₆ x 2 ³ / ₈ |
| 16½ | 19 x 10 x 2⅝ |
| 16½ | 18 ⁷ / ₈ x 10 x 2.4 |
| 17½ | 21 x 11¾ x 2⅝ |

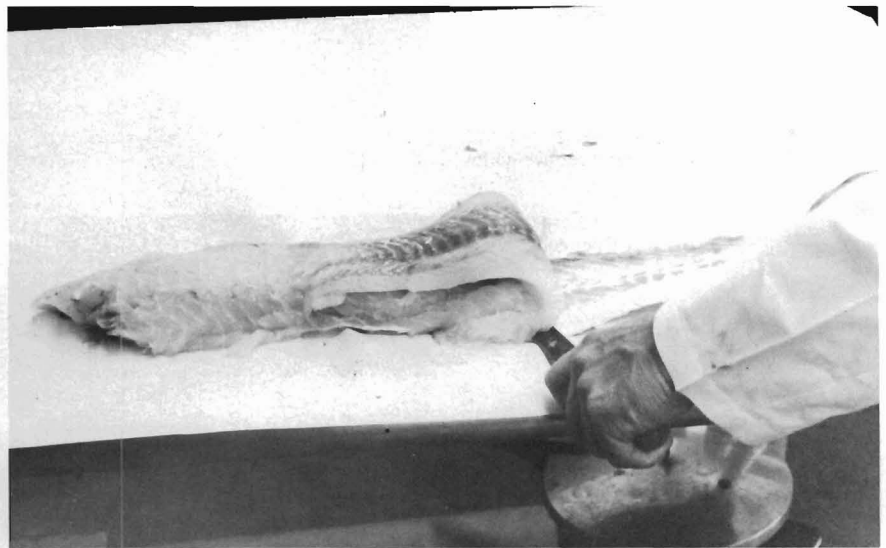
PROCESSING METHODS

A fish fillet block is a uniform, cohering mass of usually skinless fillets frozen together under pressure. Because fish sticks and portions are cut to definite dimensions and weights, different sizes and shapes of fish fillet blocks are produced. The principal sizes and shapes of fish blocks being utilized in this country are as follows:

Because fish sticks and portions are cut to specified dimensions and a specified number are placed in a package to arrive at a definite weight, it is important that the frozen block of fillets be of



At left, filleting: Reverse knife along backbone. Bottom left, remove fillet from fish. Below, skin fillet.



a uniform density. Generally, an acceptable block will not vary more than $\frac{1}{8}$ inch in any dimension from those specified.

A typical method of preparing fish fillet blocks will be used as an example. Essentially, boneless and skinless fillets are carefully placed into a waxed, one-piece folding carton either parallel with or perpendicular to the long axis of the box. In both cases, the thick portion of the fillet is placed adjacent to an edge of the container, and the thin portion is placed into the middle. The depression so formed is built up with fillets until the desired weight is obtained. The containers are slightly overfilled with fish so that all surfaces are uniformly filled with every effort being made to avoid sloping surfaces, bad corners, or voids.

For freezing, the blocks are put into a wooden or metal tray and then placed into a multiplate compression freezer. Space sticks of the correct size are used to prevent deformation or bulging caused by excessive pressure during plate freezing. Freezing time should not exceed 3 hours, and the internal temperature of the product should be reduced to at least -50°F at the thermal center after thermal stabilization. Using the correct sized spacers, slightly smaller in depth than the containers, causes a very slight compression of the containers when the plates are lowered. This compression smooths out the surface of the fish. Finally, when all the container is filled with fish flesh, the compression forces the fillets to fuse together into a single block of fish.

Upon removal of the blocks from the plate freezer, the blocks are taken out of the tray and packed into a corrugated master container. Usually, four blocks are packed into a corrugated master container.

The series of photographs in this paper depicts the many steps involved in making a good quality block. They point out many of the details that go into block production that would be difficult to describe with words.

LITERATURE CITED

Anonymous. 1977. Fisheries of the United States, 1976. U.S. Dep. Commer., NOAA, Natl. Mar. Fish. Serv., Curr. Fish. Stat. 7200, 96 p.



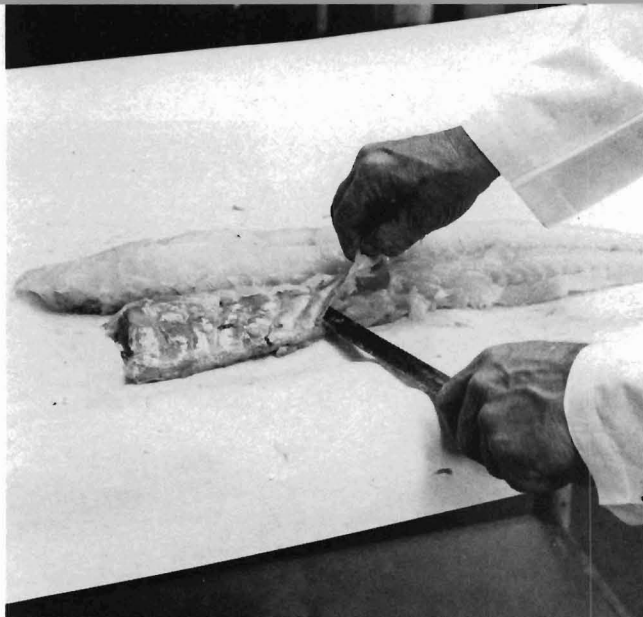
First cut to remove pin bones.



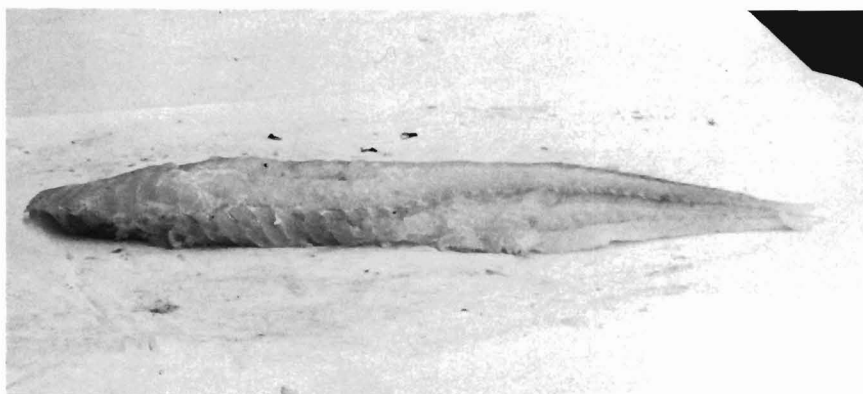
Second cut to remove pin bones.

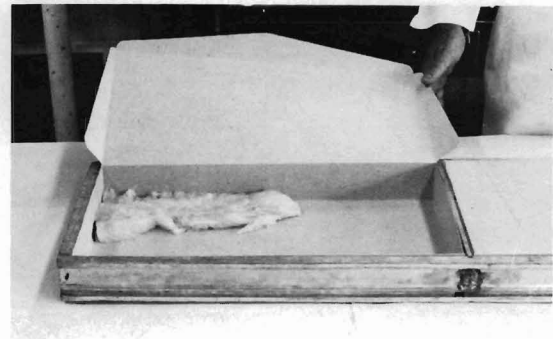
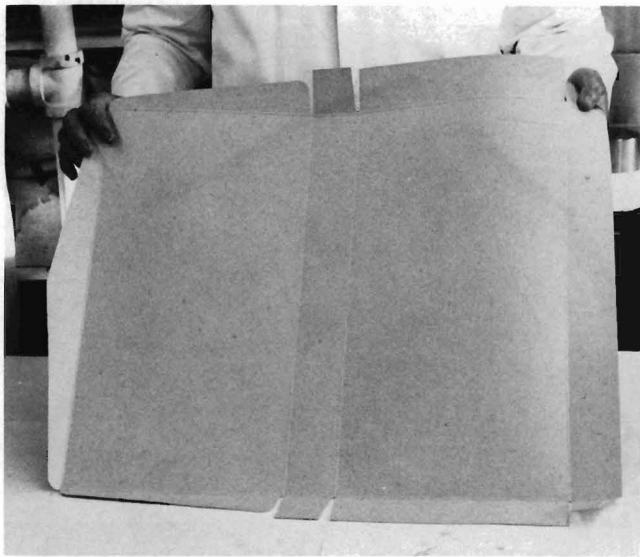
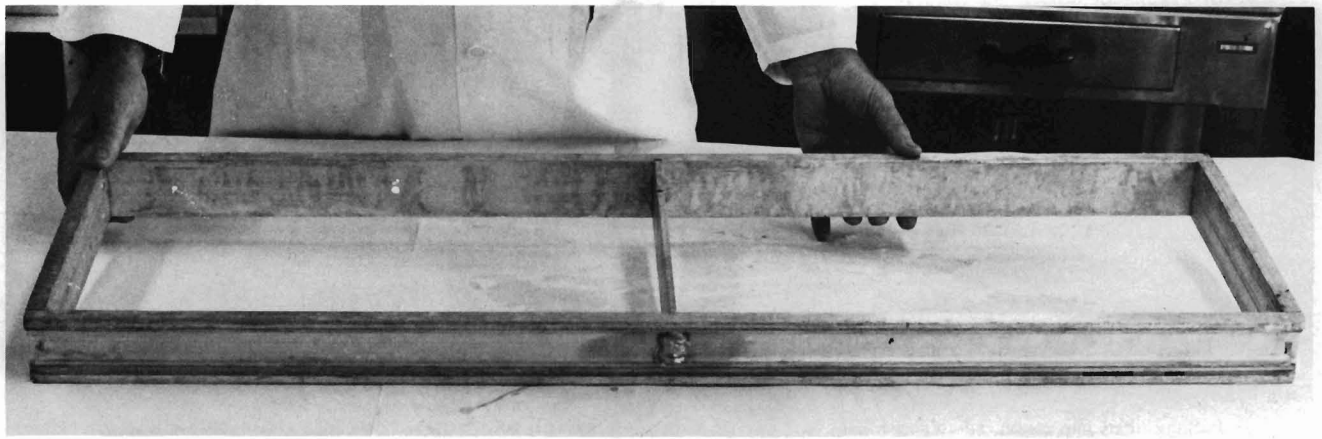
Bones removed.



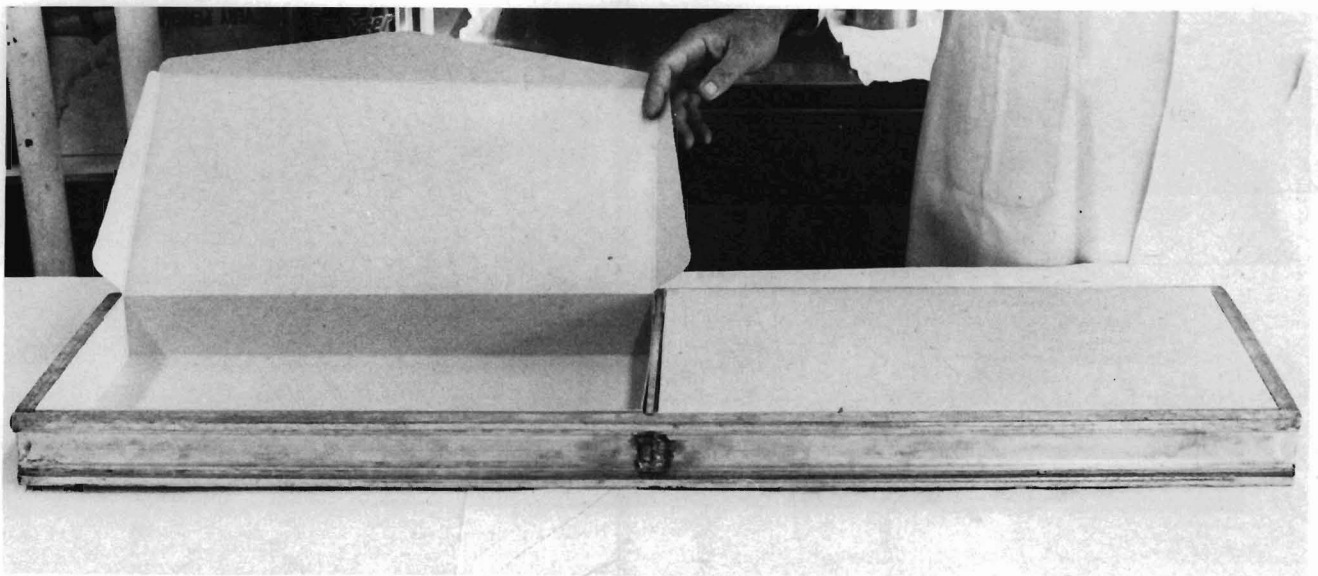


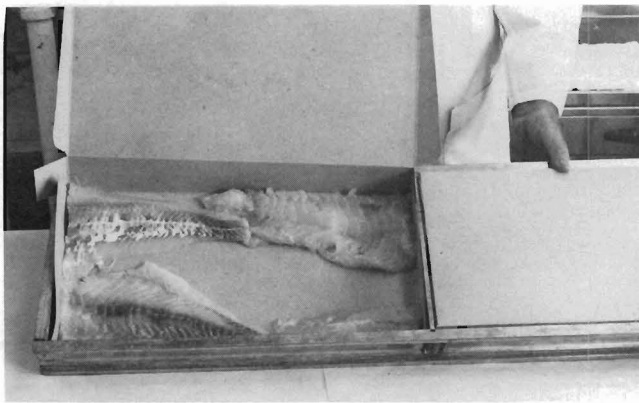
Counterclockwise from top:
Removing black membrane; skinless
and boneless fillet; cut thickest part of
fillet on angle to permit better
packing; and cut fillets in half.





Counterclockwise from top: Block pan for 16½-pound block doubled with removable divider; unfolded block carton; folded block carton with all tabs overlapping on outside to prevent imbedded tabs; and square cut fillets butted into corner of carton.





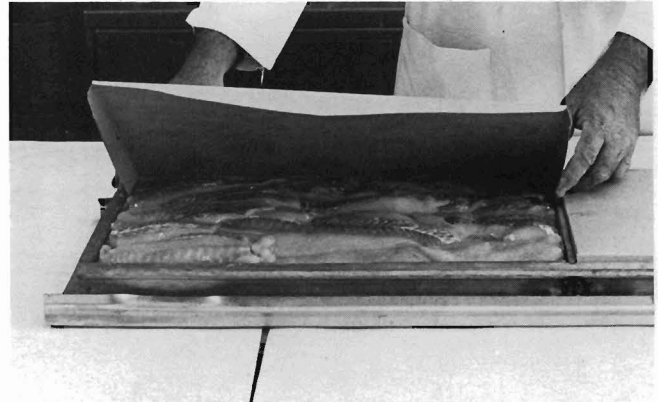
Packing fillets into carton, all corners filled first.



Partially filled carton. Long fillets should always be cut in half.

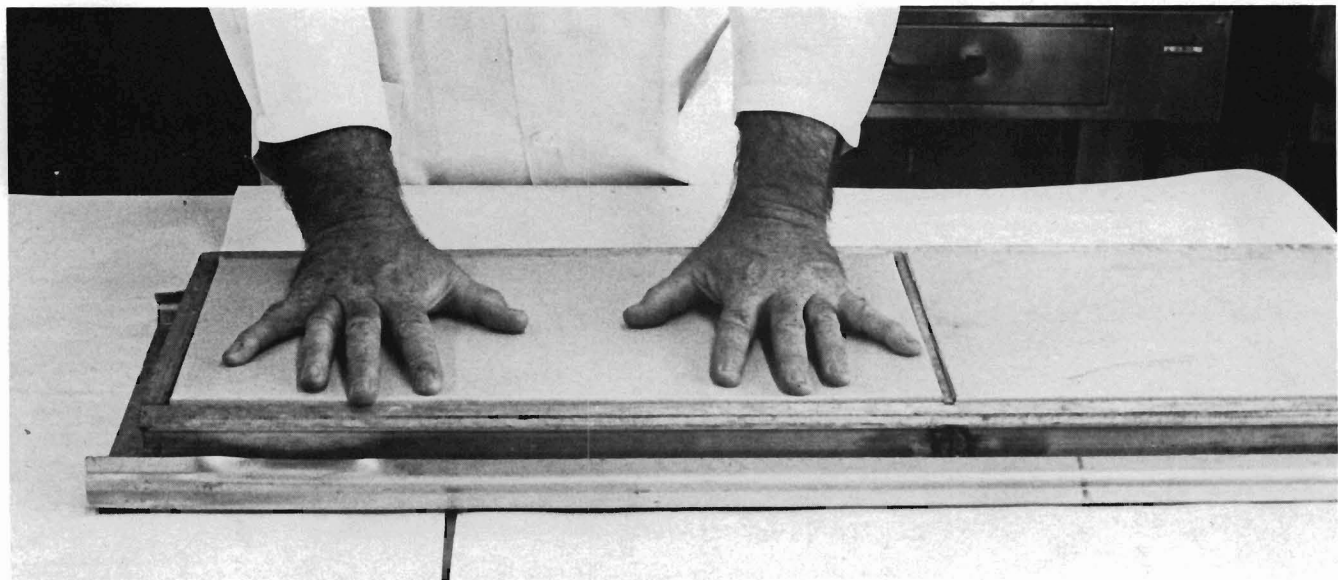


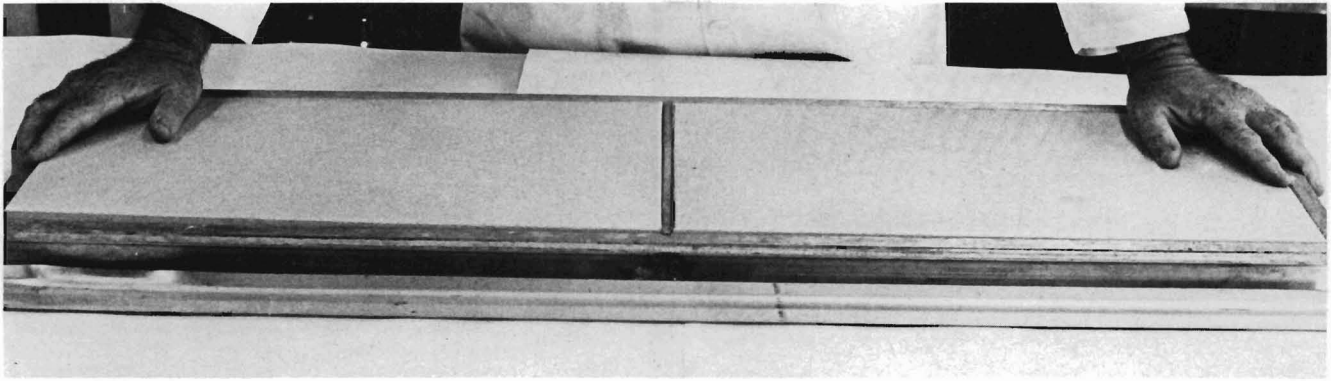
Completely filled carton. Top surfaces should be flattened and leveled.



Close carton. Overlapping cover edge is placed outside to prevent imbedding in block.

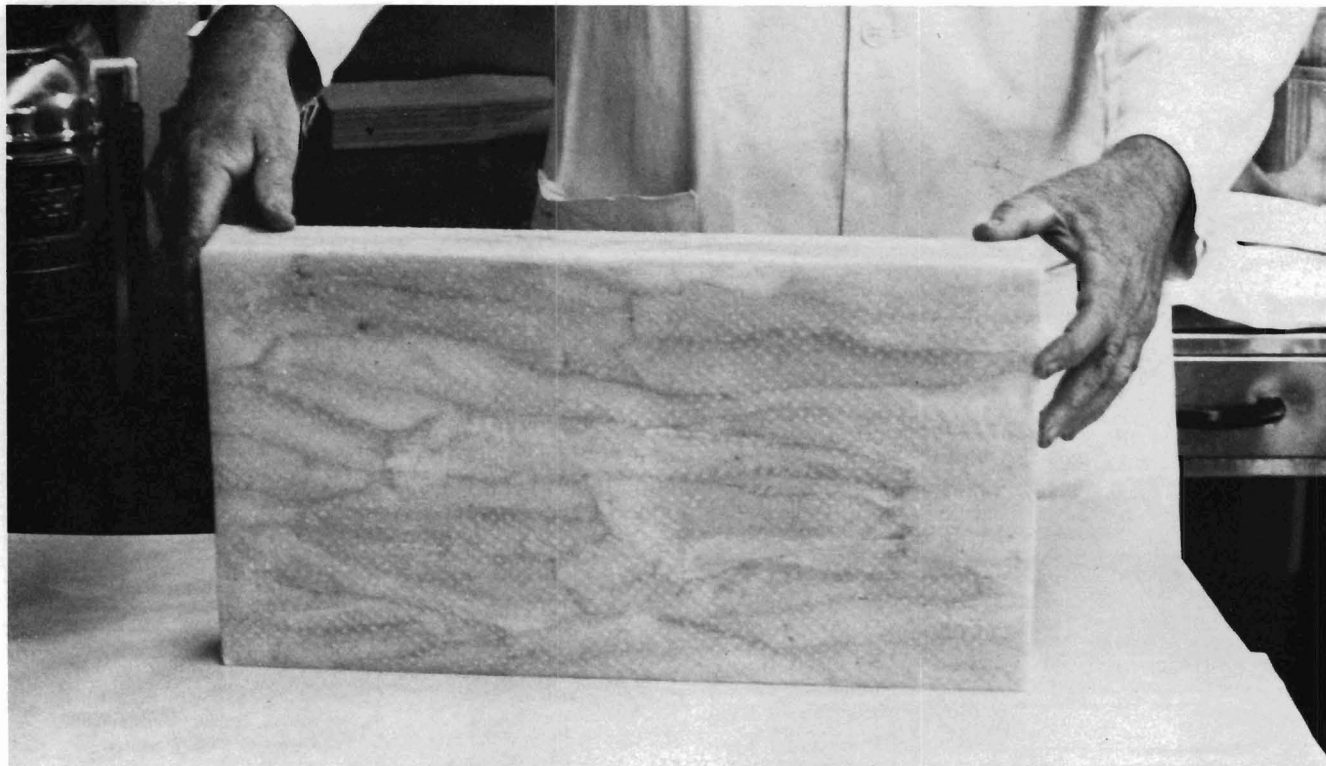
Finished carton. Top surface being smoothed.





Counterclockwise from top: Block cartons ready for plate freezing; plate freezer with plates up; plate freezer with blocks and plates compressed; and removing blocks from plate freezer.





Frozen block with square side and corners and absence of voids.



Frozen block side view.

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