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Killing, Dressing and Drawing Poultry

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Glossary

Bleeding. Cutting the jugular vein.

Broilers. Young chickens of either sex, of marketable age (approximately eight to twelve weeks old) but not weighing over two and one-half pounds, and sufficiently soft-meated to be cooked tender by broiling.

Drawing. Removal of internal organs, including intestines, heart, liver, lungs, gizzard, crop and sex organs.

Dressing. The bird is killed and the blood and feathers removed. (Also known as New York Dressed.)

Evisceration. Same as drawing. The term is usually applied to poultry when drawing is accomplished under federal inspection.

Fowl. Mature female birds of any age or weight.

Freezer burn. Light-colored pock marks which appear on the skin of birds held in storage. Caused by dehydration from the skin.

Fryers. Young chickens of either sex, approximately 13 to 20 weeks old, weighing more than two and one-half pounds but not more than three and one-half pounds, and sufficiently soft-meated to be cooked tender by frying.

Killing. The result of bleeding and sticking.

Mandible. Mouth parts, or beak.

Pinfeathers. Partially developed feathers which are not removed in a normal plucking operation.

Plucking. Removing feathers from the bird.

Processing. Killing, dressing and drawing poultry.

Roasters. Young chickens of either sex, approximately five to nine months old, weighing over three and one-half pounds, and sufficiently soft-meated to be cooked tender by roasting.

Singeing. Passing a flame over the dressed carcass to sear off any hair-like feathers that may be present. The most practical device for singeing is probably a small gas jet attached to the gas line by a rubber hose.

Sticking. Piercing the brain, which causes loosening of the feathers.

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THE OBJECT of this circular is to acquaint poultry producers and poultry dressing plant operators with the more desirable methods for killing, dressing and drawing poultry. Dressed poultry is a highly perishable food, and any practice that will tend to retain the original high quality during the processing operation should be applied.

TYPES OF DETERIORATION IN DRESSED POULTRY

IN GENERAL there are two types of deterioration in dressed poultry. One type occurs when dressed poultry is held at temperatures above freezing. The other is that which occurs after freezing.

The first type results in both visceral taints and spoilage caused by bacteria. When dressed birds are held at high temperatures (above 40°F.), some deterioration may occur within eight hours. An indication of such deterioration is the appearance of bile stains on the liver. Undesirable odors may be apparent in the kidney area within 24 hours. If the internal organs are removed before any odors have developed, any development of taints at a later time is precluded.

Poultry flesh, especially when moistened during the processing operation, provides a natural medium for the development of bacteria. Deterioration due to bacteriological action is first manifest by odor of the carcass and a slight "off" flavor of the meat. In the advanced stages, the odor becomes offensive. Bacterial contamination occurs during the killing and dressing operation, and varies in amount directly with respect for sanitation principles. Bacterial spoilage is accelerated by high temperatures (above 40°F.) during and following processing. Drawn carcasses will keep as well in storage as those that are dressed if care is exercised to prevent contamination.

The second type of deterioration occurs after poultry has been held in storage for a relatively long period, and is characterized by rancid flavors, freezer burn and dehydration. The fat of poultry becomes rancid on extended exposure to air. This development is augmented by exposure to light and by contamination of the meat with foreign material resulting from unsanitary handling. When the fat becomes rancid, the cooked bird exhibits a characteristic "old" flavor.

The development of light-colored areas around the feather papillae and over large areas of skin of birds in cold storage is commonly referred to as freezer burn. This condition is the result of dehydration due to inadequate protection from air while in the frozen state. The fat of birds with large areas of freezer burn on the surface is usually rancid.

SOURCES OF CONTAMINATION

THE BACTERIAL content of a dressed bird reflects to a great extent the bird's housing conditions, and also the killing, dressing and drawing procedure. It is a proven fact that birds housed in clean quarters produce a cleaner finished product (bacteriologically). Those points in the killing and dressing operation where bacterial contamination is most likely to occur are: the scald tank, washing tank, chilling, drawing, and on cutting blocks or boards. Every effort should be made to carry out sanitary procedures in order that the bacterial content of the carcass will be held at a minimum.

Every time an additional bird is dipped in the scald tank, more organisms are introduced. The total bacterial content of the scald water builds up rapidly. In order to keep contamination at this point at a minimum it is desirable that the scald water be changed at frequent intervals, or preferably to have a constantly changing supply.

Tanks of cold water are commonly used for dipping and washing the birds after the feathers have been removed. Dipping tanks of this type are not recommended as they actually increase the number of bacteria on the carcass, the degree depending on the length of time the water is used. If washing is necessary at this time, a spray with plenty of water should be employed.

Chilling with crushed ice is a very efficient method for removing heat from the dressed bird. Adding water to the ice will increase the efficiency of cooling, but will also increase the chance for contamination. Tanks should be thoroughly cleaned prior to use for chilling. After one lot of poultry is chilled, the tank must be cleaned before another lot of birds is introduced. The ice may be re-used if thoroughly washed.

Extreme care should be exercised during the drawing procedure. The cut around the vent should be made without contaminating the surrounding flesh with fecal material. If the hands become contaminated with intestinal contents, they must be washed at once and, if possible, rinsed in a disinfecting solution. Some processors use pans to hold the bird while it is being drawn. When pans are used, they should be thoroughly washed,

and preferably sterilized, after drawing each bird. The viscera should never be placed in the pan with the carcass.

Cutting blocks or boards are undesirable. They become damp, contaminated, and are difficult to clean. A sanitary metal-top table is more easily cleaned, and there is less chance for contamination.

A disinfecting solution, containing 200 parts per million of chlorine, is desirable for cleaning equipment and rinsing soiled hands.

PROCESSING PROCEDURE

IF A HIGH QUALITY product is to result from the killing and dressing operation, only well finished birds should be killed. Special attention must be given to fleshing, finish and feathering. Careful handling prior to killing is also essential. Rough handling may result in flesh and skin bruises, which mar the appearance and keeping quality of the finished product.

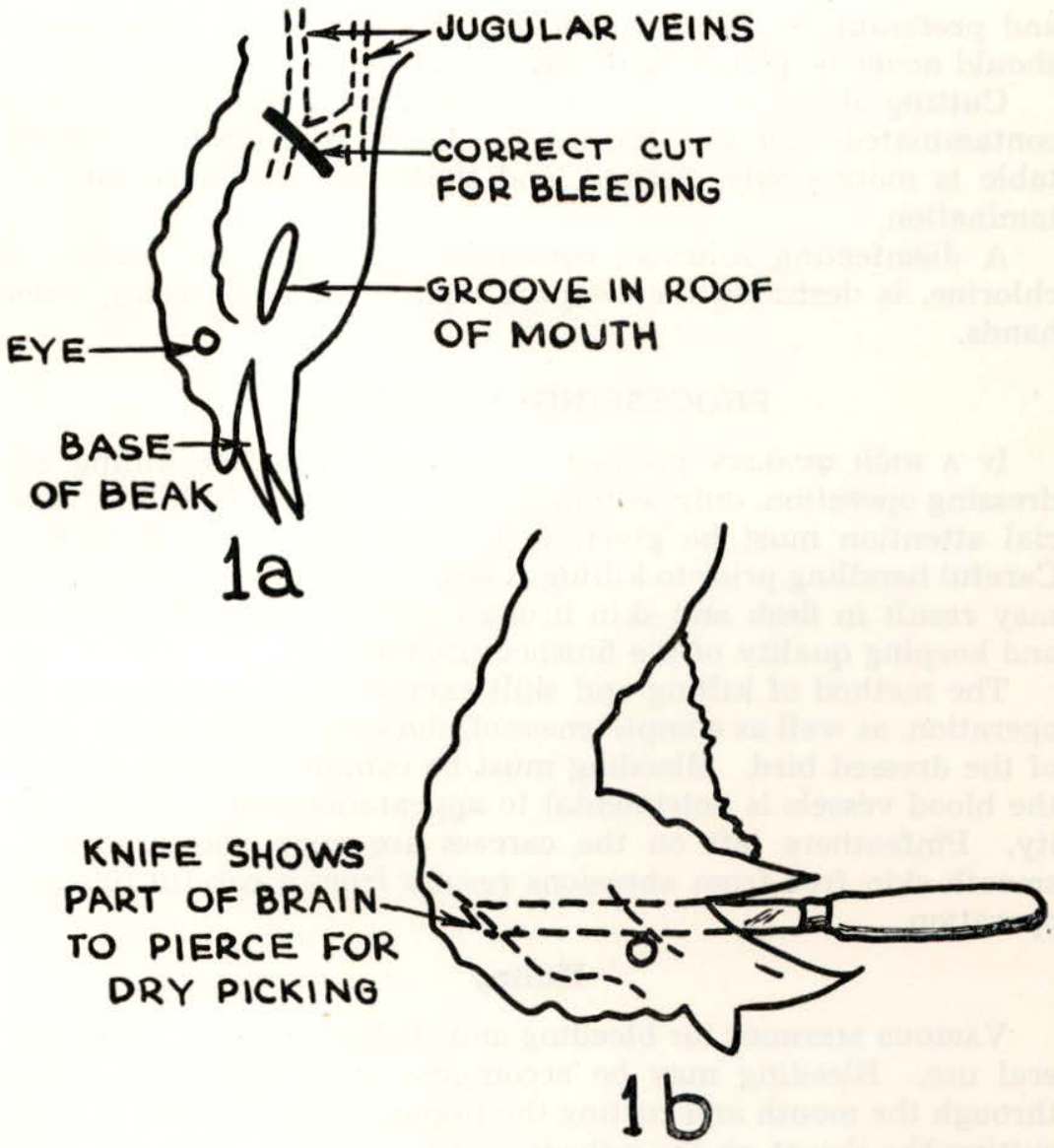
The method of killing and skill exercised in carrying out the operation, as well as completeness of plucking, enhances the value of the dressed bird. Bleeding must be complete, as blood left in the blood vessels is detrimental to appearance and keeping quality. Pinfeathers left on the carcass are very undesirable. A smooth skin free from abrasions results from a careful plucking operation.

Killing

VARIOUS METHODS for bleeding and sticking poultry are in general use. Bleeding may be accomplished by inserting a knife through the mouth and cutting the jugular vein (Figure 1a), or by cutting the throat on the outside just behind the lower mandible (Kosher style). Either of these methods is satisfactory, but in general more success will be achieved when the cut is made on the outside.

The nerve center which controls the tension of the feather follicle muscles is located in the brain. This nerve center is destroyed by piercing into the rear of the skull where the third lobe of the brain is connected with the spinal column. A very slight twist of the knife causes the muscles to relax and the feathers are much easier to remove.

Sticking may be accomplished either by pushing the blade of the knife through the cleft in the roof of the mouth (Figure 1b), or by piercing through the sinus, starting the cut immediately in front of the eye (Figure 2). It should be remembered that the sticking knife must pass through the optic foramen (hole in rear



FIGS. *1a and 1b.—Correct cut for bleeding is shown above (1a). Position of the knife for piercing brain. (1b).*

of skull) in the center of the skull at a level with the eyes. A characteristic squawk is emitted by the bird when sticking has been properly accomplished. It is the usual practice to pull the wing and tail feathers before scalding. These can be easily removed immediately after sticking.

Plucking

THERE ARE THREE methods in use for plucking poultry. These are known as: dry plucking, plucking after a semi-scald, and plucking after a hard scald.

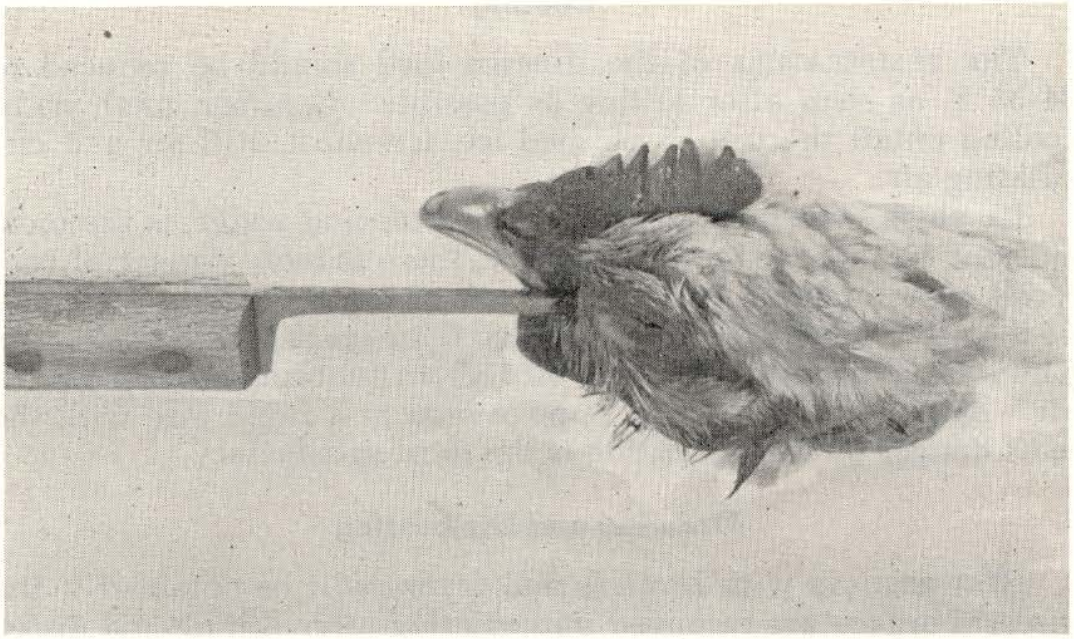


FIG. 2.—*Insert the knife directly in front of the eye and into the brain.*

Dry plucking should be carried out immediately after sticking and bleeding. Feathers are removed without wetting or scalding. Singeing is necessary in order to remove the hair-like feathers which remain after plucking. This method requires more time than when the bird is scalded, but presents a more attractive finished product. If only a few birds are prepared for locker storage, dry plucking is probably the most satisfactory method.

When large numbers of birds are slaughtered, the semi-scald method of plucking is generally used. Sticking and bleeding procedures are the same as for dry plucking. The birds are dipped in warm water for about 30 seconds. Temperatures will vary for the various classes of poultry. If birds are plucked by machine, the following temperatures will give desirable results: turkeys, 124°F.; broilers and fryers, 126–128°F.; roasters and fowl, 128°F. If feather removal is by hand, the water temperature for all classes may be raised 2°F.

Hard scalding (temperature 170–180°F.) is practical only when birds are to be used for immediate consumption. The birds are bled and scalded. Sticking is not required as the hot water causes relaxation of the feather follicle muscles by partial cooking. Feathers may be removed either by hand or machine. The carcass of the hard scalded bird presents an undesirable appearance after standing a few hours. Cold storage of hard scalded poultry is not recommended.

Cooling

THE TEMPERATURE of the dressed bird should be reduced to 34–36°F. as soon after killing as possible. Common methods of cooling entail the use of crushed ice, ice slush, still air and circulating air.

Ice slush, which consists of crushed ice and water, is the most efficient cooling medium. However, there is more danger of bacterial contamination through the use of ice slush than from any of the other media. Crushed ice also removes heat at a rapid rate. Circulating air will cool out a bird about twice as rapidly as still air. Any method that will remove heat at a rapid rate with the least danger of contamination is the most satisfactory.

Drawing and Disjointing

BEST RESULTS with broilers and fryers will be obtained if the visceral organs are removed immediately after killing and dressing. Since this class of poultry tends to develop "gutty" flavors readily, removal of internal organs as soon as possible precludes the possibility of such development. Roasters and fowl are usually cooled prior to drawing with satisfactory results.

Removal of the visceral organs may be accomplished by any of several methods. The following methods have proved satisfactory both from the standpoint of efficiency of operation and cleanliness of the finished product:

Broilers and Fryers.

Step 1. Suspend the dressed bird in a shackle or place it in a clean, sterile pan. Slit the skin along the top side of the neck (Figure 3). Strip the skin away from the neck. Cut the neck at

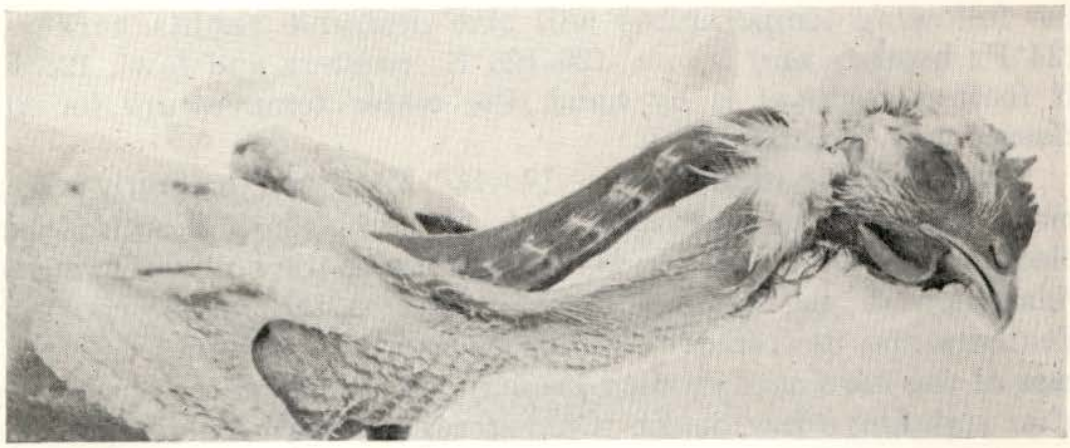
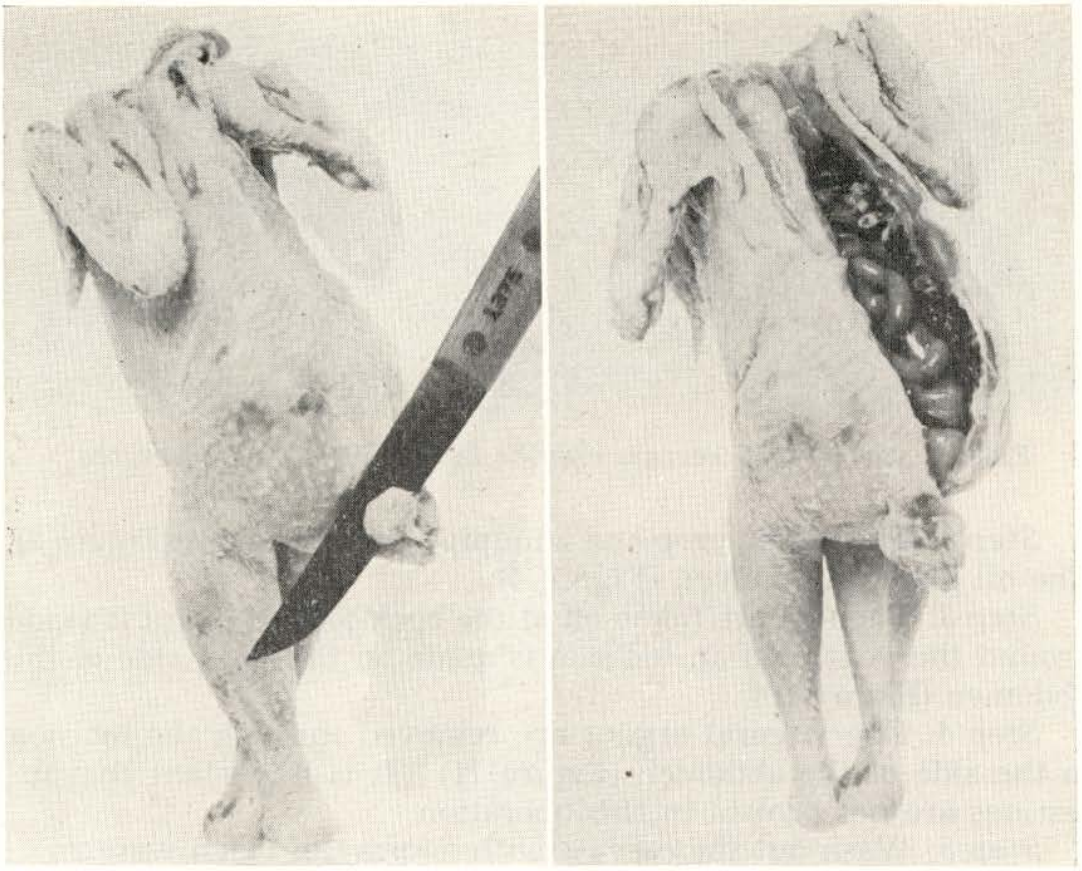


FIG. 3.—*Slit the skin along the top side of the neck.*



FIGS. 4 AND 5.—*Remove feet and oil gland (left). Split the carcass along the back.*

the base of the skull and at the junction with the body. Cut the neck skin about half-way between the head and body to remove head.

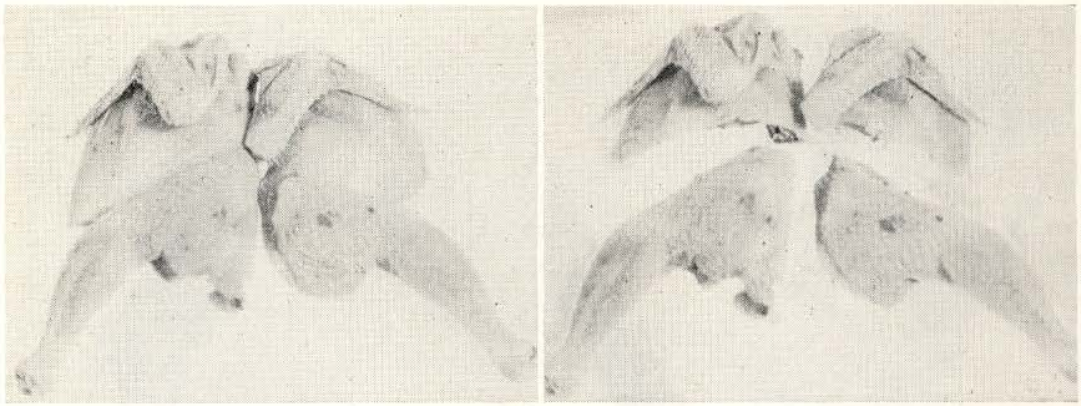
Step 2. Remove feet and oil (preen) gland (Figure 4). If shackle is used, feet will not be removed at this time.

Step 3. Split the carcass along the back (Figure 5). Extreme care is necessary to prevent rupture of the intestines. This cut may be made through the bones and flesh with a stiff-bladed knife or pruning shears. Cut around the vent and pull out the visceral organs, including the crop. Remove the lungs and wash out the carcass. The neck, heart, liver and gizzard must be cleaned and thoroughly washed as soon as possible.

Step 4. The carcass may then be halved, quartered or cut up as shown in Figures 6, 7 and 8.

Roasters, Fowl and Turkeys.

Step 1. The skin is slit on the top side of the neck, and the neck and head removed as described in *Step 1* for broilers and fryers.



FIGS. 6 AND 7.—*The carcass may be halved (left), or quartered.*

Step 2. The gullet, crop and windpipe are pulled out (Figure 9). The oil gland is removed (Figure 4).

Step 3. The feet are taken off at the hock joints. A cut is made around the vent, and an incision is made on the right side of the abdomen (Figure 10).

Step 4. The visceral organs are removed through the incision in the side of the abdomen (Figure 11). It is important that intestines are not broken in this operation.

Step 5. Wash out the carcass with a spray of clean water.

Step 6. Pull the neck skin over the back and lock in place with the wings (Figure 12).

FIG. 8.—*Here the carcass has been cut up.*

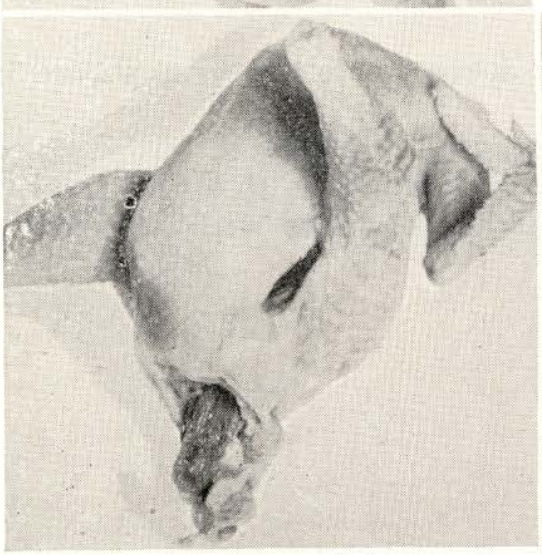
Step 7. Make another small incision on the left side of the abdomen and put the legs through the incisions on each side and through the opening left by removal of the vent (Figure 13).

This procedure results in a compact, neat appearing carcass with no sewing or trussing required.

FIG. 9.—*(Upper left.) Pull out gullet, crop and windpipe.*

FIG. 10.—*(Lower left.) Cut around the vent, and make an incision on the right side of the abdomen.*

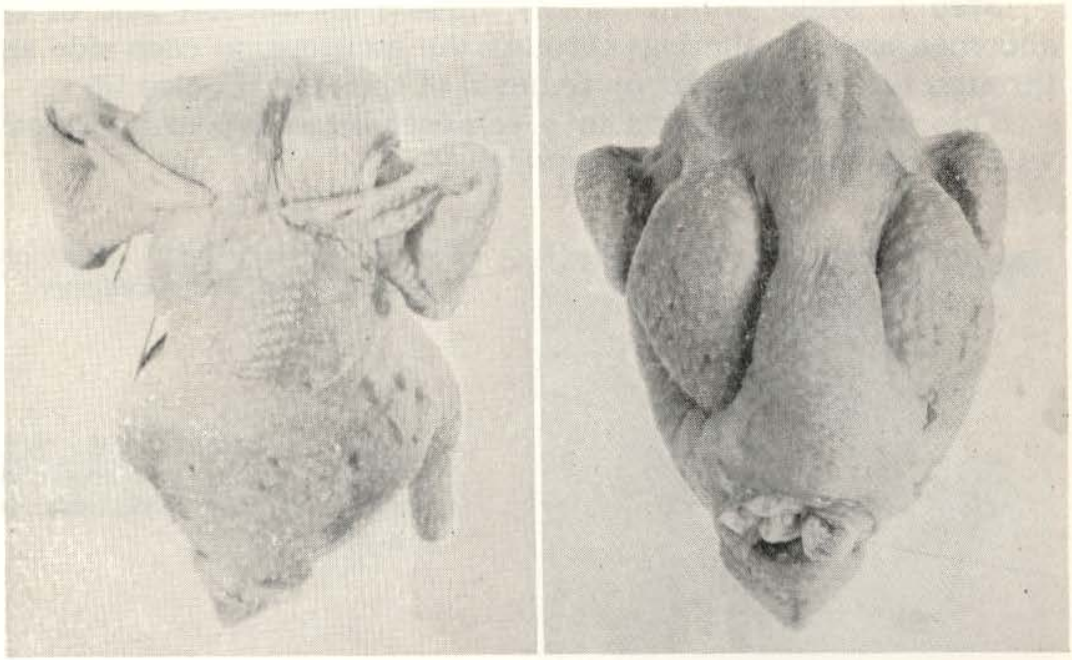
FIG. 11.—*(Lower right.) Remove the visceral organs through the incision.*



Wrapping for Storage

OXIDATION and dehydration are factors to control in storage of poultry. Oxidation occurs when air comes in contact with the dressed bird, and results in the development of rancid flavors. Moisture loss from the carcass, due to contact with air, causes weight loss and contributes to the development of freezer burn.

A vapor-moisture proof wrap is necessary to preserve quality of poultry placed in cold storage. The wrap should be made as



FIGS. 12 AND 13.—*Pull the neck skin over the back and lock in place with the wings (left). Put the legs through the incisions on each side.*

nearly airtight as possible. Air space inside the wrap should be avoided.

Another method of preserving quality of frozen birds is glazing. This consists of coating the frozen bird with a thin layer of ice. It has been used on small lots of birds with satisfactory results.

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