shoulder. This line should not be visible either from the front or the back when the garment is worn.

The underarm seam should be located directly under the high point of the shoulder and should appear to be a continuation of the shoulder seam. It should form a perpendicular line from the armpit to the floor.

The location of the armscye and the fitting of the set-in sleeve into the armscye are two very important steps in fitting a garment. The armhole when viewed from the front or the back should lie parallel to the center front and center back of the garment. It should pass over the tip or highest point of the shoulder. From the side it should show a good curve over the top of the shoulder.

A good set-in sleeve will allow sufficient distance from the top of the armhole to the underarm line to correspond with the distance between the tip of shoulder and the armpit. The set-in sleeve should have no fullness on the lower half of the armscye and seldom any gathering over the upper half. However, the sleeve edge always measures an inch or more longer than the edge of the armscye. This fullness is eased in by pushing the material in place with the thumb while basting and prevents uncomfortable and unsightly strain across the arm.

In order that the fitting process need not be repeated on every garment, a guide or foundation pattern should be made of firm unbleached muslin, gingham, or cambric of good quality. A simple dress pattern with a normal shoulder seam, high neck line, and set-in sleeves is the best type of pattern to use for this model. Almost any style of dress can be designed from it, and much time will be saved if it has been correctly fitted to the figure.

MAUDE CAMPBELL.

GRADING Animals and Meat to Show Quality What are the factors which make one piece of beef tender and another tough; one very juicy and another very dry; one pleasingly flavored and another tasteless and unsavory?

The livestock producer, the packer, the retailer, and especially the meat consumer are vitally interested in the answer to these questions. The consumer and retailer want to know how to tell the difference between a tough and a tender piece of meat before it is cooked, and the packer and producer want to know the characteristics in the live animal that will tell them the kind of beef that is under the hide.

The producer and packer have known in a general way that the blocky, thick-muscled, smoothly-finished steers, ranging in age between 1 and 3 years, usually produce the highest grade of beef. Meat dealers, both wholesalers and retailers, have learned that thick, blocky carcasses carrying a thick, even distribution of firm, creamy-white fat over the body; bright cherry-red color of well-marbled lean; and pinkish-white bones are likely to give greatest satisfaction when the meat gets on the consumer's plate. But the majority of consumers have not been able to distinguish the choice or prime from medium or common grade meat until the meat, already purchased and cooked, is eaten.

It has been rather well established that fat is one of the factors largely responsible for high quality in meat, but unfortunately the public often discriminates against it, in many instances for economic reasons.

The factors responsible for tenderness or lack of tenderness of fiber, the cherry or dark-red color of the lean, the white or yellow color and even or patchy distribution of fat, and the high flavor and juiciness of the meat or the lack of those characteristics seem to lie deeper and have not yet been fully determined. Doubtless there are many other factors which influence the quality and palatability of meat.

Investigations Under Way

To segregate these various factors and trace them back to ultimate causes in the live animal, its breeding and feeding, is a problem to which much attention is now being given by the Department of Agriculture and a large number of State agricultural colleges and experiment stations in cooperation with the National Livestock and Meat Board. During the latter part of 1925 a project having for its object the determination of the factors which make quality and palatability in meat was begun and continued throughout 1926.

The cattle used for the study are those in cattle-feeding experiments at the various State and Government experiment stations.

The cattle are graded when they are placed on feed, after they are finished and ready for slaughter, and finally in the carcass after slaughter. The grading committee of three consists of one from the State experiment stations, one from the Bureau of Animal Industry, and one from the Bureau of Agricultural Economics. A score card is used each time an animal is graded, so that each man makes a word picture of the way the animal appears to him from the standpoint of grade. In a few instances photographs have been taken at the time of grading. By grading at the beginning and end of the feeding period it is possible to note differences that take place in the outward appearance of the animal during the fattening process.

By such methods it is hoped to discover the characteristics in the feeder which under certain fixed feeding conditions will produce certain results, thereby enabling the producer to select more accurately the kind of animals he desires and know more definitely, in advance, the grade of beef he can produce.

The purpose of grading the carcasses after the cattle have been slaughtered is to determine the correlation between the various characteristics of the live animal and its carcass and to work out cause and effect relationships. Such grading also serves as a means of tracing the results of histological, chemical, and cooking tests back to the live animal.

Rib Cuts Sent to Washington

After the carcass grading, a good representative from each lot of animals receiving the same ration is selected for further study. A portion of the wholesale rib cut of this animal is sent to Washington, D. C., for physical and chemical examination and for cooking and palatability tests.

During the feeding season of 1925–26 about 900 animals were graded, and a still larger number were graded during the fall of 1926.

Cooking, chemical, and physical tests were made with more than 100 samples.

It is too early to draw positive conclusions but much is expected because of the combination of forces working on the problem. It is confidently expected that within a reasonable time we will know definitely what makes the T-bone steak tender or tough.

L. B. Burk.

Grain-Dust Explosions Cause Big Farm Loss

We are coming more and more to realize the need for the adoption of precautionary measures against dust explosions. Explosions in large industrial plants are particularly spectacular because of the heavy loss of life and extensive property damage, but the smaller explosions, far greater in number, represent an enormous loss in life and property.

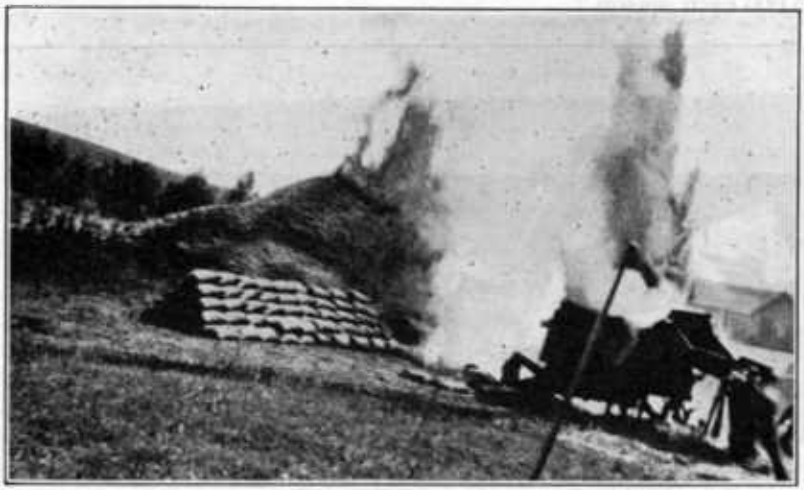

Fig. 107.—Dust explosion in a grain-threshing machine in eastern Washington. These explosions and fires have caused extensive losses to grain and machinery

Investigations by the Bureau of Chemistry have shown that practically all of the grain dusts are explosive when scattered as a cloud in the air and that the explosion hazard is present from the time the grain is cut in the field until it leaves the export terminal elevators. Many explosions have occurred during threshing, both in fields and in barns, in the small country elevators to which farmers deliver their grain, in the large elevators where grain is stored, and in the mills and industrial plants where grain is milled into flour, manufactured into starch, ground into feed, or made into any of the numerous cereal products now on the market. All that is necessary to produce an explosion is to have a cloud of the finely-pulverized product in suspension in air ignited by a spark, flame, or heated surface. A spark of static electricity is sufficient to ignite the dust cloud. A hot bearing on machinery can start a fire which may cause a dust explosion.

Dust explosions and fires in grain-threshing machines have been most frequent in the wheat-growing territory of eastern Washington