As we close in on the end of the 1980s—yes, the turn of the century is just around the corner—there can’t be many issues more fascinating to American consumers than their own health, and the ways they can work to make life healthier, happier...and longer.

A balanced diet made up of a variety of wholesome, nutrient-dense foods, added to a lifestyle that includes the right amount of exercise, seems more every day to be one of the best ways to go about making life better.

Fortunately, today’s food is safer, more wholesome and more nutritious than ever before. Especially meat.

Why especially meat? Because the U.S. livestock and meat industry has been working overtime for the past three decades or more to improve the nutrient profile of all its products.

That’s easy enough to see just by looking back to the concept of the “good, hearty meal” most Americans seemed to share in the ’50s. There had to be oceans of gravy, mountains of potatoes and the biggest, fattest, most heavily marbled roast that the household could afford. And pie à la mode probably followed.

Without all that, it simply wasn’t a meal.

Beef, pork, lamb and veal still are America’s favorite foods to put in the center of the table...

...But we’re buying and eating a very different kind of red meat these days. Our U.S. livestock and meat industry has caught up with consumer demand. In some ways it’s a lot like Detroit’s retooling to turn out smaller, leaner cars when the public voiced its desire for products like that.
Retooling a species is much more complicated, and slower, than retooling a factory. That just makes the changes in the meat we're buying even more startling.

Gone today are the short, blocky steers that produced the '50s beef. Beef animals today are bigger, but genetics research has permitted them to produce about 75 pounds more lean meat per head. They gain more weight, but at decreased levels of fatness.

Hogs used to be raised more for their lard than they are today. When vegetable oils came into the competitive picture, lean pork animals became the most profitable goal for the producer. Dressed carcass weight is the same as it was 30 years ago, but lean meat per head has increased by about 30%.

(Fat from animal sources in the U.S. diet has remained about constant for the past 70 years, in fact; our national fat consumption has increased since 1914 only because our consumption of fat from vegetable sources has tripled.)

Like cattle, fed lambs today have about 6% less body fat than their counterparts of three decades ago.

Veal, of course, long has been leaner than beef, pork or lamb.

This all adds up to leaner meat going into the food supply.

Probably the main reason for today's consumer demand for streamlined meat that tastes as good as we've come to expect but with more lean meat per serving is the prevalence of health warnings about fat intake. The American Heart Association (AHA), the National Cancer Institute (NCI) and other health organizations have come out strongly in favor of efforts to encourage the public to limit its fat intake.

A number of studies over the years have convinced the leadership of these important national groups that there is something about the fat we eat that contributes to the risk of heart disease and cancer. Being overweight may be a contributor to both of these health problems, most agree, and eating too much of any food can put on extra pounds.
However, it's the fat itself that most recommendations have focused on. Today these organizations generally recommend the AHA's "Prudent Diet" levels of fat consumption.

In its Prudent Diet, the AHA recommends that we get no more than 30% of our daily calories from fat. Of that 30%, says the Heart Association, less than one-third should come from saturated fat.

Saturated fatty acids are chemically complex structures contained in most edible fats. Despite their complexity, fatty acids have been spoken of so often as either "saturated fats" or "unsaturated fats" that this has become a convenient shorthand way to discuss fats in the diet.

The fat in cooked beef lean, for example, is about 39% saturated. In pork, about 34% is saturated; in lamb, 34%, and in veal about 24% of the fat is saturated. In roast chicken with the skin removed, 28% of the fat is saturated. The figure for roast turkey, skin off, is 33%.

Using figures like these, we can begin to understand how the AHA recommendations can be applied to a real-world diet.

Suppose an individual decides to consume 2,000 calories a day, in all the food he or she eats. That probably would amount to a moderate weight-loss diet for most American men, and would be a maintenance diet for most active women already at their appropriate weight.

According to the Heart Association, no more than 30% of daily calories should come from fat. The 2,000-calorie-per-day consumer, at that rate, is limited to a maximum of 600 calories'
Graph 1

Total calories per 3-oz. cooked, trimmed serving of beef, pork, lamb and veal. How many of those calories come from fat? How many come from saturated fat?

<table>
<thead>
<tr>
<th></th>
<th>Total Calories</th>
<th>Calories From Fat</th>
<th>Calories From Saturated Fat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td>189</td>
<td>78 (8.7g)</td>
<td>31 (3.4g)</td>
</tr>
<tr>
<td>Pork</td>
<td>198</td>
<td>100 (11.1g)</td>
<td>34 (3.8g)</td>
</tr>
<tr>
<td>Lamb</td>
<td>176</td>
<td>73 (8.1g)</td>
<td>24 (2.7g)</td>
</tr>
<tr>
<td>Veal</td>
<td>156</td>
<td>43 (4.7g)</td>
<td>10 (1.1g)</td>
</tr>
</tbody>
</table>

worth of fat per day. The AHA says less than one-third of these fat calories should come from saturated fat. One-third of 600 is 200.

This is our hypothetical consumer's AHA daily maximum: 600 calories from fat, 200 of which are from saturated fat. His AHA magic numbers are 600 and 200—and the beef, pork, lamb and veal for sale in the consumer's neighborhood supermarket or butcher shop can be a part of the magic.

In addition to the AHA advice, of course, the consumer has been told by most nutritionists that he (or she) should eat two servings from the meat group per day, each serving about 2 or 3 oz., cooked weight. Finally, he's been told to trim the fat from the meat he eats, and to remove the skin from chicken and turkey.

After all this advice, the information in Graph 1 about today's leaner meat and how it fits into the AHA Prudent Diet recommendations may come as a welcome surprise.

The servings of the meats described throughout this booklet represent cooked 3-oz. composites of all retail meat cuts, both the leaner cuts and the less lean, with visible fat removed. This makes it all the more surprising to learn that:

• A 3-oz. serving of cooked beef lean with the fat trimmed gets only 78 of its calories from fat, and only 30 of these come from saturated fat;
• The same amount of cooked pork lean gets only 100 calories from fat, just 34 of which come from saturated fat;
• Cooked, trimmed lamb contains only 73 calories' worth of total fat, 24 of them (just one-third) in saturated fat;
• 3 oz. cooked, trimmed veal gets just 43 of its 156 total calories from fat—and only 10 of these calories come from saturated fatty acids.

If the numbers on today's leaner meats aren't surprising enough in themselves, a look back at our 2,000-calorie diet should complete the picture.
When worked over by the AHA 30%-10% limits on fat, remember, that diet yielded a daily maximum of 600 calories from fat, fewer than 200 of which came from saturated fat.

Keeping an eye on the AHA fat-intake limits of 600/200 for a moderate daily calorie intake, the amounts of fat and saturated fat contained in the composite servings of meat take on a new importance:

**Graph 2**

Dietary fat. If a 2000-calorie diet may contain no more than 600 calories from total fat and fewer than 200 calories from saturated fatty acids, how many of those calories would be supplied by one 3-oz. serving of beef, pork, lamb or veal?

Data sources: See Graph 1.
One 3-oz. serving of cooked, trimmed beef thus contains less than one-seventh of this consumer's recommended intake of fat, according to the American Heart Association standard.

A serving of cooked lean pork contains only one-sixth of his total fat limit.

The same amount of lamb contains less than one-eighth of the consumer's daily limit on saturated fat.

And to exceed his total-fat intake by eating veal, he would have to eat nearly 14 servings per day—or exactly 20 servings to exceed his saturated-fat limit.

Obviously, a moderate intake of beef, pork, lamb and veal fits well within the recommendations on limiting fat consumption published by today's major health organizations.

Another warning we've heard a lot about is reducing our daily intake of cholesterol. *Dietary* cholesterol is cholesterol we eat; it's important not to confuse that with the *serum* or *blood* cholesterol circulating within our bodies and measured, not in milligrams alone, but in milligrams per deciliter (one-tenth of a liter) of our blood.

That is, the cholesterol we eat is an amount of something, the way miles are an amount of distance; the cholesterol in our blood is a ratio, like miles per gallon.

It might not be easy to keep the two straight, but it's worth it. Even a little confusion about these two different scientific uses of the term "cholesterol" can lead to a lot of misunderstanding of the health advice we hear every day.

For example, most health organizations in America today, following the lead of the American Heart Association's Prudent Diet, tell us that we shouldn't eat more than 300 milligrams (mg) of cholesterol in an average day. Cholesterol we eat is *dietary* cholesterol.

But the national average *serum* cholesterol in this country is a little over 200 milligrams per deciliter (mg/dL) of blood for middle-aged males, somewhat less for women. If the figure 300 in the AHA Prudent Diet recommendation were
mistakenly substituted for national average serum cholesterol figure, the error would be very large.

Five miles is not a particularly great distance. But if you were to drive that far and find your car had been getting five miles per gallon, you probably would not be satisfied with that ratio.

In other words, your doctor might be satisfied if you eat 300 milligrams of cholesterol per day. If you contain 300 milligrams per deciliter of blood, he probably will not be satisfied at all.

With that 300-mg daily limit on our cholesterol intake in mind, another welcome surprise is in store. This time, look at Graph 3.

An average serving of beef contains only 76 mg of cholesterol, or about one-fourth of the daily upper limit. Pork at 79 mg and lamb at 78 mg are virtually the same. Veal is higher, at 128 mg...

...But the surprise is that many foods we tend to think of as containing less cholesterol than red meat are not that much different. In fact, it’s the similarities that are most striking. Laboratory methods for analyzing the cholesterol content of foods are not precise, but we know that the following foods all contain 70-80 mg of cholesterol per 3-oz. serving: Roast chicken, skin off, contains 76 mg of cholesterol per serving. So does 3 oz. of cooked beef lean with the fat trimmed. Roast chicken dark meat, at 79 mg, matches pork exactly.

Flounder (actually a number of species of flatfish, including sole, according to U.S. Department of Agriculture nutritionists) is much lower, at 58 mg. Skinless turkey dark meat, at 72 mg, is closer to beef and pork, and turkey light meat again is a lot lower, at 59 mg.

The interesting thing to note is the size of most of the differences. Except for the three most variant foods—veal, turkey light meat and flounder—the spaces between the different foods amount only to about 1% or 2% of the 300 mg daily limit, or less.
Graph 3

Dietary cholesterol. If a maximum cholesterol intake is 300 milligrams per day, how much of that upper limit is provided by 3-oz. servings of beef, pork, lamb, veal, chicken, turkey and flounder?

300 milligrams maximum daily cholesterol intake

Beef, pork, lamb and veal sources: See Graph 1.
While veal’s cholesterol content is higher than that of beef or chicken, a glance back at the fat-content graph immediately puts veal comfortably back into the overall health picture.

That is, chicken and beef do contain about 41% less cholesterol than veal. But veal contains about 42% less fat than beef—and, another big surprise, veal also contains about 25% less fat and 35% less saturated fat than roast chicken, skin off.

**Moderate servings of today’s leaner**

beef, pork, lamb and veal contribute impressive amounts of many of the nutrients we need for health. The National Academy of Sciences publishes a list of “Recommended Daily Dietary

Meat is higher in many nutrients than it is in calories

Allowances” (RDA) for a number of essential nutrients, recommending different levels of intake for different age and sex groups. Based on these RDA, the Food and Drug Administration has established “U.S. Recommended Dietary Allowances” (U.S. RDA) for certain nutrients.

The U.S. RDA haven’t changed since 1968, but the National Academy of Sciences updates the RDA regularly (typically every five years). For the nutrients we’ll discuss, the U.S. RDA are as high as or higher than the most demanding current RDA.

Putting together what we now know about the fat content of meat with what nutritionists know about the vitamins, minerals and protein it has always contained, we come up with what nutritionists and dietitians call a “nutrient dense” package.

The term is used to describe a food which provides a greater share of the U.S. RDA (or, in other contexts, the RDA) for at least four essen-
tial nutrients than it provides in calories. Meat is nutrient dense in more than four essential nutrients, as shown in Graph 4.

**Based on** the U.S. RDA, Graph 4 shows some of the nutrients we get in a single 3-oz. serving of cooked, trimmed beef, pork, lamb and veal. The graph also shows the content of the same nutrients in the same size servings of roast chicken light meat and roast turkey light meat with the skin removed, chosen because these foods so often are selected by dieters as low in fat.

One 3-oz. serving of each of these foods contributes less than 10% of a 2,000-calorie daily diet. Nutrient density enters the picture when we see how much good nutrition red meat has to offer for that low contribution to daily calories. Wherever one of the vertical bars is higher than the "10%" line near the bottom of the graph, that food provides more than 10% of the U.S. RDA for that nutrient, while providing less than 10% of the calories in a 2,000-calorie diet.

A single 3-oz. serving of lamb provides 37% of the U.S. RDA for vitamin B-12, for instance. Because it contains less than 10% of the 2,000-calorie daily intake, this means it provides at least 3.7 times as much of the daily vitamin B-12 requirement as it contributes toward the daily calories.

The same size serving of beef provides 38% of the U.S. RDA for vitamin B-12 and 15% of the U.S. RDA for iron. (Most of the iron in beef and a large share of the iron in pork, lamb and veal is of the type called "heme iron," five to 10 times more available to the body than non-heme iron found in other foods. When meat is eaten along with other iron sources, it even increases the usability of non-heme iron, as long as the non-heme iron is consumed in the same meal as meat).

Pork is our best source of thiamin, and offers 39% of the U.S. RDA for this nutrient per 3-oz. serving. A 3-oz. serving of cooked veal contributes 31% of our daily requirement for zinc. Beef, pork, lamb and veal all are higher in niacin than they are in calories, as are the chicken and turkey light meat.
Graph 4

Nutrient density. What percent of the U.S. RDA for selected nutrients can be contributed to the diet by 3-oz. servings of foods which contribute less than 10% of a 2,000-calorie daily food intake?

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Beef</th>
<th>Pork</th>
<th>Lamb</th>
<th>Veal</th>
<th>Chicken Breast</th>
<th>Turkey Breast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niacin</td>
<td>53</td>
<td>38</td>
<td>29</td>
<td>27</td>
<td>22</td>
<td>18</td>
</tr>
<tr>
<td>Riboflavin</td>
<td>18</td>
<td>18</td>
<td>14</td>
<td>14</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Thiamin</td>
<td>39</td>
<td>38</td>
<td>37</td>
<td>36</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Vitamin B12</td>
<td>12</td>
<td>12</td>
<td>15</td>
<td>14</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Iron</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Zinc</td>
<td>40</td>
<td>40</td>
<td>31</td>
<td>31</td>
<td>31</td>
<td>31</td>
</tr>
</tbody>
</table>

Foods: Beef, pork, lamb and veal, composites of all retail cuts, cooked, fat trimmed; chicken and turkey light meat, both roasted, skin removed.

Data sources: See Graph 1 and Graph 3.
This is why today's leaner red meat is such a good nutrition buy. You get more nutrition for a lower "cost" in calories, calories from fat and calories from saturated fat than consumers got from the meat they bought 30 years ago—or 10 years ago.

But what about the consumer who wants to take further steps to reduce his or her fat intake, without reducing intake of essential nutrients? Meat already fits into the recommendations of most health authorities; can it fit into a diet designed to outdo the Prudent Diet?

In fact, it can fit with ease into almost any balanced diet for normally healthy people. All the consumer has to do is select leaner cuts. There are a number of retail cuts of beef, pork, lamb and veal (19 altogether, according to the USDA "Handbook 8" series on the nutrient content of foods) which offer fewer calories from fat than the composite of all retail cuts.

As we've seen, the cooked, trimmed composite cut of beef contains 78 calories in total fat per 3-oz. serving. The same size serving of many cuts of beef fall well below the composite's total.

Only 47 of the total 162 calories in a serving of top round steak—the leanest cut of beef—come from fat. In sirloin steak, fat contributes only 67 of the total 177 calories per 3-oz. serving. In all, four steaks commonly prepared by broiling, three braising-type cuts and two beef roasts contain less fat than the composite.

Broiled pork center loin chops contribute only 80 calories from fat per 3-oz. trimmed serving. In addition, four pork roasts fall below the composite in fat content.

The 3-oz. composite of lamb retail cuts provides 79 calories' worth of fat; but three of the seven cuts tested by USDA contain less fat than that composite serving contains.

Veal, consistently the leanest of all four meats, contains only 43 calories' worth of fat per composite 3-oz. cut—and two veal cuts contain even less. One of these, pan-fried cutlet, contains only 35 calories' worth of total fat. Less than a gram of this total fat is saturated, for a total of 7 calories from saturated fat in 3 oz. of pan-fried veal cutlet.
Going the recommendations one better: 19 retail cuts of beef, pork, lamb and veal that are lower in fat than the composites.

Graph 5
Nine beef cuts.

Data source: See Graph 1.
Graph 6

Five pork cuts.

Pork Composite: 100 Calories
From Fat

Data source: See Graph 1.

Graph 7

Three lamb cuts.

Lamb Composite: 73 Calories
From Fat

Data source: See Graph 1.
Individuals seeking to reduce their fat intake even further than is suggested in the Prudent Diet can use their knowledge of the fat content of different cuts of beef, pork, lamb and veal to keep these nutrient-dense foods as a valuable part of their daily diet. As a general rule, the nutrient profile of the lean in the cuts is approximately the same from cut to cut.

Nutritionists, physicians, dietitians and the professional groups which represent them work to keep the public informed about the relationships between diet and health. One of the relatively few factors all of these authorities and authoritative bodies almost always agree on is the importance of choosing a balanced diet from as wide a variety of foods as possible. All four basic food groups are important: the meat group, the cereals group (grains), the dairy group and the fruit and vegetable group.

Beef, pork, lamb, veal, chicken, turkey and fish all are included in the meat group by nutritionists. Each is a good source of a number of essential nutrients. The more we know about each food - strong points as well as weaknesses - the better able we’ll be to select the balanced and varied diet we hear so much about.

As a part of a diet designed for optimal health, today’s red meat is a better choice than ever before.