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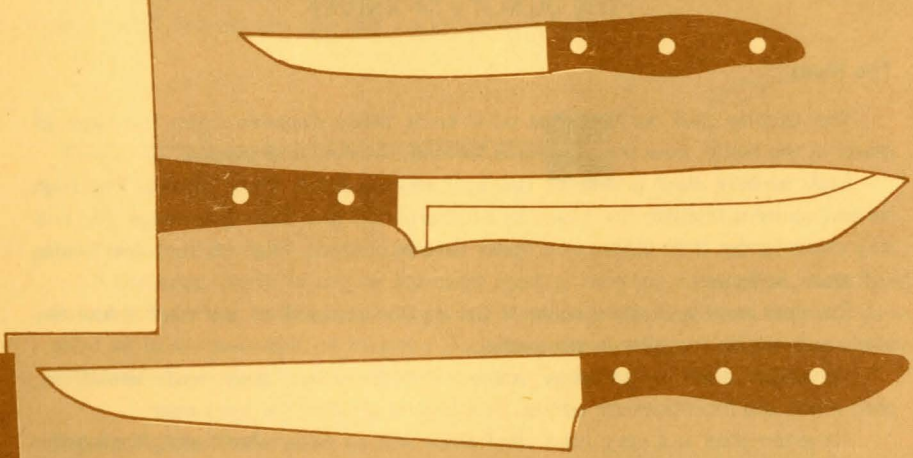
Have the Edge on KNIVES



EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
COOPERATING WITH THE U.S. DEPARTMENT OF AGRICULTURE
AND THE COLLEGE OF HOME ECONOMICS.
E. F. FROLIK, DEAN; J. L. ADAMS, DIRECTOR

Prepared by
Mary Dale McGregor
Extension Housing Specialist

Homemakers are likely to use a knife more than any other article in the kitchen. An article used often deserves careful consideration in its selection, use and care.

When selecting knives you will need to consider what different knives are designed to do and the quality of the knives you want. No single knife is designed to perform all the cutting, carving, peeling and chopping you do. Consider the jobs that need to be done and how many of them your present knives will perform. Keep in mind the multiple use of some knives and specialty knives for particular tasks.

Good quality knives are a wise investment you will enjoy for many years. A smooth cutting knife is a source of convenience and satisfaction. A dull knife is annoying and dangerous.

How do you choose a good knife? Appearance and price are not always enough on which to base a selection.

The quality of a knife is determined by the design and materials in the blade and the handle and by the method of joining the two. The life of the knife may be determined by its quality and the care it is given in using, storing and sharpening it.

THE QUALITY OF KNIVES

The Blade

The quality and performance of a knife blade depends upon the type of metal in the blade, how the blade was formed, finished and ground.

High carbon steel is one of the best materials for knife blades. The high carbon content enables the blade to be sharpened to a thin, sharp edge that will stay sharp longer than blades of a lower carbon content. High carbon steel blades will stain, however.

Stainless steel will resist stain. If the carbon content of the steel is low the blade will not hold a good cutting edge.

Vanadium steel is an alloy made of high-carbon steel with vanadium, chromium and molybdenum added. This is a tough steel for long wear.

Tungsten steel is a very hard steel alloy and an expensive metal. A tungsten steel knife would maintain a sharp edge for a long time.

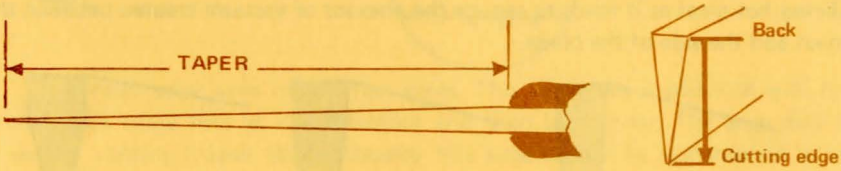
Bimetal knives are made with a layer of tungsten-carbide material on one side of the cutting edge with a softer material on the other side. The knife stays sharp because the tungsten steel remains hard after the softer material wears away. These knives should be sharpened on the steel side only.

Chrome-plated steel makes an attractive knife which is nearly stainproof. The chrome plate is soft and may chip or scratch leaving a metal that may easily stain and rust. The edge of the knife is not plated and will usually turn dark. Since the edge is not solid chrome, its quality will depend upon the quality of the steel under the plating.

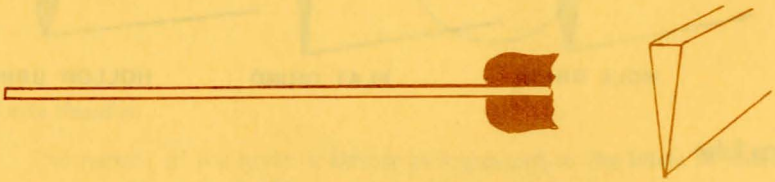
Sheet steel or sheet iron may be used in very inexpensive knives. These knives need sharpening often, are themselves easily stained and may stain food.

Methods of Forming the Blade

A *forged* blade is hammered into shape by hand or by machine. Forged steel has a fine tough grain but is expensive. The blade of a forged knife tapers from the handle to the point and from the back to the cutting edge. The tapering produces a strong base with a flexible point and a very thin cutting edge.



A *beveled* blade is cut from a bar of metal that is thicker on one edge than on the other. The beveled blade will taper from the back of the knife to the cutting edge, but not from the handle to the point. When properly treated and ground this process can produce a good quality blade.



A *stamped* blade is cut or stamped from a sheet of metal. The blade is of uniform thickness until the cutting edge is ground. Although this may not be as good as other methods of forming the blade, the quality of the finished blade will depend upon the quality of steel and the method of grinding.

Tempering the Blade

Tempering is a process of treating the steel with heat and cold. This process toughens the metal and makes it less brittle. If the knife should ever be reheated to the temperature used in this tempering process, it may become brittle. A properly tempered knife will bend and return to its original line without breaking.

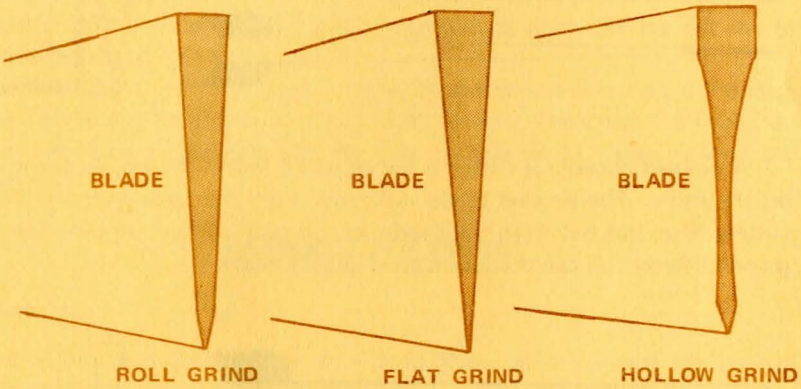
Grind of the Blade

A look at the cross-section of the blade will tell you what grind has been applied to the blade. There are several variations of standard grinds. Three of the most common grinds are listed below:

A *roll grind* leaves a sturdy, convex blade used for heavy-duty jobs. It is found on cleavers, butcher knives or other heavy-duty knives. This grind may need frequent sharpening.

A *flat grind* is similar to the roll grind except that the sides have a flat or uniform slope from the back to the edge. These are also used for heavy duty tasks and may require frequent sharpening.

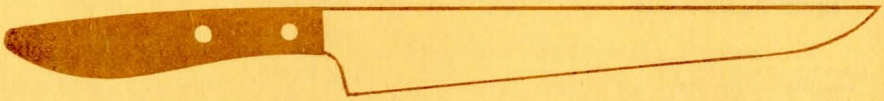
A *hollow or concave grind* has a concave area on each side of the blade. The edge is very thin and holds a sharp edge. The edge must be protected from blows and contact with hard surfaces. This grind is good for paring, fast cutting, and slicing hot meat as it tends to reduce the amount of vacuum created between the meat and the side of the blade.



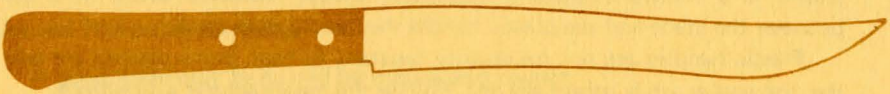
Cutting Edge

There are several varieties of knife edges for different uses. Recognizing the capabilities and limitations of the different edges will help identify knives for specific or multipurpose use.

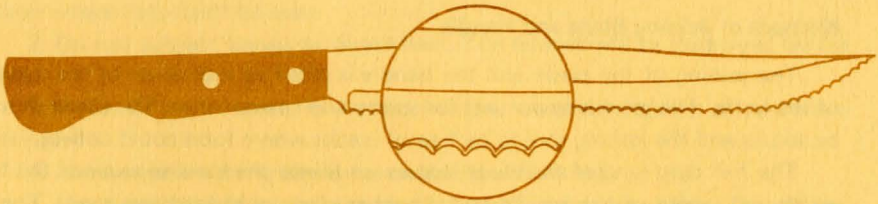
A *straight edge* provides a more uniform cut than does a curved edge.



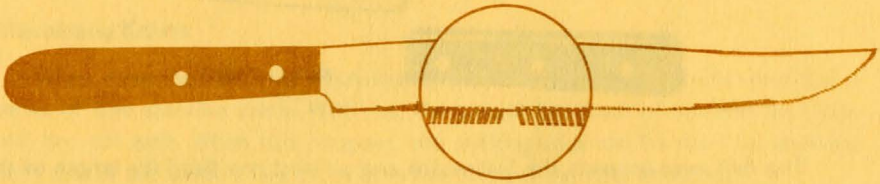
A *curved edge* cuts easier and with less pressure than does the straight edge.



A *scalloped edge* is used for cutting breads and cakes. This edge requires little pressure. There are several variations of the scalloped edge, some with much finer scallops than others. This type of edge is difficult to resharpen.



A *serrated edge* saws rather than slices. This resembles a sawtooth with fine ridges that slope first in one direction and then in another. The edge may be used for cutting frozen foods. Usually this edge cannot be resharpened in the home.



Knife Handles

The handle of the knife is almost as important as the blade in determining the quality of the knife. The weight of the knife should rest in the handle for good balance. The handle should "fit" the hand that will be using it. Handles should be comfortable to use and easy to grasp.

Materials used in the handle are also important. The handle should be tough, smooth, non- absorbent, comfortable and easy to care for.

Hardwoods (walnut, maple, birch and rose wood) are frequently used for handles. Polished handles are much preferred over painted or varnished handles. Paint and varnish tend to chip or wear off. Most wood handles should not be put in the dishwasher.

Wood with resin handles are of hardwoods treated with resins. They are durable and resistant to stain, moisture and heat. They have a smooth, attractive finish. Most of these handles are safe in the dishwasher.

Plastic handles often have the blade molded into them by heat. Although plastic is a moisture-resistant substance, should moisture settle in a crack between the blade and the plastic handle the handle may crack.

Plastic handles are not necessarily resistant to heat. Some plastics are safe in the dishwasher while others are not. Follow the manufacturer's directions.

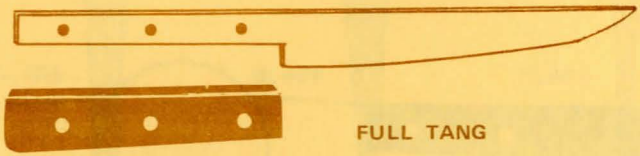
A good *hard rubber* handle is smooth, hard, durable, and resistant to moisture and stains.

Stainless steel handles are smooth, hard, durable and resistant to moisture and stains.

Methods of Joining Blade and Handle

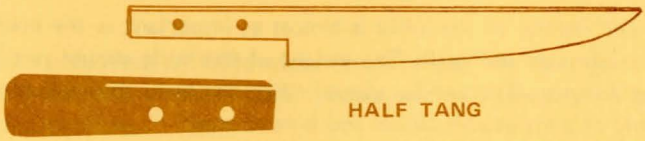
The joining of the blade and the handle is often an indication of the quality of the knife. The joint is important for safety and convenience. The blade should be secure and the joining should be free of cracks where food could collect.

The *full tang* (end of the blade that extends into the handle) extends the full width and lenght of the handle and is held in-place by at least two rivets. This is a good joining and is desirable for heavy-duty knives. The full tang will help provide a good balance for long knives.



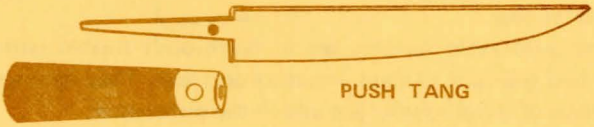
FULL TANG

The *half tang* extends the full width and at least one third the length of the handle and is held in place by two rivets. This joining is satisfactory for most household knives.



HALF TANG

The *push tang* is short and narrow and is pushed into the handle. The tang may be held by a small pin or a collar and a pin. This joining may soon become loose and the blade may come off. This construction is the least desirable.



PUSH TANG

THE CARE OF KNIVES

Use and Protection of Knives

A good knife may be ruined by misuse and neglect.

There are two good reasons for taking care of knives:

- to increase safety for the users
- to avoid damage to fine cutting edges

1. Wash knives separately, not piled with other knives or utensils or put in water where they can't be seen.

2. Do not subject knives to direct heat. The temper will be destroyed by the heat.

3. Store knives in racks, in slotted holders, magnetic holders or cardboard casings.

4. Always use a cutting board for chopping and dicing.

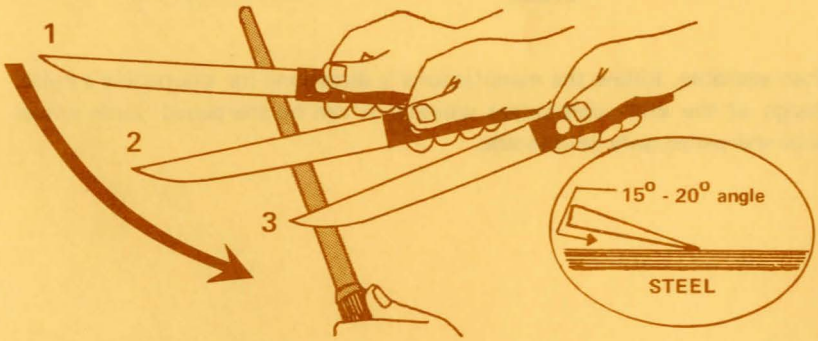
5. Use knives only for the purposes for which they were made. *Do not* use knives for opening cans, cutting paper, twine, etc.

6. Wash or wipe blades from the back of the blade to the cutting edge.

7. When carrying a knife, carry it at the side with the point straight downward.

Sharpening Knives

When examined under a microscope, the cutting edge of a knife resembles a series of fine saw-like teeth. With use, these teeth bend out of line and the blade will not cut well. When this happens, the cutting edge can be reset by stroking each side of the blade a few times on a fine sharpening steel or stone.

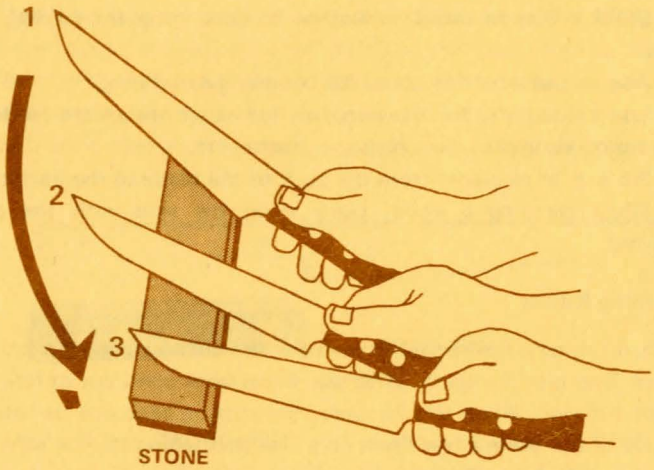


To return the keen cutting edge to the knife, hold the steel in your left hand in a position up and away from your body. With the knife in your right hand, rest the heel of the blade near the tip of the steel with the cutting edge toward you. Tilt the blade at an angle of 15° to 20° from the steel. Draw the blade down and across the entire length of the steel so the tip of the knife leaves the

base of the steel at the end of the stroke. Make the second stroke on the other side of the blade. Alternately, stroke each side using lighter strokes until the edge is restored.

The edge of the blade can also wear off. At this time the blade should be sharpened with a hone or a medium grit stone and the teeth then set with the steel or very fine stone. The original level can be restored by using the hone in exactly the same manner as you would use the steel.

The stone requires the same positions and strokes as the hone and steel. Use light firm strokes turning the knife over to sharpen the other side in an alternating fashion. A mixture of 50% shampoo and 50% water is an excellent lubricant to use when sharpening a knife with a stone.



When available, follow the manufacturer's directions for sharpening a knife. The design of the knife determines whether it can be sharpened; some knives should be sharpened only on one side.

The author acknowledges help from "Buying Guide: Kitchen Cutlery" by Louise Woodruff, University of Missouri Cooperative Extension Service, and "Are You a Sharp Knife Buyer?" by Helen G. Miller, Agricultural Extension Service, University of Wyoming.